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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001-NE-32-AD; Amendment 39-12606; AD 2002-01-12]

RIN 2120-AA64

Airworthiness Directives; General Electric Company GE90 Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), that is applicable to General Electric Company (GE) GE90 series turbofan engines. This amendment requires removing from service high pressure turbine (HPT) interstage seals, identified by GE as the pre-life-improved rotor (pre-LIR) configuration, and installing a new design, identified by GE as the life improved rotor (LIR) configuration seal. This amendment also requires a new lower life limit for the LIR configuration seal. This amendment is prompted by an uncontained engine failure which occurred during a factory development engine ground test. The actions specified by this AD are intended to prevent failure of the HPT interstage seal that could result in an uncontained engine failure and damage to the airplane.

DATES: Effective date February 26, 2002.

ADDRESSES: This information may be examined, by appointment, at the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: John E. Golinski, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone: (781) 238-7135; fax: (781) 238-7199.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that is applicable to General Electric Company (GE) GE90 series turbofan engines was published in the Federal Register on September 27, 2001. That action proposed to require removing from service high pressure turbine (HPT) interstage seals,

identified by GE as the pre-life-improved rotor (pre-LIR) configuration, and installing a new design, identified by GE as the life improved rotor (LIR) configuration seal, and to require a new lower life limit for the LIR configuration seal.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comment received.

One commenter requests that paragraph (c) of the proposal be revised or deleted. Paragraph (c) proposed to prohibit the installation of HPT interstage seal P/N's 1711M20P08, 1711M20P14, 1711M20P16, and 1711M20P17 into any engine after the effective date of the AD. The commenter believes this requirement may result in an undue burden for lease pool engines since it would require the removal of an interstage seal that had considerable remaining life. The commenter believes there would be no unsafe condition in allowing continued operation of that seal up to the maximum number of cycles-since-new, or up to December 31, 2006, the end date stated in the proposal.

The FAA does not agree. The FAA believes the commenter's request is driven by the economic benefits that would be realized from commenter's lease pool engines. This pool of engines is a very small minority of the total GE90 engine fleet. If the commenter's request were adopted, however, the entire GE90 fleet would have no restrictions on the reuse of a pre-LIR HPT interstage seal, which is not the FAA's intent. The FAA believes that the minority of lease pool engines owned by the commenter can be addressed by the alternative methods of compliance process on a case-by-case basis if required.

After careful review of the available data, including the comment noted above, the FAA has determined that air safety and the public interest require the adoption of the rule as proposed.

Economic Analysis

There are approximately 232 GE90-76B, -77B, -85B, -90B, and -94B series turbofan engines of the affected design in the worldwide fleet. The FAA estimates that 36 engines installed on airplanes of U.S. registry, with one domestic operator, would be affected by this AD. The FAA estimates that the cost for replacing the pre-LIR HPT interstage seals is \$536,340, based on an assumption of how many seals will be replaced prior to reaching the full retirement life. The FAA also estimates that the LIR HPT interstage seal life reduction cost will be \$3,396,820, and is based on the pro-rated costs of HPT interstage seals that will be removed due to the reduced life limit. Based on these figures, the total cost of the AD on U.S. operators is estimated to be \$3,933,160.

Regulatory Analysis

This final rule does not have federalism implications, as defined in Executive Order 13132, because it 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. Accordingly, the FAA has not consulted with state authorities prior to publication of this final rule.

For the reasons discussed above, I certify that this action (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) if promulgated, 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. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, pursuant to 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.

Sec. 39.13 [Amended]

2. Section 39.13 is amended by adding a new airworthiness directive to read as follows:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "av-info.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2002-01-12 General Electric Company: Amendment 39-12606. Docket No. 2001-NE-32-AD.

Applicability: This airworthiness directive (AD) is applicable to General Electric Company (GE) GE90-76B, -77B, -85B, -90B, and -94B turbofan engines with high pressure turbine (HPT) interstage seals part numbers (P/N's) 1711M20P08, 1711M20P14, 1711M20P16, 1711M20P17, and 1847M96P02 installed. These engines are installed on, but not limited to Boeing 777 airplanes.

Note 1: This AD applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (g) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Compliance with this AD is required as indicated, unless already done.

To prevent failure of the HPT interstage seal that could result in an uncontained engine failure, and damage to the airplane, do the following:

Replacement of HPT Interstage Seals P/N's 1711M20P08, 1711M20P14, 1711M20P16, and 1711M20P17

(a) For GE90-76B, -77B, -85B, -90B engines with HPT interstage seals P/N's 1711M20P08, 1711M20P16, and 1711M20P17 installed, and GE90-76B and -77B engines with interstage seal P/N 1711M20P14 installed, replace seals at next shop visit piece-part exposure with a serviceable HPT interstage seal, after the effective date of this AD, but not to exceed 4,800 cycles-since-new (CSN), or before December 31, 2006, whichever occurs earlier.

(b) For GE90-85B and -90B engines with HPT interstage seal P/N 1711M20P14 installed, replace seal at next shop visit piece-part exposure with a serviceable HPT interstage seal, after the effective date of this AD, but not to exceed 2,800 CSN, or before December 31, 2006, whichever occurs earlier.

(c) After the effective date of this AD, do not install any HPT interstage seal P/N's 1711M20P08, 1711M20P14, 1711M20P16, and 1711M20P17 into an engine.

Reduced Life Limit

(d) For engines with HPT interstage seals P/N 1847M96P02 installed, remove engine from service before exceeding the reduced cyclic life limit of 3,500 CSN.

(e) This AD establishes a new cyclic life limit for HPT interstage seal, P/N 1847M96P02. Except as provided in paragraph (g) of this AD, no alternate life limits for this part may be approved.

Definition

(f) For the purpose of this AD, a shop visit piece-part exposure is defined as an engine removal for maintenance that cannot be performed while installed on the airplane, and that the HPT interstage seal is completely disassembled when done in accordance with the disassembly instructions of the engine manual.

Alternative Methods of Compliance

(g) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Engine Certification Office (ECO). Operators must submit their request through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, ECO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the ECO.

Special Flight Permits

(h) Special flight permits may be issued in accordance with Secs. 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be done.

Effective Date

(i) This amendment becomes effective on February 26, 2002.

Issued in Burlington, Massachusetts, on January 14, 2002.

Thomas Boudreau,

Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.

[FR Doc. 02-1453 Filed 1-18-02; 8:45 am]

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