FAA
Aircraft Certification Service

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

SUBJ: Sandel Electronic Horizontal Situation Indicator SN3308 Heading Repeater Display Installations

SAIB: SW-08-38
Date: July 30, 2008

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) alerts owners and operators of Eurocopter Model BK-117C-1 helicopters of special airworthiness information related to the Sandel SN3308 Electronic Horizontal Situation Indicator (EHSI) that are configured as a heading repeater display. This SAIB specifically addresses SN3308 EHSIs which were installed in Eurocopter BK-117C-1 helicopters with an existing C-14 Honeywell compass system under field approvals. However, it may apply to any rotorcraft with SN3308 installed as a heading repeater display.

Background

If the SN3308 EHSI is installed as a gyro heading repeater display with a C-14 Honeywell Compass System, the SN3308 EHSI will blank the compass rose when manually slewing the compass in the free mode, making it difficult for the pilot to set the compass to a known heading.

The C-14 compass has slaved and free modes of operation. When operated in the slaved mode, the C-14 gyro is slaved to a heading relative to the magnetic heading reference as supplied by the flux valves and compensator. The flux valve detects the magnitude and direction of the earth's magnetic field and converts it to electrical information which is used to align the directional gyro to magnetic north. If the flux valves are subjected to an external magnetic field (e.g. nearby hospital with a magnetic resonance imaging system) that results in magnetic heading error, the pilot can select the free mode and manually slew the compass to a known heading. In the free mode, the magnetic heading information from the flux valve is disabled and no slaving is performed. The directional gyro provides compass information as a product of the position of the aircraft with reference to the position of the unslaved gyro. As no slaving is performed, the displayed heading information is subject to error as the result of free gyro drift.

The C-14 compass sets the heading flag invalid when manually slewing the compass with the manual decrement/increment switch. It also sets the heading flag invalid when the voltage to the directional gyro power supply is low or when there is improper wheel speed of the gyro spin motor. When the SN3308 EHSI, in a heading repeater configuration, receives the heading invalid flag, the compass rose disappears and "Heading Invalid" is displayed on the EHSI. Therefore, when the pilot uses the manual decrement/increment switch the heading rose blanks and it makes difficult for the pilot to increment or decrement the heading. After the pilot releases this manual decrement/increment switch, the compass rose reappears.

This SAIB can also apply to any rotorcraft with SN3308 installed as a heading repeater with a compass that flags heading invalid when manually slewing the compass.

Recommendations:

- For the SN3308 installations configured as a heading repeater with directional gyros that flag the heading as invalid when manual slewing the compass, install SN3308 software version 2.11 per Sandel Service Bulletin SB 3308-07, dated July 11, 2008, or latest revision to allow the continuous display of the compass rose in amber when manually slewing the compass.
- Installations that apply this service bulletin may also require a revision to the Aircraft Flight Manual Supplement (AFMS). A revision to the AFMS requires FAA approval. Refer to the SN3308 Navigation Display Installation Manual Document 90106-IM Revision J for suggested AFMS language.
- After updating the software, perform the Functional Ground Test Procedure in Appendix E of the SN3308 Navigation Display Installation Manual Document No. 90106-IM, Revision J.

For Further Information Contact

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For Related Service Information Contact

Sandel Avionics at http://www.sandel.com/SN3308_EHSI_sup_sb.php.