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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2015-0165; Directorate Identifier 2015-NE-02-AD; Amendment 39-18212; AD 2015-15-03]**

**RIN 2120-AA64**

#### **Airworthiness Directives; General Electric Company Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for all General Electric Company (GE) GEnx turbofan engine models. This AD was prompted by reports of GEnx-1B and GEnx-2B engines experiencing power loss in ice crystal icing (ICI) conditions. This AD precludes the use of full authority digital engine control (FADEC) software, version B175 or earlier, in GEnx-1B engines, and the use of FADEC software, version C065 or earlier, in GEnx-2B engines. We are issuing this AD to prevent engine failure, loss of thrust control, and damage to the airplane.

**DATES:** This AD is effective August 24, 2015.

**ADDRESSES:** For service information identified in this AD, contact General Electric Company, GE Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215; phone: 513-552-3272; email: geae.aoc@ge.com. You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7125.

#### **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-2015-0165; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Christopher McGuire, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7120; fax: 781-238-7199; email: chris.mcguire@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all General Electric Company (GE) GENx turbofan engine models. The NPRM published in the Federal Register on March 17, 2015 (80 FR 13797). The NPRM was prompted by reports of GENx-1B and GENx-2B engines experiencing power loss in ICI conditions. The NPRM proposed to preclude the use of FADEC software, version B175 or earlier, in GENx-1B engines, and the use of FADEC software, version C065 or earlier, in GENx-2B engines. We are issuing this AD to correct the unsafe condition on these products.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA's response to each comment.

#### **Request To Delay Issuance of AD**

United Airlines (United) commented that this AD should not be issued until after GENx-1B FADEC software version B185 is released. United noted that software version B185 will provide a greater level of protection from damage to the engine due to ice crystal icing. United indicated that the proposed AD would allow engines to operate with FADEC software versions B178 and B180, which do not provide the protection of software version B185.

We do not agree. We find that precluding use of FADEC software version B175 or earlier provides an adequate level of safety for inadvertent encounters in ICI environments. We did not change this AD.

#### **Request To Withdraw AD and Supersede Another AD**

United requested that we withdraw the proposed rule and, instead supersede AD 2013-24-01 (78 FR 70851, November 27, 2013), which requires revising the airplane flight manual for Model 747-8 and 747-8F series airplanes and Model 787-8 airplanes powered by GENx engines.

We do not agree. Our AD addresses the susceptibility of GENx engines when operating inadvertently in ICI conditions. AD 2013-24-01 (78 FR 70851, November 27, 2013) is setting operational limitations on Boeing Model 747-8, 747-8F, and 787-8 airplanes equipped with GENx engines. The ADs have different purposes, and superseding AD 2013-24-01 is outside the scope of this AD. We did not withdraw this AD.

#### **Support for the NPRM**

The Boeing Company and the General Electric Company expressed support for the proposed rule.

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD as proposed.

## **Costs of Compliance**

We estimate that this AD affects 80 engines installed on airplanes of U.S. registry. We also estimate that it will take about 1 hour per engine to comply with this AD. The average labor rate is \$85 per hour. No parts are required. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$6,800.

## **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**

This AD will not have federalism implications under Executive Order 13132. This AD will 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 above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under 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.

## **List of Subjects in 14 CFR Part 39**

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

## **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 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):



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**2015-15-03 General Electric Company:** Amendment 39-18212; Docket No. FAA-2015-0165; Directorate Identifier 2015-NE-02-AD.

**(a) Effective Date**

This AD is effective August 24, 2015.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to all General Electric Company (GE) GENx-1B model turbofan engines with full authority digital engine control (FADEC) software version B175 or earlier, installed, and GENx-2B model turbofan engines with FADEC software version C065 or earlier, installed.

**(d) Unsafe Condition**

This AD was prompted by reports of GENx-1B and GENx-2B engines experiencing power loss in ice crystal icing (ICI) conditions. We are issuing this AD to prevent engine failure, loss of thrust control, and damage to the airplane.

**(e) Compliance**

Comply with this AD within the compliance times specified, unless already done.

(1) Thirty days after the effective date of this AD, do not operate any GE GENx-1B engine with FADEC software version B175 or earlier, installed in the electronic engine control (EEC).

(2) Thirty days after the effective date of this AD, do not operate any GE GENx-2B engine with FADEC software version C065 or earlier, installed in the EEC.

**(f) Alternative Methods of Compliance (AMOCs)**

The Manager, Engine Certification Office, FAA, may approve AMOCs to this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

**(g) Related Information**

(1) For more information about this AD, contact Christopher McGuire, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7120; fax: 781-238-7199; email: [chris.mcguire@faa.gov](mailto:chris.mcguire@faa.gov).

(2) GE GENx-1B Service Bulletin (SB) No. 73-0036 R00, dated January 6, 2015, and GE GENx-2B SB No. 73-0035 R00, dated September 16, 2014, which are not incorporated by reference in this AD, can be obtained from GE using the contact information in paragraph (g)(3) of this AD.

(3) For service information identified in this proposed AD, contact General Electric Company, GE Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215; phone: 513-552-3272; email: geae.aoc@ge.com.

(4) You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

**(h) Material Incorporated by Reference**

None.

Issued in Burlington, Massachusetts, on July 13, 2015.

Carlos A. Pestana,  
Acting Directorate Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.