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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2008-1025; Directorate Identifier 2008-NE-31-AD; Amendment 39-15862; AD 2009-07-03]

RIN 2120-AA64

Airworthiness Directives; General Electric Company CF6-80C2 and CF6-80E1 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for General Electric Company (GE) CF6-80C2 and CF6-80E1 series turbofan engines with high-pressure compressor rotor (HPCR) spool shaft stage 14 disks, part number (P/N) 1703M49G02, 1703M49G03, or 1509M71G10 installed. This AD requires a one-time eddy current inspection (ECI) of the HPCR spool shaft stage 14 disk web for crack indications, and removing from service any parts with web cracks. This AD results from reports of 12 HPCR spool shaft stage 14 disks with web cracks discovered to date. We are issuing this AD to prevent cracks from propagating to an uncontained failure of the disk and damage to the airplane.

DATES: This AD becomes effective April 30, 2009. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of April 30, 2009.

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

The Docket Operations office is located at Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.

FOR FURTHER INFORMATION CONTACT: Christopher Richards, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: christopher.j.richards@faa.gov; telephone (781) 238-7133; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to GE CF6-80C2 and CF6-80E1 series turbofan engines with HPCR spool shaft stage 14 disks, P/N 1703M49G02, 1703M49G03, or 1509M71G10 installed. We published the proposed AD in the Federal Register on November 26, 2008 (73 FR 71949). That action proposed to require a one-time ECI of the HPCR spool shaft stage 14 disk web for crack indications, and removing from service any parts with web cracks.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.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.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received.

Compliance Should Be at Next Engine Shop Visit

One commenter, Amiri Flight, states that the compliance should be at next engine shop visit and should not have a calendar time limit, which may require forced removal/shop visit of low-utilization engines.

We agree. The compliance in the proposed AD, and the AD, require inspection at next engine shop visit only. We did not change the AD.

Request To Correct the Boeing Airplane Models

One commenter, The Boeing Company, requests that we correct some of the minor models listed in the applicability section, and add a missing model. They state that for their airplanes, the AD should only list 747 and 767 models as-listed in the type certificate data sheet. We agree. We changed the AD to state "Boeing 747-200B/300/400/400D/400F, 767-200/300/400F/400ER and MD-11 airplanes".

Costs of Compliance Is the Cost of a Single Spool Replacement

One commenter, FedEx Express, states that it appears that the proposed AD costs of compliance total to U.S. operators of \$594,500, is inaccurate and might be the cost of a single spool replacement, rather than the accumulated total of the proposed action, if the estimate of 10 affected units is accurate.

We agree that the proposed AD total is inaccurate. We had a typo in the proposed AD costs of compliance. The total cost should have been \$5,594,500. We corrected the total in the final rule AD.

Conclusion

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

We estimate that this AD will affect 126 CF6-80C2 and CF6-80E1 series turbofan engines installed on airplanes of U.S. registry. We also estimate that it will take about 10 work-hours per engine to perform the inspection, and about 281 hours to complete the actions if done at module level, and that the average labor rate is \$80 per work-hour. The pro-rated cost of a HPCR stage 10-14 spool shaft, based on average life remaining on disks found cracked, is \$526,890. Using data on the percentage of the affected fleet already in compliance with the corrective actions, we estimate there will be 10 disks found cracked as a result of these inspections. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$5,594,500.

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 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, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration 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:



2009-07-03 General Electric Company: Amendment 39-15862. Docket No. FAA-2008-1025; Directorate Identifier 2008-NE-31-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective April 30, 2009.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to General Electric Company (GE) CF6-80C2 and CF6-80E1 series turbofan engines with high-pressure compressor rotor (HPCR) spool shaft stage 14 disks, part number (P/N) 1703M49G02, 1703M49G03, or 1509M71G10 installed. These engines are installed on, but not limited to, Airbus A300-600R/F, A310-200/300, and A330-200/300, and Boeing 747-200B/300/400/400D/400F, 767-200/300/400F/400ER, and MD-11 airplanes.

Unsafe Condition

(d) This AD results from reports of 12 cracked HPCR spool shaft stage 14 disk webs discovered to date. We are issuing this AD to prevent cracks from propagating to an uncontained failure of the disk and damage to the airplane.

Compliance

(e) You are responsible for having the actions required by this AD performed at the next engine shop visit where the separation of a major engine flange will occur after the effective date of this AD, unless the actions have already been done.

(f) For the purpose of this AD, introduction of an engine into a shop solely for the following maintenance actions is not considered an engine shop visit:

- (1) Removal of a compressor case for airfoil or variable stator vane bushing maintenance.
- (2) Removal or replacement of the stage 1 fan disk.
- (3) Replacement of the turbine rear frame.
- (4) Removal or replacement of the accessory and/or transfer gearbox.
- (5) Removal or replacement of the fan forward case.
- (6) Any combination of the maintenance actions listed above.

One-Time Eddy Current Inspection (ECI)

(g) Using the following Alert Service Bulletin (ASB) instructions, perform a one-time ECI of the HPCR spool shaft stage 14 disk web for crack indications, and remove from service those parts found to be cracked.

(1) Use paragraphs 3.B.(1) through 3.B.(5) of the Accomplishment Instructions of GE ASB No. CF6-80C2 S/B 72-A1122, Revision 1, dated June 19, 2006, to ECI the CF6-80C2 series engine HPCR spool shaft stage 14 disk web at the module level.

(2) Use paragraph 3.C.(1) of the Accomplishment Instructions of GE ASB No. CF6-80C2 S/B 72-A1122, Revision 1, dated June 19, 2006, to ECI the CF6-80C2 series engine HPCR spool shaft stage 14 disk web at the piece-part level.

(3) Use paragraphs 3.B.(1) through 3.B.(5) of the Accomplishment Instructions of GE ASB No. CF6-80E1 S/B 72-A0258, Revision 1, dated June 15, 2006, to ECI the CF6-80E1 series engine HPCR spool shaft stage 14 disk web at the module level.

(4) Use paragraph 3.C.(1) of the Accomplishment Instructions of GE ASB No. CF6-80E1 S/B 72-A0258, Revision 1, dated June 15, 2006, to ECI the HPCR spool shaft stage 14 disk web at the piece-part level.

Previous Credit

(h) Performance of a one-time ECI of the HPCR spool shaft stage 14 disk web for crack indications, done before the effective date of this AD and following the procedures defined in GE ASB No. CF6 80C2 S/B 72-A1122, dated January 19, 2004, for CF6-80C2 series engines or GE ASB No. CF6 80E1 S/B 72-A0258, dated January 19, 2004, for CF6-80E1 series engines satisfies the compliance requirements specified in this AD.

Alternative Methods of Compliance

(i) 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.

Related Information

(j) Contact Christopher Richards, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: christopher.j.richards@faa.gov; telephone (781) 238-7133; fax (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(k) You must use the service information specified in the following Table 1 to perform the one-time ECI required by this AD. The Director of the Federal Register approved the incorporation by reference of the documents listed in the following Table 1 in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. 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 a copy of this service information. You may review copies at the FAA, New England Region, 12 New England Executive Park, Burlington, MA; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Table 1 – Incorporation by Reference

GE Alert Service Bulletin No.	Page	Revision	Date
CF6-80C2 S/B 72-A1122	ALL	1	June 19, 2006
Total Pages: 57			
CF6-80E1 S/B 72-A0258	ALL	1	June 15, 2006
Total Pages: 57			

Issued in Burlington, Massachusetts, on March 18, 2009.

Thomas A. Boudreau,
Acting Manager, Engine and Propeller Directorate,
Aircraft Certification Service.