Proposed Rules

Federal Register
Vol. 67, No. 132
Wednesday, July 10, 2002

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2002–NE–13–AD]

RIN 2120–AA64

Airworthiness Directives; General Electric Company CF34–8C1 Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The Federal Aviation Administration (FAA) proposes to adopt a new airworthiness directive (AD) that is applicable to General Electric Company CF34–8C1 turbofan engines, that would require revisions to the Airworthiness Limitations Section (ALS) of the manufacturer's Instructions for Continued Airworthiness (ICA) to include required enhanced inspection of selected critical life-limited parts at each piece-part exposure. This proposal would also require an air carrier's approved continuous airworthiness maintenance program to incorporate these inspection procedures. Air carriers with an approved continuous airworthiness maintenance program would be allowed to either maintain the records showing the current status of the inspections using the record keeping system specified in the air carrier's maintenance manual, or establish an acceptable alternate method of record keeping. This proposal is prompted by the need to require enhanced inspection of selected critical life-limited parts of CF34–8C1 turbofan engines at each piece-part exposure. The actions specified by this proposed AD are intended to prevent critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane.

DATES: Comments must be received by September 9, 2002.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2002–NE–13–AD, 12 New England Executive Park, Burlington, MA 01803–5299. Comments may be inspected at this location, by appointment, between 8 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. Comments may also be sent via the Internet using the following address: ''*9-ane-adcomment@faa.gov*''. Comments sent via the Internet must contain the docket number in the subject line.

FOR FURTHER INFORMATION CONTACT: Barbara Caufield, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803–5299; telephone (781) 238–7146; fax (781) 238–7199.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified above. All communications received on or before the closing date for comments, specified above, will be considered before taking action on the proposed rule. The proposals contained in this action may be changed in light of the comments received.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report summarizing each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this action must submit a self-addressed, stamped postcard on which the following statement is made: ''Comments to Docket Number 2002–NE–13–AD.'' The postcard will be date stamped and returned to the commenter.

Availability of NPRM's

Any person may obtain a copy of this NPRM by submitting a request to the FAA, New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2002–NE–13–AD, 12 New England Executive Park, Burlington, MA 01803–5299.

Discussion

A recent FAA study analyzing 15 years of accident data for transport category airplanes identified several failure mode root causes that can result in serious safety hazards to transport category airplanes. That study identified uncontained failure of critical life-limited rotating engine parts as the leading engine-related safety hazard to airplanes. Uncontained engine failures have resulted from undetected cracks in rotating parts that initiated and propagated to failure. Cracks can originate from causes such as unintended excessive stress from original design or they may initiate from stresses induced from material flaws, handling damage, or damage from machining operations. Failure of rotating parts presents a significant safety hazard to the airplanes by releasing high-energy fragments that could injure passengers or crew by penetrating the cabin, damaging flight control surfaces, severing flammable fluid lines, or otherwise compromising the airworthiness of the airplane.

Intervention Strategy

The FAA has developed an intervention strategy to significantly reduce uncontained engine failures. The intervention strategy was developed after consultation with industry and will be used as a model for future initiatives. The intervention strategy involves enhanced, nondestructive inspections of the rotating parts that could most likely result in a safety hazard to the airplane in the event of a fracture.

Future Rulemaking

The need for additional rule making is also being considered by the FAA. Future AD's may be issued introducing additional intervention strategies to further reduce or eliminate uncontained engine failures.

Safety Critical Parts and Inspection Methods

Properly focused enhanced inspections require identifying the parts whose failure presents the highest safety hazard to the airplane, identifying the most critical features to inspect on these parts, and utilizing inspection procedures and techniques that improve crack detection. The FAA, with the close cooperation of the engine manufacturers, has completed a detailed analysis identifying the most safety significant parts and features, and the most appropriate inspection methods.

Critical life-limited high-energy rotating parts are currently subject to some form of recommended crack inspection when exposed during engine maintenance or disassembly. As a result of this proposed AD, the inspections currently recommended by the manufacturer will become mandatory for those parts listed in the compliance section. Furthermore, the FAA intends that additional mandatory enhanced inspections resulting from this proposed AD will serve as an adjunct to the existing inspections. The FAA has determined that the enhanced inspections will significantly improve the probability of crack detection while the parts are disassembled during maintenance. All mandatory inspections must be conducted in accordance with detailed inspection procedures prescribed in the manufacturer's Engine Manual.

Part 121 Operators

This proposed AD would allow for 14 CFR part 121 air carriers having an FAA-approved continuous airworthiness maintenance program, and for entities that these air carriers use to do this maintenance, to verify performance of the enhanced inspections. This is done by retaining the maintenance records that include the inspections resulting from this proposed AD. However, these records must include the date and signature of the person performing the maintenance action. These records would be retained with the maintenance records of the part, engine module, or engine until the inspection is repeated. This will establish a method of record preservation and retrieval typical to those in existing continuous airworthiness maintenance programs. Instructions would be included in an air carrier's maintenance manual providing procedures for implementation and integration of this record preservation and retrieval system into the air carrier's record keeping system.

For engines or engine modules that are approved for return to service by an authorized FAA-certificated entity and that are acquired by an operator after the effective date of the proposed AD, the mandatory enhanced inspections would not be required until the next piece-part opportunity. For example, there is no need for an operator to disassemble to piece-part level an engine or module returned to service by an FAA-certificated facility simply because that engine or module was previously operated by an entity not required to comply with the proposed AD. Furthermore, the FAA intends for operators to perform the proposed enhanced inspections of these parts at the next piece-part opportunity following the initial acquisition, installation, and removal of the part following the effective date of the proposed AD. For piece parts that have not been approved for return to service before the effective date of the proposed AD, the FAA does intend that the mandatory enhanced inspections required by the proposed AD be performed before such parts are approved for return to service. Piece parts that have been approved for return to service before the effective date of the proposed AD could be installed; however, enhanced inspection would be required at the next piece-part opportunity.

Proposed Actions

This proposal would require, within the next 30 days after the effective date of the proposed AD, revisions to the Time Limits Section (TLS) in the GE CF34–8C1 Turbofan Engine Manual, and, for air carriers, revisions to the approved continuous airworthiness maintenance program. GE, the manufacturer of CF34–8C1 turbofan engines used on 14 CFR part 25 airplanes, has provided the FAA with a detailed proposal that identifies and prioritizes the critical life-limited rotating engine parts with the highest potential to hazard the airplane in the event of failure, along with instructions for enhanced, focused inspection methods. The enhanced inspections resulting from the proposed AD would be conducted at piece-part opportunity, as defined below in the compliance section, rather than specific time inspection intervals.

Economic Analysis

There are approximately 26 engines of the affected design in the worldwide fleet. The FAA estimates that 26 engines installed on airplanes of U.S. registry would be affected by this proposed AD, that it would take approximately 75 work hours per engine to accomplish the proposed actions. The average labor rate is $60 per work hour. Using average shop visitation rates, 5 engines are expected to be affected per year. Based on these figures, the total cost of the proposed AD on U.S. operators is estimated to be $22,500 per year.

Regulatory Analysis

This proposed 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 proposed rule.

For the reasons discussed above, I certify that this proposed regulation (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 copy of the draft regulatory evaluation prepared for this action 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.

The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend 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. Section 39.13 is amended by adding the following new airworthiness directive:

General Electric Company: Docket No. 2002–NE–13–AD.

Applicability

This airworthiness directive (AD) is applicable to General Electric Company (GE)

CF34–8C1 turbofan engines. These engines are installed on, but not limited to Bombardier Aerospace CRJ700 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 (c) 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 critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane, do the following:

(a) Within the next 30 days after the effective date of this AD, revise the Time Limits Section (TLS) of the manufacturer's Engine Manual (EM), GEK 105091 and for air carrier operations revise the approved continuous airworthiness maintenance program, by adding the following:

''MANDATORY INSPECTIONS

(1) Perform inspections of the parts listed in the following Table 805 at each piece-part opportunity in accordance with the instructions provided in the applicable manual provisions:

TABLE 805.—MANDATORY INSPECTION REQUIREMENTS

Part Nomenclature	Manual/Chapter Section/Subject	Mandatory Inspection
Fan Disk	72–21–15, INSPECTION	All areas (FPI),[1], Bores (ECI).[2]
Fan Drive Shaft	72–22–00, INSPECTION	All areas (FPI).[1]
Stage 1 High Pressure Turbine (HPT) Rotor Disk.	72–51–06, INSPECTION	All areas (FPI)[1], Bores (ECI)[2], Boltholes (ECI)[2], Air Holes (ECI).[2]
HPT Rotor Outer Torque Coupling	72–51–10, INSPECTION	All areas (FPI)[1], Bores (ECI).[2]
Stage 2 HPT Rotor Disk	72–51–14, INSPECTION	All areas (FPI)[1], Bores (ECI).[2]
HPT Shaft	72–51–03, INSPECTION	All areas (FPI).[1]
Stage 1 and Stage 2 High Pressure Compressor (HPC) Rotor Blisks.	72–33–01, INSPECTION	All areas (FPI).[1]
HPC Forward Shaft	72–33–02, INSPECTION	All areas (FPI).[1]
Stage 3 HPC Rotor Blisk	72–33–03, INSPECTION	All areas (FPI).[1]
HPC Aft Shaft Spool	72–33–05, INSPECTION	All areas (FPI).[1]
HPC Discharge Rotating Seal	72–33–08, INSPECTION	All areas (FPI).[1]
Stage 3 Low Pressure Turbine (LPT) Rotor Disk.	72–57–10, INSPECTION	All areas (FPI).[1]
Stage 4 LPT Rotor Disk	72–57–16, INSPECTION	All areas (FPI).[1]
Rear LPT Shaft	72–57–23, INSPECTION	All areas (FPI).[1]
Stage 5 LPT Rotor Disk	72–57–20, INSPECTION	All areas (FPI).[1]
Stage 6 LPT Rotor Disk	72–57–28, INSPECTION	All areas (FPI).[1]

[1] FPI = Fluorescent Penetrant Inspection Method
[2] ECI = Eddy Current Inspection Method

(2) For the purposes of these mandatory inspections, piece-part opportunity means:

(i) The part is considered at ''piece-part opportunity'', when it is completely disassembled in accordance with the disassembly instructions in the manufacturer's engine manual; and

(ii) The part has accumulated more than 100 cycles in service since the last piece-part opportunity inspection, provided that the part was not damaged or related to the cause for its removal from the engine.

(b) Except as provided in paragraph (c) of this AD, and notwithstanding contrary provisions in section 43.16 of the Federal Aviation Regulations (14 CFR 43.16), these mandatory inspections shall be performed only in accordance with the TLS of the GE CF34–8C1 EM.

Alternative Methods of Compliance

(c) 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 (PMI), 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

(d) Special flight permits may be issued in accordance with §§ 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.

Continuous Airworthiness Maintenance Program

(e) FAA-certificated air carriers that have an approved continuous airworthiness maintenance program in accordance with the record keeping requirement of § 121.369 (c) of the Federal Aviation Regulations (14 CFR 121.369 (c)) must maintain records of the mandatory inspections that result from revising the CF34 Engine Maintenance Program and the air carrier's continuous airworthiness program. Alternatively, certificated air carriers may establish an approved system of record retention that provides a method for preservation and retrieval of the maintenance records that include the inspections resulting from this AD, and include the policy and procedures for implementing this alternate method in the air carrier's maintenance manual required by § 121.369 (c) of the Federal Aviation Regulations (14 CFR 121.369 (c)). However, the alternate system must be accepted by the appropriate PMI and require the maintenance records be maintained either indefinitely or until the work is repeated. Records of the piece-part inspections are not required under § 121.380 (a) (2) (vi) of the Federal Aviation Regulations (14 CFR 121.380 (a) (2) (vi)). All other operators must maintain the records of mandatory inspections required by the applicable regulations governing their operations.

Note 3: The requirements of this AD have been met when the engine manual changes are made and air carriers have modified their continuous airworthiness maintenance plans to reflect the Engine Maintenance Program requirements specified in the GE CF34–8C1 Engine Manual.

Issued in Burlington, Massachusetts, on July 1, 2002.

Jay J. Pardee,

Manager, Engine and Propeller Directorate, Aircraft Certification Service.

[FR Doc. 02–17297 Filed 7–9–02; 8:45 am]

BILLING CODE 4910–13–P