

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [65 FR 10698 2/29/2000]

[Docket No. 99-NE-24-AD; Amendment 39-11597; AD 2000-04-14]

RIN 2120-AA64

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

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to General Electric Company (GE) CF6-80C2 series turbofan engines, that requires replacement of the fuel tube connecting the flowmeter to the Integrated Drive Generator (IDG) and the fuel tube(s) connecting the Main Engine Control (MEC) or Hydromechanical (HMU) to the flowmeter with improved fuel tubes. This amendment is prompted by reports of fuel leaking in the core cowl cavity under high pressure that can be ignited by the hot engine case temperatures. The actions specified by this AD are intended to prevent high-pressure fuel leaks caused by improper seating of fuel tube flanges, which could result in an engine fire and damage to the airplane.

DATES: Effective May 1, 2000.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of May 1, 2000.

ADDRESSES: The service information referenced in this AD may be obtained from General Electric Aircraft Engines, c/o Commercial Technical Publications, 1 Neumann Way, Room 230, Cincinnati, OH 45215-1988; telephone 513-552-2005, fax 513-552-2816. This information may be examined 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: Ian Dargin, Aerospace Engineer, Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone 781-238-7178, 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 (GE) CF6-80C2 series turbofan engines was published in the **Federal Register** on September 8, 1999 (64 FR 48721). That action

proposed to require replacement of the fuel tube connecting the flowmeter to the Integrated Drive Generator (IDG) and the fuel tube(s) connecting the Main Engine Control (MEC) or Hydromechanical (HMU) to the flowmeter with improved fuel tubes. That action was prompted by reports of fuel leaking in the core cowl cavity under high pressure that can be ignited by the hot engine case temperatures. That condition, if not corrected, could result in high-pressure fuel leaks caused by improper seating of fuel tube flanges, which could result in an engine fire and damage to the airplane.

### **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.

### **Compliance time for fuel tube replacement**

Four commenters state that the compliance time should be the next shop visit only, not at the next time the fuel tubes are disconnected for on-wing maintenance.

One commenter believes that requiring compliance the next time the fuel tubes are disconnected for on-wing maintenance would call for stocking parts in many locations and would prevent possible non-compliance of this AD should an unscheduled on-wing maintenance activity occur.

One commenter believes that line maintenance personnel would require a system that tells them which fuel tubes need to be replaced and therefore performing the proposed requirements at a shop visit would be preferable.

Two commenters believe that tracking the accomplishment of this AD would be a burden and proposes that replacement of the fuel tubes after a fixed number of hours or at the next shop visit would be preferable.

### **FAA Response**

The FAA does not concur. While parts availability and tracking of on wing maintenance can be a burden, the risk associated with any additional maintenance action only increases the chance of improper installation and a high-pressure fuel leak unless these old fuel tubes are replaced with the new design fuel tubes at the first opportunity. The new design fuel tubes will prevent hang-up of the flange on the fuel tube, allowing proper seating and preventing fuel leaks. Although there may be situations where a fuel tube is unavailable, the commenters provide no additional data or information that would support their changes that still show an acceptable mitigation of risk of a fuel tube leak and fire.

One commenter provided useful information as to which fuel tubes the line maintenance personnel should replace for on wing maintenance. The FAA requires only those fuel tubes that are disconnected to be replaced during on-wing maintenance and has added a clarifying statement to this final rule.

Similarly, one commenter provided a definition of "disconnected" and the FAA has added a clarifying statement to this final rule to indicate that disconnecting at "either end" triggers this AD for on wing maintenance.

### **Recommendation for On-Wing Maintenance or Attaching A Label to the Fuel Tubes**

One commenter suggests recommending fuel tube replacement rather than mandating it. The commenter also suggests attaching a label to the fuel tube. The commenter is concerned that in the event of unplanned maintenance trouble shooting, the AD may not be complied with. The FAA does not concur. Although the idea of a label might be useful, the FAA does not believe that the use of labels should be mandated. AD compliance should be managed under the individual operator's maintenance system. Furthermore, the FAA believes that it is necessary to have the fuel tube replacement accomplished at the earlier of on-wing maintenance or a shop visit, and that making the on-wing maintenance only a recommendation would not achieve the desired level of safety. The FAA has determined that continued use of the old fuel tubes constitutes an unacceptable risk and that this AD is necessary to achieve a substantial mitigation of that risk through the mandated replacement of the old fuel tubes with fuel tubes of an improved design. As previously stated, any additional maintenance action only increases the chance of improper installation and a high-pressure fuel leak unless these old fuel tubes are replaced with the new design fuel tubes at the first opportunity.

### **Hard Time or Calendar Date Removal**

One commenter states that the proposal should mandate fuel tube replacement at a hard time or calendar date, and that the fuel tube replacement would best be accomplished at a shop visit. The commenter states that line maintenance actions would be more difficult to record than during a shop visit. The commenter also suggests that a trial period would be necessary to review the procedure. The FAA does not concur. While replacement on a fixed date would accomplish the required objective, replacement of fuel tubes, it would also result in requiring operators to disconnect tubes that have been on-wing and have not had an indication of a leak. Initiating action on a system that is functioning properly may result in potentially more risk and is therefore not desirable. The FAA believes that any training that may be necessary should be controlled by the operator under its individual maintenance system.

### **Concurrence**

One commenter concurs with the rule as proposed.

### **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.

### **Economic Analysis**

There are approximately 2,693 engines of the affected design in the worldwide fleet. The FAA estimates that 581 engines installed on airplanes of U.S. registry will be affected by this proposed AD, that it will take approximately 0.5 work hours per engine to accomplish the required actions, and that the average labor rate is \$60 per work hour. Of the 581 engines, some have already complied with the GE Alert Service Bulletins (ASBs). There is no cost impact to the domestic fleet for parts complying with ASB 73-A224 since all domestic engines are now in compliance. To comply with ASB 73-A0231, required parts would cost \$2,858 per engine for the remaining 128 domestic FADEC engines, and \$1,229 per engine for the remaining 138 domestic Power Management Control (PMC) engines. Based on these figures, the total cost impact of the AD on US operators is estimated to be \$535,426.

## **Regulatory Impact**

The regulations adopted herein 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. Therefore, it is determined that this final rule does not have federalism implications under Executive Order (EO) No. 13132.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under EO No. 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 it 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:

# AIRWORTHINESS DIRECTIVE

REGULATORY SUPPORT DIVISION

P.O. BOX 26460

OKLAHOMA CITY, OKLAHOMA 73125-0460

U.S. Department  
of Transportation

**Federal Aviation  
Administration**

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Federal Aviation Regulations, 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 FAR Subpart 39.3).

**2000-04-14 GENERAL ELECTRIC COMPANY:** Amendment 39-11597. Docket 99-NE-24-AD.

Applicability: General Electric Company (GE) CF6-80C2 A1/ A2/ A3/ A5/ A8/ A5F/ B1/ B2/ B4/ B6/ B1F/ B2F/ B4F/ B6F/ B7F/ D1F turbofan engines, installed on but not limited to Airbus Industrie A300-600/ 600R series and A310-200Adv/ 300 series, and Boeing 747-200/ 300/ 400 series and 767-200ER/ 300/ 300ER/ 400ER and McDonnell Douglas MD-11 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 (d) 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 improper fuel tube flange seating, resulting in high pressure fuel leaks, which could result in an engine fire and damage to the airplane, accomplish the following:

## **Replacement**

(a) At the next time the fuel tubes are disconnected at either end for on-wing maintenance, or the next shop visit after the effective date of this AD, whichever occurs first, replace the old configuration fuel tubes with the improved tubes. For on-wing maintenance, replace only the fuel tube(s) that have been disconnected. Perform the actions as follows:

(1) Replace the fuel flowmeter to Integrated Drive Generator (IDG) cooler fuel tube, part number (P/N) 1321M42G01, with a serviceable part in accordance with paragraph 2 of GE Alert Service Bulletin (ASB) No. 73-A224, Revision 2, July 9, 1997, and perform a leak check after accomplishing the replacement.

## **Power Management Controls**

(2) For engines with Power Management Controls, replace the Main Engine Control (MEC) to fuel flowmeter fuel tube, P/N 1334M88G01, and bolts, P/N MS9557-12, with serviceable parts, in accordance with paragraph 3A of GE ASB 73-A0231, Revision 1, dated May 3, 1999 and perform a leak check after accomplishing the replacement.

## **Full Authority Digital Electronic Controls**

(3) For engines with Full Authority Digital Electronic Controls replace the Hydromechanical Unit (HMU) to fuel flowmeter fuel tubes, P/Ns 1383M12G01 and 1374M30G01 with serviceable parts, in accordance with paragraph 3B of GE ASB 73-A0231, Revision 1, dated May 3, 1999 and perform a leak check after accomplishing the replacement.

NOTE 2: Information on performing the leak check can be found in the Aircraft Maintenance Manual, 71-00-00.

## **Definitions**

(b) For the purpose of this AD, a shop visit is defined as any time an engine is removed from service and returned to the shop for any maintenance.

(c) For the purpose of this AD, a serviceable part is defined as any part other than tube, P/N 1321M42G01, for the fuel flowmeter to IDG cooler; tube; P/N 1334M88G01, and bolt, P/N MS9557-12, for the MEC to fuel flowmeter tube; and tubes, P/Ns 1383M12G01 and 1374M30G01, for the HMU to fuel flowmeter fuel tubes.

## **Alternative Methods of Compliance**

(d) 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 requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Engine Certification Office.

NOTE 3: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the Engine Certification Office.

## **Ferry Flights**

(e) Special flight permits may be issued in accordance with sections 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.

## **Incorporation by Reference**

(f) The actions required by this AD shall be done in accordance with the following GE ASBs: 73-A224, Revision 2, July 9, 1997, and 73-A0231, Revision 1, May 3, 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 Aircraft Engines, c/o Commercial Technical Publications, 1 Neumann Way, Room 230, Cincinnati, OH 45215-1988; telephone 513-552-2005, fax 513-552-2816. 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.

(g) This amendment becomes effective on May 1, 2000.

**FOR FURTHER INFORMATION CONTACT:**

Ian Dargin, Aerospace Engineer, Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone 781-238-7178, fax 781-238-7199.

Issued in Burlington, Massachusetts, on February 17, 2000.

Ronald L. Vavruska, Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.