[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-0522; Directorate Identifier 2015-SW-068-AD]

RIN 2120-AA64

Airworthiness Directives; Northrop Grumman LITEF GmbH LCR-100 Attitude and Heading Reference System Units

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for Northrop Grumman LITEF GmbH LCR-100 Attitude and Heading Reference System (AHRS) units installed on various aircraft. This proposed AD would require removing certain LCR-100 AHRS units from service. This proposed AD is prompted by test results showing loss of or invalid data. The proposed actions are intended to prevent an unsafe condition on these products.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments by any of the following methods:

- Federal eRulemaking Docket: Go to http://www.regulations.gov. Follow the online instructions for sending your comments electronically.
- Fax: 202-493-2251.

- Mail: Send comments to the U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590-0001.

- Hand Delivery: Deliver to the "Mail" address between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Examining the AD Docket

You may examine the AD docket on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2017-0522; or in person at the Docket Operations Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the European Aviation Safety Agency (EASA) AD, the economic evaluation, any comments received, and other information. The street address for the Docket Operations Office (telephone 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

For service information identified in this proposed rule, contact Northrop Grumman LITEF GmbH, Customer Service – Commercial Avionics, Loerracher Str. 18, 79115 Freiburg, Germany; telephone +49 (761) 4901-142; fax +49 (761) 4901-773; email ahrs.support@ng-litef.de. You may review the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy, Room 6N-321, Fort Worth, TX 76177.

FOR FURTHER INFORMATION CONTACT: Nick Rediess, Aviation Safety Engineer, Boston Aircraft Certification Office, Engine & Propeller Directorate, 1200

District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7159; email nicholas.rediess@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to participate in this rulemaking by submitting written comments, data, or views. We also invite comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should send only one copy of written comments, or if comments are filed electronically, commenters should submit only one time.

We will file in the docket all comments that we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, we will consider all comments we receive on or before the closing date for comments. We will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. We may change this proposal in light of the comments we receive.

Discussion

We propose to adopt a new AD for Northrop Grumman LITEF GmbH LCR-100 AHRS units with a part number 145130-2000, 145130-2001, 145130-7000, 145130-7001, or 145130-7100. These units are installed on various airplanes and helicopters and are often used to supply attitude and heading data to Primary Flight Displays (PFDs),

autopilots, and other avionics. These units may be installed as part of a type-certificated design, an FAA supplemental type certificate, or a field approval. Northrop Grumman LITEF GmbH discovered the erroneous behavior of an AHRS unit during laboratory testing. The erroneous behavior occurs when the unit's continuous built-in test detects a failure and then does not correctly reset. When this occurs, the analog outputs of attitude and heading data freeze and the transmission of digital outputs of attitude and heading stops. The effect of the errors depends on how the AHRS unit outputs are used in a particular installation. For instance, if the AHRS unit analog outputs are used by a PFD without any automatic comparison with another source of data, the PFD will display misleading information, which could lead to loss of control of the aircraft. Other installations using the analog outputs might include an automatic comparison feature that detects and provides an alert if the attitude and heading data is frozen. A similar situation would occur in installations that use the digital outputs since the erroneous behavior would be detected. This proposed AD would only be applicable to installations of the AHRS units using analog outputs for the display of primary flight information or for input to an autopilot without automatic output comparison since these installations do not provide any warning indication of the erroneous behavior.

EASA, which is the Technical Agent for the Member States of the European Union, has issued EASA AD No. 2015-0093, dated May 27, 2015, to correct an unsafe condition for certain part-numbered Northrop Grumman LITEF GmbH LCR-100 AHRS units. EASA states these units are known to be installed on, but not limited to, Pilatus PC-12, Learjet 31A, Cessna 560XL, RUAG (Dornier) 228 series, and PZL Mielec M28 (Sky Truck) airplanes; and Bell Helicopter Textron, Inc., 412EP, Bell Helicopter Textron

Canada 407, and Sikorsky S-76C helicopters. EASA advises that laboratory tests of the AHRS units discovered that when the built-in test detects failures and resets the system, the units are not executing the system reset properly. According to EASA, this results in a freeze of analog attitude and heading output data without detection or warning to the pilot. EASA states that installations vary, but if there is no automatic comparison of analog output to detect unit failure, this condition, if not corrected, could lead to undetected attitude and heading errors, possibly resulting in loss of control of the aircraft.

This proposed AD would also affect AD 2010-26-09 (75 FR 81424, December 28, 2010), which applies to Sikorsky Model S-76A, B, and C helicopters with an AHRS unit P/N 145130-7100 installed. Since this proposed AD would require the removal of P/N 145130-7100, compliance with this AD would make AD 2010-26-09 no longer valid for those Sikorsky helicopters.

FAA's Determination

We are proposing this AD because we evaluated all known relevant information and determined that an unsafe condition exists and is likely to exist or develop on other products of this same type design.

Related Service Information

We reviewed Northrop Grumman LITEF GmbH Service Bulletin No. 145130-0017-845, Revision D, dated April 1, 2015 (SB 145130-0017-845). SB 145130-0017-845 specifies returning the applicable part numbered AHRS units to certain repair stations for modification. The modified AHRS units, which have new part numbers, have an additional watchdog circuit in the electronic board that eliminates frozen analog outputs and digital output interruptions.

Proposed AD Requirements

This proposed AD would require removing certain part-numbered LCR-100 AHRS units that use analog outputs for primary flight information display or autopilot functions without automatic output comparison from service. This proposed AD would also prohibit installing those LCR-100 AHRS units on any aircraft.

Differences between this Proposed AD and the EASA AD

This proposed AD would only apply to certain part-numbered AHRS units that use analog outputs for primary flight information display or autopilot functions without automatic output comparison. The EASA AD applies to all of these part-numbered units regardless of the type of installation. The EASA AD requires inserting a temporary revision into the flight manual for analog without automatic output comparison installations until the AHRS unit is replaced with a modified unit. This proposed AD would not require temporarily revising the flight manual. The EASA AD requires replacing the AHRS units with particular part-numbered modified units, while this proposed AD would require removing the AHRS units from service instead.

Costs of Compliance

We estimate that this proposed AD would affect 50 aircraft of U.S. Registry. We estimate that operators may incur the following costs in order to comply with this AD. Labor costs are estimated at $85 per work-hour, and typical installations consist of two AHRS units. Replacing two AHRS units would take about 4 work-hours and $62,630 for required parts, for a total cost of $62,970 per aircraft and $3,148,500 for the U.S. fleet.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on

aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed, I certify this proposed regulation:

1. Is not a "significant regulatory action" under Executive Order 12866;

2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);

3. Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction; and

4. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared an economic evaluation of the estimated costs to comply with this proposed AD and placed it in the AD docket.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

Northrop Grumman LITEF GmbH LCR-100 Attitude and Heading Reference System: Docket No. FAA-2017-0522; Directorate Identifier 2015-SW-068-AD.

(a) Applicability

This AD applies to airplanes and helicopters, certificated in any category, with a Northrop Grumman LITEF GmbH LCR-100 Attitude and Heading Reference System (AHRS) unit part number (P/N) 145130-2000, 145130-2001, 145130-7000, 145130

-7001, or 145130-7100 installed using analog outputs for primary flight information display or autopilot functions without automatic output comparison. Aircraft known to have the subject AHRS units installed include but are not limited to the following:

(1) Dornier Luftfahrt GmbH Model 228-100, 228-101, 228-200, 228-201, 228-202, and 228-212 airplanes;

(2) Learjet Inc. Model 31A airplanes;

(3) Pilatus Aircraft Ltd. Model PC12, PC-12/45, and PC-12/47 airplanes;

(4) Polskie Zaklady Lotnicze Sp. z o.o. Model PZL M28 05 airplanes;

(5) Textron Aviation Inc. (type certificate previously held by Cessna Aircraft Company) Model 560XL airplanes;

(6) Bell Helicopter Textron Canada Limited Model 407 helicopters;

(7) Bell Helicopter Textron Inc. Model 412 and 412EP helicopters; and

(8) Sikorsky Aircraft Corporation Model S-76A, S-76-B, and S-76C helicopters.

(b) Unsafe Condition

This AD defines the unsafe condition as the AHRS unit's analog outputs of attitude and heading data freezing without detection or warning. This condition could result in misleading attitude and heading information, anomalous autopilot behavior, and loss of control of the aircraft.

(c) Affected ADs

This AD affects AD 2010-26-09, Amendment 39-16548 (75 FR 81424, December 28, 2010). Accomplishing a certain requirement of this AD terminates the requirements of AD 2010-26-09.

(d) Comments Due Date

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(e) Compliance

You are responsible for performing each action required by this AD within the specified compliance time unless it has already been accomplished prior to that time.

(f) Required Actions

(1) Within 25 hours time-in-service (TIS), remove the AHRS unit from service.

(2) Removal from service of P/N 145130-7100 terminates the requirements of AD 2010-26-09 (75 FR 81424, December 28, 2010).

(3) Do not install an AHRS unit P/N 145130-2000, 145130-2001, 145130-7000, 145130-7001, or 145130-7100 on any aircraft.

(g) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Boston Aircraft Certification Office, FAA, may approve AMOCs for this AD. Send your proposal to: Nick Rediess, Aviation Safety Engineer, Boston Aircraft Certification Office, Engine & Propeller Directorate, 1200 District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7159; email nicholas.rediess@faa.gov.

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, we suggest that you notify your principal inspector, or lacking a principal inspector, the manager of the local flight standards district office or certificate holding district office before operating any aircraft complying with this AD through an AMOC.

(h) Additional Information

(1) Northrop Grumman LITEF GmbH Service Bulletin No. 145130-0017-845, Revision D, dated April 1, 2015, which is not incorporated by reference, contains additional information about the subject of this AD. For service information identified in this AD, contact Northrop Grumman LITEF GmbH, Customer Service – Commercial Avionics, Loerracher Str. 18, 79115 Freiburg, Germany; telephone +49 (761) 4901-142; fax +49 (761) 4901-773; email ahrs.support@ng-litef.de. You may review the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy, Room 6N-321, Fort Worth, TX 76177.

(2) The subject of this AD is addressed in European Aviation Safety Agency (EASA) AD No. 2015-0093, dated May 27, 2015. You may view the EASA AD on the Internet at http://www.regulations.gov in the AD Docket.

(i) Subject

Joint Aircraft Service Component (JASC) Code: 3420, Attitude and Directional Data System.

Issued in Fort Worth, Texas, on May 19, 2017.

Scott A. Horn,

Acting Manager, Rotorcraft Directorate,
Aircraft Certification Service.

[FR Doc. 2017-11132 Filed: 6/2/2017 8:45 am; Publication Date: 6/5/2017]