

**DEPARTMENT OF TRANSPORTATION****Federal Aviation Administration****14 CFR Part 39**

[Docket No. 98-ANE-32-AD; Amendment 39-11760; AD 2000-11-12]

RIN 2120-AA64

**Airworthiness Directives; General Electric Company CF6-45/50 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 CF6-45/50 series turbofan engines. This AD requires initial and repetitive inspections for cracks in the stage 14 high pressure compressor (HPC) disk lock slots, and removal from service of certain disks, at the first piece-part level or HPC rotor disassembly level exposure, after 6,000 cycles since new (CSN). This amendment is prompted by reports of stage 14 HPC disk lock slot cracks discovered during shop fluorescent penetrant inspections. The actions specified by this AD are intended to prevent stage 14 HPC disk failure, which could result in an uncontained engine failure and damage to the aircraft.

**DATES:** Effective date August 14, 2000.

The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of August 14, 2000.

**ADDRESSES:** The service information referenced in this AD may be obtained 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. This information may be examined at the 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:**

William S. Ricci, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7742, fax (781) 238-7199.

**SUPPLEMENTARY INFORMATION:** A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to General Electric Company CF6-45/50 series turbofan

engines was published in the **Federal Register** on October 26, 1999 (64 FR 57606). That action proposed to require initial and repetitive inspections for cracks in the stage 14 high pressure compressor (HPC) disk lock slots, and removal from service of certain disks, at the first piece-part level or HPC rotor disassembly level exposure, after 6,000 cycles since new (CSN).

**Comments Received**

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

**Cost Impact**

Two comments suggest that the financial impact is not representative of the replacement cost of the disk since the disk is no longer in production or stocked and the replacement cost of the stage 11-14 spool shaft is more than \$250,000. The FAA does not agree. Over the course of the inspection program, the availability of HPC rear shafts, and not the availability of stage 14 disks, is expected to be the limiting factor, requiring the installation of the stage 11-14 spool shaft. In addition, the estimate of economic impact was based on the lost life of the stage 14 disk only.

**Reporting Period**

One comment suggests that the time limit for reporting the results of inspections that equal or exceed the reject criteria be increased from within five days of the inspection to within ten days of the inspection. The FAA does not agree. Based on the potential criticality of a reject finding, five days is considered reasonable and is consistent with reporting requirements in ADs dealing with other critical rotating parts. Carriers can make arrangements with inspection facilities to report reject findings directly to the FAA if reporting to the carrier first would cause a delay in reporting to the FAA. Reports can be made to the FAA by fax on weekends and holidays. The FAA has included the telephone and fax numbers for the ECO in paragraph (h) of the Compliance Section.

**Consistent Wording**

One comment asks that the FAA use consistent wording with regard to the term "rotor module level exposure." The FAA agrees. The term "rotor module level exposure" has been changed to "rotor disassembly level exposure" in the Summary and in paragraphs (f) and (i) (1) of the Compliance Section.

**Replacement of the Fan Forward Case**

One comment requests that the FAA add a provision for the definition of an engine shop visit to paragraph (i) for "Introduction of an engine into a shop solely for replacement of the fan forward case." The FAA agrees. To be consistent with AD 99-24-15, the 3-9 spool AD, paragraph (i)(3)(iv), "Introduction of an engine into a shop solely for replacement of the fan forward case," has been inserted into the compliance section of this AD and the paragraph previously numbered (I) (3) (iv) has been renumbered (i)(3)(v).

**Effective Date**

One comment notes that the effective date should be changed so that it is consistent with the schedule provided by the service bulletin. The FAA does not agree. The rulemaking process is a formal legal course of action that does not include provisions for coordinating effective dates with manufacturers' service bulletins.

**Support of the AD as Written**

Three comments support the AD as written.

**Conclusion**

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes described previously. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

**Economic Analysis**

There are approximately 1,538 engines of the affected design in the worldwide fleet. The FAA estimates that 460 engines installed on aircraft of U.S. registry would be affected by this proposed AD, that it would take approximately 22 work hours per engine to accomplish the proposed actions, and that the average labor rate is \$60 per work hour. Required parts would cost approximately \$3,600 per engine. Based on these figures, the total cost impact of the proposed AD on U.S. operators is estimated to be \$2,263,200.

**Regulatory Impact**

This rule does not have federalism implications, as defined in Executive Order 13132, because it does 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 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 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. A final evaluation has been prepared for this action and is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption **ADDRESSES**.

#### List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, 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.

##### § 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

**2000-11-12 General Electric Company:**  
Amendment 39-11760. Docket 98-ANE-32-AD.

**Applicability:** General Electric Company (GE) Model CF6-45/50 series turbofan engines, installed on but not limited to Airbus Industrie A300 series, Boeing Company 747 series, and McDonnell Douglas Corporation DC-10 series airplanes

**Note 1:** This airworthiness directive (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 (j) 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:** Required as indicated, unless accomplished previously.

To prevent a stage 14 high pressure compressor (HPC) disk failure, which could result in uncontained engine failure and damage to the aircraft, accomplish the following:

#### Inspections

(a) Perform initial inspections of HPC stage 14 disks, part numbers (P/N's) 9080M34P03, 9080M34P04, 9080M34P05 and 9349M91P04, with serial number (SN) prefixes GWN, MPO, RRY, and SNL, and disk SN's SNE00001 through SNE00017, and disk SN's SNE01101 through SNE01110, in accordance with paragraphs 2.A. through 2.B. of GE CF6-50 ASB No. 72-A1144, dated March 19, 1998, or ASB No. 72-A1144, Revision 1, dated May 13, 1999, and the following schedule:

(1) Inspect disks with 6,500 cycles since new (CSN) or less on the effective date of this AD before accumulating 9,800 CSN.

(2) Inspect disks with more than 6,500 CSN on the effective date of this AD no later than the next engine shop visit (ESV) after the effective date of this AD or before accumulating an additional 3,300 cycles-in-service (CIS) after the effective date of this AD, whichever occurs first.

(b) Perform repetitive inspections of HPC stage 14 disks, P/N's 9080M34P03, 9080M34P04, 9080M34P05 and 9349M91P04, with SN prefixes GWN, MPO, RRY, and SNL, and disk SN's SNE00001 through SNE00017, and disk SN's SNE01101 through SNE01110, in accordance with paragraphs 2.A. through 2.B. of GE CF6-50 ASB No. 72-A1144, dated March 19, 1998, or ASB No. 72-A1144, Revision 1, dated May 13, 1999, and the following schedule:

(1) For disks with less than 9,800 CSN at the time of the last inspection, perform repetitive inspections no later than 9,800 CSN or before accumulating 3,300 cycles since last inspection (CSLI), whichever occurs later.

(2) For disks with 9,800 CSN or greater at the time of the last inspection, perform repetitive inspections no later than 3,300 CSLI.

(c) Perform initial inspections of HPC stage 14 disks, P/N's 9080M34P03, 9080M34P04, 9080M34P05 and 9349M91P04 with SN prefixes SNG and SNE, except disk SN's SNE00001 through SNE00017 and SNE01101 through SNE01110, in accordance with paragraphs 2.A. through 2.B. of GE CF6-50 ASB No. 72-A1144, dated March 19, 1998, or ASB No. 72-A1144, Revision 1, dated May 13, 1999, and the following schedule:

(1) Inspect disks with 4,200 CSN or less on the effective date of this AD before accumulating 7,500 CSN.

(2) Inspect disks with more than 4,200 CSN but less than 9,000 CSN on the effective date of this AD at the next ESV after the effective date of this AD, before accumulating an additional 3,300 CIS after the effective date of this AD, or before accumulating 11,000 CSN, whichever occurs first.

(3) Inspect disks with 9,000 CSN or greater on the effective date of this AD, at the next

ESV after the effective date of this AD, or before accumulating an additional 2,000 CIS after the effective date of this AD, whichever occurs first.

(d) Perform repetitive inspections of HPC stage 14 disks, P/N's 9080M34P03, 9080M34P04, 9080M34P05 and 9349M91P04 with SN prefixes SNG and SNE, except disk SN's SNE00001 through SNE00017 and SNE01101 through SNE01110, in accordance with paragraphs 2.A. through 2.B. of GE CF6-50 ASB No. 72-A1144, dated March 19, 1998, or ASB No. 72-A1144, Revision 1, dated May 13, 1999, and the following schedule:

(1) For disks with less than 7,500 CSN at the time of the last inspection, perform repetitive inspections no later than 7,500 CSN or before accumulating 3,300 CSLI, whichever occurs later.

(2) For disks with 7,500 CSN or greater at the time of the last inspection, perform repetitive inspections no later than 3300 CSLI.

#### Removal From Service

(e) Remove from service prior to further flight stage 14 HPC disks that equal or exceed the reject criteria established by GE CF6-50 ASB 72-A1144, dated March 19, 1998, or ASB No. 72-A1144, Revision 1, dated May 13, 1999.

(f) Remove from service, HPC stage 14 disks, P/N's 9080M34P03, 9080M34P04, 9080M34P05 and 9349M91P04 with SN prefixes SNG and SNE, except disk SN's SNE00001 through SNE00017 and SNE01101 through SNE01110, with greater than 6,000 CSN after the effective date of this AD, at the next piece-part level exposure or at the next HPC rotor disassembly level exposure after the effective date of this AD.

#### Terminating Action

(g) Replacement of the stage 14 HPC disk, P/N's 9080M34P03, 9080M34P04, 9080M34P05, 9349M91P04, with a stage 11-14 spool shaft is terminating action for the inspection requirements of this AD.

#### Reporting Requirements

(h) Report the results of inspections that equal or exceed the reject criteria within five days of the inspection to: Manager, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299, telephone, (781) 238-7141, fax, (781) 238-7199. The following information must be included in the report:

- (1) HPC Stage 14 rotor disk P/N,
- (2) HPC Stage 14 rotor disk SN,
- (3) HPC Stage 14 rotor disk CSN,
- (4) HPC Stage 14 rotor disk CSLI, and
- (5) Date and location of inspection.

Reporting requirements have been approved by the Office of Management and Budget (OMB) and assigned OMB control number 2120-0056.

#### Definitions

(i) For the purpose of this AD, the following definitions apply:

(1) HPC Rotor disassembly occurs if any of the HPC Rotor bolted flange joints are separated, such as the Stage 2 joint to accomplish the Stage 3-9 Spool inspection.

(2) Piece-part exposure is defined as disassembly and removal of the stage 14 disk from the HPC rotor structure, regardless of any blades, locking lugs, bolts or balance weights assembled to the disk.

(3) An engine shop visit is defined as the introduction of an engine into a shop when a major engine flange is separated. The following maintenance actions are not considered engine shop visits for the purpose of this AD:

(i) Introduction of an engine into a shop solely for removal or replacement of the Stage 1 Fan Disk;

(ii) Introduction of an engine into a shop solely for replacement of the Turbine Rear Frame;

(iii) Introduction of an engine into a shop solely for replacement of the Accessory Gearbox or Transfer Gearboxes;

(iv) Introduction of an engine into a shop solely for replacement of the Fan Forward Case.

(v) Introduction of an engine into a shop for any combination of exceptions specified in paragraphs (i)(3)(i) through (i)(3)(iv);

#### Alternative Methods of Compliance

(j) 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. Operators shall submit their request through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Engine Certification Office.

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

#### Incorporation by Reference

(k) The inspections shall be done in accordance with paragraphs 2.A. through 2.B. of GE CF6-50 ASB No. 72-A1144, dated March 19, 1998, or ASB No. 72-A1144, Revision 1, dated May 13, 1999. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained 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. Copies may be inspected at the 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.

#### Special Flight Permit

(l) 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 aircraft to a location where the requirements of this AD can be accomplished.

#### Effective Date of This AD

(m) This amendment becomes effective on August 14, 2000.

Issued in Burlington, Massachusetts, on May 25, 2000.

**Thomas A. Boudreau,**

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

[FR Doc. 00-14017 Filed 6-12-00; 8:45 am]

**BILLING CODE 4910-13-U**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

**[Docket No. 2000-NM-138-AD; Amendment 39-11770; AD 2000-10-51]**

**RIN 2120-AA64**

#### Airworthiness Directives; Boeing Model 767 Series Airplanes

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** This document publishes in the **Federal Register** an amendment adopting airworthiness directive (AD) 2000-10-51 that was sent previously to all known U.S. owners and operators of certain Boeing Model 767 series airplanes by individual notices. This AD requires a one-time inspection to determine whether certain bolts are installed in the side load underwing fittings on both struts, and various follow-on actions, if necessary. This action is prompted by a report that two fractured bolts and one cracked bolt were found in the side load underwing fittings. The actions specified by this AD are intended to detect and correct cracking or fracturing of the tension bolts on the side load underwing fittings on the strut, which would eventually result in loss of the strut.

**DATES:** Effective June 19, 2000, to all persons except those persons to whom it was made immediately effective by emergency AD 2000-10-51, issued May 18, 2000, which contained the requirements of this amendment.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of June 19, 2000.

Comments for inclusion in the Rules Docket must be received on or before August 14, 2000.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2000-NM-138-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056.

The applicable service information may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

#### FOR FURTHER INFORMATION CONTACT:

James Rehrl, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Transport Airplane Directorate, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2783; fax (425) 227-1181.

**SUPPLEMENTARY INFORMATION:** On May 18, 2000, the FAA issued emergency AD 2000-10-51, which is applicable to certain Boeing Model 767 series airplanes.

On May 15, 2000, the FAA received a report indicating that an operator found two fractured bolts and one cracked bolt in the side load underwing fittings of a Model 767-200 series airplane. On the affected airplane, both tension bolts on the outboard side load underwing fitting were completely fractured, and one bolt on the inboard side load underwing fitting was cracked. The affected airplane had accumulated 65,759 total flight hours and 17,021 total flight cycles. The cracking and fracturing of the tension bolts is due to stress corrosion. The tension bolts are made of H-11 steel material, which service history has shown to be susceptible to stress corrosion. Fracture of the tension bolts in the side load underwing fittings, if not corrected, would eventually result in loss of the strut.

#### Explanation of Relevant Service Information

The FAA has reviewed and approved Boeing Alert Service Bulletin 767-57A0074, dated May 17, 2000, and Revision 1, dated May 18, 2000, which describes procedures for a one-time inspection to determine whether H-11 steel tension bolts are installed in the side load underwing fittings on both struts. If any H-11 bolts are found, or if the type of bolt cannot be determined, the alert service bulletin also describes procedures for repetitive ultrasonic inspections to detect cracking or fracturing of the tension bolts in the side load underwing fittings on both struts, and corrective action, if necessary. Corrective action involves replacement of both tension bolts in the affected side load underwing fitting with new, improved bolts. The new, improved