

# Rules and Regulations

Federal Register

Vol. 68, No. 17

Monday, January 27, 2003

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 2001-NE-19-AD; Amendment 39-13024; AD 2003-02-07]

RIN 2120-AA64

#### Airworthiness Directives; General Electric Company CF6-50 and CF6-80C2 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 CF6-50 and CF6-80C2 turbofan engines. This amendment requires replacement of certain existing CF6-50 and CF6-80C2 low pressure turbine (LPT) shrouds with new design LPT shrouds. This amendment is prompted by 37 LPT uncontained events on the CF6-50, 24 uncontained events on the CF6-80C2 engine models since 1993, and the development and certification of newly designed shrouds that will improve LPT containment capability. The actions specified by this AD are intended to prevent uncontained engine failure and possible airplane damage.

**DATES:** Effective March 3, 2003.

**ADDRESSES:** Information regarding this action 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.

#### FOR FURTHER INFORMATION CONTACT:

Karen Curtis, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7192; 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 CF6-50 and CF6-80C2 turbofan engines was published in the **Federal Register** on May 17, 2001 (66 FR 27475). That action proposed to require replacement of certain existing CF6-50 and CF6-80C2 LPT shrouds with new design shrouds.

#### Comments

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

#### Request Withdrawal of Proposed Rule

Five commenters request that the proposed rule be withdrawn. The commenters believe that the new LPT shrouds will not prevent or significantly reduce the occurrence or severity of the more severe (SAE Category 2 or higher) uncontained events, and therefore, the economic impact is not justified by this limited improvement in safety. The commenters provided statistics to show that the vast majority (89%) of the uncontained LPT events were SAE Category 1 with no aircraft impact, and were, therefore, no hazard to continued safe flight. Data was also provided that showed that none of the Category 2 events had caused more than minor aircraft damage, and that corrective actions (*i.e.* inspection or replacement programs; some required by existing AD's) were available from the manufacturer to address the majority of the root causes that had led to the Category 2 events.

The FAA partially agrees. The FAA agrees that because the design criteria for the shrouds is based on ballistic containment calculations, it is difficult to quantify a benefit for the improved LPT shrouds for rub-through or push-through events. However, the FAA disagrees that the improved shrouds will not provide some additional benefit for those events where the LPT uncontainment was not exclusively of a ballistic nature. Although the events occurring to-date have not resulted in significant hazards to continued safe flight, the potential exists for future events to be more significant. Therefore, in addition to requiring that the root causes for the upstream failures that have led to uncontained LPT events be

addressed, the FAA believes that the improved LPT shrouds must be incorporated to meet the intent of the regulations, which is for the engines to contain failures at the engine case level.

#### Extend or Eliminate Compliance End Date

Seven commenters request that the compliance end date be extended or eliminated. The commenters noted that all of the CF6-50 models would likely be in compliance by that date based on their estimated shop visit and LPT exposure rates, but that many CF6-80C2 engines would be forced off-wing early solely for this compliance, thereby imposing a significant financial burden that was not included in the economic analysis of the proposal.

The FAA agrees that the intended improvement in safety can be achieved by extending the compliance end date to support the normal shop visit and LPT exposure rates and, therefore, the proposed calendar end date is changed in the final rule.

#### Request for Exemption of Certain LPT Cases and LPT Shroud Configurations

Four commenters request that engines configured with a certain LPT case configuration and certain LPT shroud configurations be exempt from the proposed AD. The commenters note that the improved LPT case, part number (P/N) 1647M68G15, introduced by GE Aircraft Engines Service Bulletin (GEAE SB) 72-0946 in conjunction with certain LPT shrouds provides equivalent containment to the older design LPT case with the newest shrouds referenced by the proposed rule.

The FAA agrees. The manufacturer has provided data to show that CF6-80C2 engines configured with the later LPT cases and certain LPT shrouds provide equivalent containment capability. Therefore, CF6-80C2 engines configured with the combination of LPT case, P/N 1647M68G15, and LPT stage 2 shroud, P/N 1862M62G01 or 1862M62G03; and LPT stage 3 shroud, P/N 1862M63G01 or 1862M63G03; and LPT stage 4 shroud P/N 1862M64G01 or 1862M64G03 are exempted from this rule. The final rule is revised to reflect this change, and the economic analysis of the final rule is reduced to reflect this change.