Federal Deposit Insurance Corporation. **Robert E. Feldman**, *Acting Executive Secretary.* [FR Doc. 95–2858 Filed 2–6–95; 8:45 am] **BILLING CODE 6714–01–P** 

# DEPARTMENT OF TRANSPORTATION

#### Federal Aviation Administration

# 14 CFR Part 33

[Docket No. 94–ANE–18; Special Conditions No. SC–33–ANE–08]

# Special Conditions; General Electric (GE) Aircraft Engines Model(s) GE90– 75B/–85B/–76B Turbofan Engines

AGENCY: Federal Aviation Administration, DOT. ACTION: Final special conditions.

**SUMMARY:** These special conditions are issued for the General Electric (GE) Aircraft Engines Model(s) GE90–75B/–85B/–76B turbofan engines. These special conditions contain the additional safety standards which the Administrator considers necessary to establish a level of safety equivalent to that established by the airworthiness standards of part 33 of the Federal Aviation Regulations (FAR). **EFFECTIVE DATE:** March 6, 1995.

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### SUPPLEMENTARY INFORMATION:

#### Background

On December 16, 1991, General Electric Aircraft Engines applied for type certification of Model(s) GE90-75B/-85B/-76B turbofan engines. These engines incorporate a first stage fan blade manufactured using carbon graphite composite material. This unusual design feature results in the GE90 fan blade having significant differences in material property characteristics when compared to conventionally designed fan blades using non-composite materials. For example, the probability that a composite fan blade will fail below the inner annulus flowpath line may be highly improbable, questioning the appropriateness of the requirement contained in § 33.94(a)(1) to show blade containment after a failure of the blade at the outermost retention feature.

The current requirements of § 33.94 are based on metallic blade characteristics and service history, and are not appropriate for the unusual design features of the composite fan blade found on the GE90 series turbofan engines. The FAA has determined that a more realistic blade out test will be achieved with a fan blade failure at the inner annulus flowpath line (only the airfoil) instead of the outermost retention feature as is currently required by § 33.94(a)(1).

The FAA has also determined that the composite fan blades construction presents other factors that must be considered. Tests and analyses must account for the effects of in-service deterioration of, manufacturing and materials variations in, and environmental effects on the composite material. Further, tests and analyses must show that a lightning strike on the composite fan blade will not result in a hazardous condition to the aircraft, and that the engine will meet the requirements of § 33.75. Therefore, these special conditions are additional requirements which the Administrator considers necessary to establish a level of safety equivalent to that established by the Airworthiness Standards of part 33.

# **Type Certification Basis**

Under the provisions of § 21.101 of the Federal Aviation Regulations (FAR), General Electric Aircraft Engines must show that the Model(s) GE90–75B/– 85B/–76B turbofan engines meet the requirements of the applicable regulations in effect on the date of the application. Those Federal Aviation Regulations are § 21.21, as amended through Amendment 21–68, August 10, 1990, and part 33, as amended 33–14, August 10, 1990.

The Administrator finds that the applicable airworthiness regulations in part 33, as amended, do not contain adequate or appropriate safety standards for the General Electric Aircraft Engines Model(s) GE90–75B/–85B/–76B turbofan engines because of unique design criteria. Therefore, the Administrator prescribes special conditions under the provisions of § 21.16 to establish a level of safety equivalent to that established in the regulations.

Special conditions, as appropriate, are issued in accordance with § 11.49 of the FAR after public notice and opportunity for comment, as required by §§ 11.28 and 11.29(b), and become part of the type certification basis in accordance with § 21.101(b)(2).

# **Discussion of Comments**

Interested persons have been afforded the opportunity to participate in the making of these special conditions. Due consideration has been given to comments received.

Two commenters express no objection to the adoption of these special conditions as proposed.

Two commenters cite the apparent departure by the FAA from its general practice of involving industry prior to effecting significant changes to certification requirements, and recommend that the FAA evaluate the proposed changes in harmony with industry through the Aviation Rulemaking Advisory Committee (ARAC).

The FAA has not determined that these special conditions will form the basis to a rulemaking change to amend 14 CFR part 33. These special conditions prescribe for a specific design, the testing and analyses necessary to achieve an equivalent level of safety. The FAA may consider whether it is necessary to revise § 33.94 to include the requirements of these special conditions. The ARAC may be used to gather industry and public participation in that rulemaking project. For this specific application for type certification, however, the FAA has followed the rulemaking procedures provided by 14 CFR part 11 that allow for industry and public comment.

Two commenters state that applying the maximum load criteria used for propellers to a fan blade, with significantly different mechanical arrangement and dynamic behavior, is technically unjustified.

The FAA disagrees. The two times maximum load criteria test is designed to show the capability of the fan blade retention system to withstand without separation centrifugal loads significantly greater than will be seen in service. A safety factor of two is a reasonable safety factor as demonstrated by its success in propeller applications. The blade and its retention system must be capable of retaining the blade under this load condition.

Two commenters state that the additional requirements, in conjunction with any available analyses, cannot guarantee that the failure probability will be extremely improbable. Inherent characteristics of complex composite hardware design, latent defects and susceptibility to manufacturing variations, and nonconformance are identified as reasons for the statement.

The FAA agrees in part. The FAA has reviewed its position and concurs with the commenters that a failure