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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2007-0419; Directorate Identifier 2007-NE-52-AD; Amendment 39-15871; AD 2009-07-12]

RIN 2120-AA64

Airworthiness Directives; General Electric Company CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 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) CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 turbofan engines with high-pressure (HP) rotor 4-step air balance piston stationary seals (4-step seals), part numbers (P/Ns) 4923T54G01, 6019T90G03, 6037T99G01, 6037T99G02, and 6037T99G03, installed. This AD requires removing the 4-step seals and incorporating an 8-step seal at the next piece-part exposure. This AD results from the investigation of an airplane accident. Both engines experienced high-altitude flameout. Rotation of the HP rotors was not maintained during descent and the engines could not be restarted. We are issuing this AD to prevent the inability to restart both engines after flameout due to excessive friction of the 4-step seal, which could result in subsequent forced landing of the airplane.

DATES: This AD becomes effective May 7, 2009.

ADDRESSES: 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: Kenneth Steeves, Aerospace Engineer, Engine Certification Office, Engine and Propeller Directorate, FAA, 12 New England Executive Park, Burlington, MA 01803; e-mail: kenneth.steeves@faa.gov; telephone: (781) 238-7765; 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 CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 turbofan engines with HP rotor 4-step air balance piston stationary seals (4-step seals), P/Ns 4923T54G01,

6019T90G03, 6037T99G01, 6037T99G02, and 6037T99G03, installed. We published the proposed AD in the Federal Register on July 23, 2008 (73 FR 42725). That action proposed to require removing the 4-step seals and incorporating an 8-step seal at the next piece-part exposure.

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.

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

Request To Reword the Reason for Engine Modification

Air Wisconsin Airlines requests that the proposed AD be reworded to indicate that the desired reason for the engine modification is to enhance safety, and not as a result of the accident, as stated. Otherwise, the implication is that the CF34 engine does not meet the certification requirements, which, is inaccurate. The commenter also states that they believe the justification stated in the NPRM is a gross misrepresentation of the situation and events, which led up to the referenced accident. The commenter states that the failure of the engines to restart after the flameout event was a direct result of the flight crew failing to properly follow in-flight engine restart procedures. The commenter states that every engine is tested during the aircraft certification test flight process to ensure it meets the requirements of Federal Aviation Regulation 25.903.

We do not agree. The proposed AD does not state that the 4-step seal was the cause of the accident, but that the proposed AD resulted from the investigation of the accident. The investigation found that under certain high-power, high-altitude engine shutdown events, interference between the rotating and stationary portions of the 4-step air balance piston seal can develop. We did not change the AD.

Request To Clarify "Piece-Part Exposure" Definition

Air Wisconsin Airlines states that if the desire is to ensure engine modification at first exposure, then the requirement should indicate to accomplish the GE seal modification service bulletin at "piece-part-exposure". Piece-part exposure should be defined as "removal of the combustion liner" but no later than the first life-limited part shop visit, since this is when the HP turbine life-limited parts (and typically the combustion liner) are removed. The commenter also states that the proposed AD compliance requirements are not entirely clear. The air balance piston seal is a non-serialized part, which makes it difficult to track and manage the part. The commenter states that they have observed a maintenance and overhaul shop that overlooked a particular requirement to incorporate a modification, because of an interpretation of what "piece-part exposure" was.

We partially agree. We agree that the 4-step seal should be removed when the combustion liner is removed at piece-part exposure. We do not agree removal must be tied to the life-limited parts. We changed the piece-part exposure definition in the AD to state "For the purposes of this AD, piece-part exposure means when the 4-step seal is removed from the engine or when the combustion liner is removed."

Request To Change Incident Description Statement

GE requests that we change the incident description statement of "Both engines experienced high-altitude flameouts" which appears in the proposed AD Summary and Unsafe Condition, to "As a result of a high-altitude airplane stall and upset, both engines experienced high-power flameouts." The commenter states that this change is a more accurate representation of the event.

We do not agree. As we have said previously the proposed AD does not state that the 4-step seal caused the accident. GE found during the course of the investigation that under certain high-power, high-altitude engine shutdown events, interference between the rotating and stationary portions of the 4-step air balance piston seal can develop. We did not change the AD.

Request To Change the FAA's Reason for the AD Action

GE requests that we change the FAA's reason statement for the AD action, from "We are proposing this AD to prevent the inability to restart both engines after flameout due to excessive friction of the 4-step seal, which could result in subsequent forced landing of the airplane" to "We are proposing this AD to enhance the ability to restart an engine after flameout by reducing the friction in the 4-step seal, which could result in subsequent forced landing of the airplane." The commenter states that this change would be a more accurate representation and support the assessment that this is a very rare occurrence and the recommended actions are not prevalent as proven by the category level of the relevant service bulletins.

We do not agree. As already noted, the accident was not attributed to the friction of the 4-step seal. We have found an unsafe condition with the product. The proposed wording suggests the modification or replacement may not be adequate to address the inability to restart due to the friction. We did not change the 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 2,722 CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 turbofan engines installed on airplanes of U.S. registry. We estimate that approximately 2,450 engines with 4-step seals will incorporate the 8-step seal configuration at an overhaul shop visit at no additional cost. We estimate that approximately 272 engines with 4-step seals will require additional work to modify the seal insert to the 8-step seal configuration. We estimate that it will take about 5 work-hours per engine to perform the seal modification, and that the average labor rate is \$80 per work-hour. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$108,800.

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

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, 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:



2009-07-12 General Electric Company: Amendment 39-15871. Docket No. FAA-2007-0419; Directorate Identifier 2007-NE-52-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective May 7, 2009.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to General Electric Company (GE) CF34-1A, -3A, -3A1, -3A2, -3B, and -3B1 turbofan engines, with high-pressure (HP) rotor 4-step air balance piston stationary seals (4-step seals), part numbers (P/Ns) 4923T54G01, 6019T90G03, 6037T99G01, 6037T99G02, and 6037T99G03, installed. These engines are installed on, but not limited to, Bombardier, Inc. airplane models CL-600-2A12, -2B16, and -2B19.

Unsafe Condition

(d) This AD results from the investigation of an airplane accident. Both engines experienced high-power flameout. Rotation of the HP rotors was not maintained during descent and the engines could not be restarted. We are issuing this AD to prevent the inability to restart both engines after flameout due to excessive friction of the 4-step seal, which could result in subsequent forced landing of the airplane.

Compliance

(e) You are responsible for having the actions required by this AD performed at the next piece-part exposure after the effective date of this AD, unless the actions have already been done.

(f) Remove the 4-step seals, P/Ns 4923T54G01, 6019T90G03, 6037T99G01, 6037T99G02, and 6037T99G03.

(g) Incorporate an 8-step seal, either by modifying the existing 4-step seal to an 8-step seal, or by replacing it with an 8-step seal.

(h) Information on modifying the seal and part number configuration charts, can be found in GE Service Bulletin (SB) No. CF34-AL S/B 72-0238, dated July 27, 2007 (CL-600-2B19), and SB No. CF34-BJ S/B 72-0217, dated July 27, 2007 (CL-600-2A12 and CL-600-2B16).

Definition

(i) For the purposes of this AD, piece-part exposure means when the 4-step seal is removed from the engine or when the combustion liner is removed.

Alternative Methods of Compliance

(j) 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

(k) Contact Kenneth Steeves, Aerospace Engineer, Engine Certification Office, Engine and Propeller Directorate, FAA, 12 New England Executive Park, Burlington, MA 01803; e-mail: keneth.steeves@faa.gov; telephone: (781) 238-7765, fax: (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(l) None.

Issued in Burlington, Massachusetts, on March 26, 2009.
Peter A. White,
Assistant Manager, Engine and Propeller Directorate,
Aircraft Certification Service.