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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2005-21238; Directorate Identifier 2005-NE-12-AD; Amendment 39-15159; AD 2007-17-01]

RIN 2120-AA64

Airworthiness Directives; General Electric (GE) CF6-80E1 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule; request for comments.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) for General Electric (GE) CF6-80E1 series turbofan engines. That AD currently requires removing electronic control unit (ECU) software version E.1.M. or earlier installed software, and installing improved software for the ECU. This AD requires removing software version E.1.N or earlier from the engine ECU. Engines with the new version software will have increased margin to flameout. This AD results from reports of engine flameout events during flight, including reports of events where all engines simultaneously experienced a flameout or other adverse operation. Although the root cause investigation is not yet complete, we believe that exposure to ice crystals during flight is associated with these flameout events. We are issuing this AD to minimize the potential of an all-engine flameout event caused by ice accretion and shedding during flight.

DATES: Effective August 29, 2007.

We must receive any comments on this AD by October 15, 2007.

ADDRESSES: Use one of the following addresses to comment on this AD.

- DOT Docket Web site: Go to <http://dms.dot.gov> and follow the instructions for sending your comments electronically.
- Government-wide rulemaking Web site: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: (202) 493-2251.

Contact General Electric Company via Lockheed Martin Technology Services, 10525 Chester Road, Suite C, Cincinnati, Ohio 45215, telephone (513) 672-8400, fax (513) 672-8422, for the service information identified in this AD.

FOR FURTHER INFORMATION CONTACT: John Golinski, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: john.golinski@faa.gov; telephone: (781) 238-7135, fax: (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA amends 14 CFR part 39 by superseding AD 2005-10-16, Amendment 39-14093 (70 FR 28806, May 19, 2005). That AD requires improved software version E.1.N to be installed into the ECU. That AD was the result of an uncommanded engine acceleration event caused by a failure of the ECU digital interface unit. That condition, if not corrected, could result in an undetected failure of the ECU digital interface unit, leading to uncommanded acceleration to the overspeed limit without response to throttle commands. The airplane could then experience asymmetric thrust.

Actions Since AD 2005-10-16 Was Issued

Since AD 2005-10-16 was issued, GE CF6-80E1 and CF6-80C2 series turbofan engines continue to experience flameout events that are due to ice accretion and shedding into the engine during flight. Although the investigation is not yet complete, we believe that the ice accretion is caused by exposure to ice crystals during flight. Industry reports 35 airplane flameout events, including reports of multi-engine events where all engines on the airplane simultaneously experienced a flameout. Some of these events had high pressure compressor blade damage that may have been caused by impact with shedding ice. In all events, the engines restarted and continued to operate normally for the remainder of the flight.

This AD addresses only the CF6-80E1 series turbofan engines, installed on Airbus Industrie A330 series airplanes. We believe the CF6-80E1 series turbofan engines are susceptible to flameouts caused by ice accretion and shedding into the engine during flight. Similar AD actions for CF6-80C2 series engines may be forthcoming.

We view an all-engine flameout event as an unsafe condition particularly for low-altitude events, or other factors that might result in the inability to restart the engines and regain control of the airplane. Since some aspects of this problem are not completely understood, this proposed AD is considered an interim action due to GE's on-going investigation. Future AD action might become necessary based on the results of the investigation and field experience. This condition of insufficient margin to engine flameout due to ice accretion and shedding during flight, if not addressed, could result in an all-engine flameout event during flight.

Relevant Service Information

We have reviewed and approved the technical contents of GE Service Bulletin (SB) No. CF6-80E1 S/B 73-0091, Revision 1, dated June 26, 2007. That SB describes procedures for removing certain software versions from the ECU, and installing a software version that is FAA-approved. The new FAA-approved software version described in the SB modifies the variable bleed valve schedule, which will provide an increased margin to flameout. This increased margin is expected to reduce the rate of flameout occurrences due to ice accretion and shedding during flight. The new FAA-approved software version incorporates the software improvements required by AD 2005-10-16, which prevent failure of the ECU digital interface unit.

FAA's Determination and Requirements of This AD

Although no airplanes that are registered in the United States use these CF6-80E1 series turbofan engines, the possibility exists that the engines could be used on airplanes that are registered in the United States in the future. The unsafe condition described previously is likely to exist or develop on other CF6-80E1 series turbofan engines of the same type design. We are issuing this AD to minimize the potential of an all-engine flameout event caused by ice accretion and shedding during flight. This AD requires removing certain software versions from the engine ECU.

FAA's Determination of the Effective Date

Since there are currently no domestic operators of this engine model, notice and opportunity for public comment before issuing this AD are unnecessary. A situation exists that allows the immediate adoption of this regulation.

Interim Action

These actions are interim actions due to the on-going investigation. We may take further rulemaking actions in the future, based on the results of the investigation and field experience.

Comments Invited

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to send us any written relevant data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "AD Docket No. FAA-2005-21238; Directorate Identifier 2005-NE-12-AD" in the subject line of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify it.

We will post all comments we receive, without change, to <http://dms.dot.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of the DMS Web site, anyone can find and read the comments in any of our dockets, including the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78) or you may visit <http://dms.dot.gov>.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://dms.dot.gov>; 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 AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

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 have determined that 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 the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
3. 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 a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Under the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (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 removing Amendment 39-14093 (70 FR 28806, May 19, 2005), and by adding a new airworthiness directive, Amendment 39-15159, to read as follows:



2007-17-01 General Electric Company: Amendment 39-15159. Docket No. FAA-2005-21238; Directorate Identifier 2005-NE-12-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective August 29, 2007.

Affected ADs

(b) This AD supersedes AD 2005-10-16.

Applicability

(c) This AD applies to General Electric Company (GE) CF6-80E1A1, CF6-80E1A2, CF6-80E1A3, CF6-80E1A4, and CF6-80E1A4/B turbofan engines, installed on Airbus Industrie A330 series airplanes.

Unsafe Condition

(d) This AD results from reports of engine flameout events during flight, including reports of events where all engines simultaneously experienced a flameout or other adverse operation. We are issuing this AD to minimize the potential of an all-engine flameout event caused by ice accretion and shedding during flight. Exposure to ice crystals during flight is believed to be associated with these flameout events.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

Interim Action

(f) These actions are interim actions due to the on-going investigation, and we may take further rulemaking actions in the future based on the results of the investigation and field experience.

Engine Electronic Control Unit (ECU) Software Removal

(g) Before January 31, 2008, remove the following software versions from the ECUs:

Table 1 – Removal of ECU Software Versions

Software Version	Installed in ECU Part Number
(1) E.1.D	1799M99P01
(2) E.1.F	1799M99P03
(3) E.1.G	1799M99P04
(4) E.1.H	1799M99P05
(5) E.1.I	1799M99P06, 1799M99P07, 1851M74P01, 1851M80P01
(6) E.1.J	1799M99P08, 1799M99P09, 1851M74P02, 1851M80P02
(7) E.1.K	1799M99P10, 1851M74P03, 1851M80P03, 1960M84P01
(8) E.1.L	1799M99P11, 1851M74P04, 1851M80P04, 1960M84P02
(9) E.1.M	1799M99P12, 1851M74P05, 1851M80P05, 1960M84P03
(10) E.1.N	1799M99P13, 1851M74P06, 1851M80P06, 1960M84P04, 2043M29P01, 2043M29P02

Previous Software Versions of ECU Software

(h) Until January 31, 2008, once an ECU containing a software version not listed in Table 1 of this AD is installed on an engine, that ECU can be replaced with an ECU containing a previous version of software listed in Table 1.

(i) Once the software version listed in Table 1 of this AD has been removed and new FAA-approved software version is installed in an ECU, reverting to those older software versions in that ECU is prohibited.

(j) After January 31, 2008, use of an ECU with a software version listed in Table 1 of this AD is prohibited.

Alternative Methods of Compliance

(k) The Manager, Engine Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Special Flight Permits

(l) Special flight permits are not authorized.

Related Information

(m) Information on removing ECU software and installing new software, which provides increased margin to flameout, can be found in GE Service Bulletin No. CF6-80E1 S/B 73-0091, Revision 1, dated June 26, 2007.

(n) Contact John Golinski, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: john.golinski@faa.gov; telephone: (781) 238-7135, fax: (781) 238-7199, for more information about this AD.

Issued in Burlington, Massachusetts, on August 6, 2007.

Francis A. Favara,

Manager, Engine and Propeller Directorate, Aircraft Certification Service.

[FR Doc. E7-15701 Filed 8-13-07; 8:45 am]