

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 23**

[Docket No. CE171; Notice No. 23-01-04-SC-A]

Special Conditions: Eclipse Aviation Corporation, Model 500; Fire Extinguishing System for Aft Mounted Engine Installations

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Amended notice of proposed special conditions.

SUMMARY: This notice amends special conditions that were proposed for the Eclipse Aviation Corporation Model 500 airplane. The original proposed special conditions were published on January 29, 2002 (67 FR 4215). This airplane design includes aft mounted turbine engines. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These amended proposed special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards. These special conditions are intended to provide the same level of safety and meet the same intent as previously adopted special conditions for fire extinguishing systems for aft mounted jet engine installations.

DATES: Comments must be received on or before August 16, 2002.

ADDRESSES: Comments on this proposal may be mailed in duplicate to: Federal Aviation Administration, Regional Counsel, Attention: Rules Docket No. CE171, 901 Locust, Room 506, Kansas City, Missouri 64106; or delivered in duplicate to the Regional Counsel at the above address. Comments must be marked: Docket No. CE171. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. Lowell Foster, Federal Aviation Administration, Aircraft Certification Service, Small Airplane Directorate, ACE-111, 901 Locust Street, Kansas City, Missouri, 816-329-4111, fax 816-329-4090.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in the making of these proposed special conditions by

submitting such written data, views, or arguments as they may desire. Communications should identify the regulatory docket or notice number and be submitted in duplicate to the address specified above. All communications received on or before the closing date for comments will be considered by the Administrator. The proposals described in this notice may be changed in light of the comments received. All comments received will be available in the Rules Docket for examination by interested persons, both before and after the closing date for comments. A report summarizing each substantive public contact with FAA personnel concerning this rulemaking will be filed in the docket. Persons wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must include with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. CE171." The postcard will be date stamped and returned to the commenter.

Background

On July 12, 2001, Eclipse Aviation Corporation applied for a type certificate for their new Model 500.

The Model 500 design includes turbine engines mounted aft on the fuselage, which means early visual detection of engine fire is precluded. The applicable existing regulations do not require fire extinguishing systems for engines. Aft mounted turbine engine installations, along with the need to protect such installed engines from fires, were not envisioned in the development of part 23; therefore, a special condition regarding fire protection for the engines of the Model 500 is required.

Type Certification Basis

Under the provisions of 14 CFR 21.17, Eclipse Aviation Corporation must show that the Model 500 meets the following:

(1) Applicable provisions of 14 CFR part 23, effective December 18, 1964, as amended by Amendments 23-1 through 23-54 (September 14, 2000).

(2) Part 34 of the Federal Aviation Regulations effective September 10, 1990, plus any amendments in effect on the date of type certification.

(3) Part 36 of the Federal Aviation Regulations effective December 1, 1969, as amended by Amendment 36-1 through the amendment in effect on the date of type certification.

(4) Noise Control Act of 1972.

(5) Special conditions that are not relevant to these proposed special conditions, if any;

(6) Exemptions, if any;

(7) Equivalent level of safety findings, if any; and

(8) Special conditions adopted by this rulemaking action.

If the Administrator finds that the applicable airworthiness regulations (i.e., part 23) do not contain adequate or appropriate safety standards for the Model 500 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Model 500 must comply with the part 23 fuel vent and exhaust emission requirements of 14 CFR part 34 and the part 23 noise certification requirements of 14 CFR part 36, and the FAA must issue a finding of regulatory adequacy pursuant to § 611 of Public Law 92-574, the "Noise Control Act of 1972."

Special conditions, as appropriate, as defined in § 11.19, are issued in accordance with § 11.38 after public notice and become part of the type certification basis in accordance with § 21.17(a)(2).

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, the special conditions would also apply to the other model under the provisions of § 21.101.

Novel or Unusual Design Features

The Eclipse Aviation Corporation Model 500 will incorporate the following novel or unusual design feature:

Turbine engines mounted on the aft of the fuselage. Aft mounted turbine engine installations need to be protected from fire since early visual detection of engine fires is not possible. This notice proposes a special condition for a fire extinguishing system for the engines of the Model 500.

Applicability

As discussed above, these special conditions are applicable to the Eclipse Aviation Corporation Model 500. The engine installation used in the Model 500 does not utilize additional engine compartments other than those addressed in the special conditions. Should Eclipse Aviation Corporation apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well under the provisions of § 21.101.

Conclusion

The originally published proposed special conditions have been revised to clarify that the intent of the proposed rule is to require a fire extinguishing system (reference 14 CFR part 23, § 23.1195(a)(1)) only if a fire is not controllable, and to remove the references to engine compartments that do not exist in this engine installation configuration. This amended special condition does not change the original technical requirements of the proposed special conditions that were the same as the previous requirements applied to part 23 airplanes with aft mounted turbine engines. The Eclipse Model 500 powerplant installation does not have a traditional jet engine nacelle design and does not perform the function of what is considered a traditional nacelle from a fire hazard standpoint. Areas that a fire extinguishing system would normally protect against fire hazards, such as nacelle compartments that can accumulate (pool) flammable fluids that can ignite and support combustion, do not exist in the Model 500 engine nacelle design. Therefore, this rule requires the applicant to show that the chosen control means is effective for any fire originating in the engine nacelle area under all operating conditions, including worst case critical conditions. If the applicant cannot meet this requirement as proposed, then a fire extinguishing system as defined in this publication will be required. These revised special conditions were coordinated and concurred with by the applicant. This action affects only certain novel or unusual design features on one model of airplane. It is not a rule of general applicability, and it affects only the applicant who applied to the FAA for approval of these features on the Eclipse Model 500 airplane.

List of Subjects in 14 CFR Part 23

Aircraft, Aviation safety, Signs and symbols.

Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113 and 44701; 14 CFR 21.16 and 21.17; and 14 CFR 11.38 and 11.19.

The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for the Eclipse Aviation Corporation Model 500.

Engine Fire Extinguishing System

(a) Fires originating in combustor, turbine, and tailpipe sections of the engine installation which contain lines or components carrying flammable fluids must either:

(1) be demonstrated at critical conditions to be controllable by test or a combination of test or analysis; or

(2) a fire extinguishing system must serve each engine compartment.

(b) If a fire extinguishing system is installed, the system must comply with the following requirements:

(1) The system must serve each engine compartment;

(2) The system, the quantity of the extinguishing agent, the rate of discharge, and the discharge distribution must be adequate to extinguish fires. An individual "one shot" system may be used; and

(3) For a nacelle, the system must be able to simultaneously protect each compartment of the nacelle for which protection is provided.

(c) If a fire extinguishing system is installed, fire extinguishing agents must meet the following requirements:

(1) Be capable of extinguishing flames emanating from any burning of fluids or other combustible materials in the area protected by the fire extinguishing system;

(2) Have thermal stability over the temperature range likely to be experienced in the compartment in which they are stored; and

(3) If any toxic extinguishing agent is used, provisions must be made to prevent harmful concentrations of fluid or vapors from entering any personnel compartment even though a defect may exist in the extinguishing system.

(d) If fire extinguishing agents are used, the agent containers must meet the following requirements:

(1) Have a pressure relief to prevent bursting of the container by excessive internal pressures;

(2) The discharge end of each discharge line from a pressure relief connection must be located so the discharge of the fire-extinguishing agent would not damage the airplane. The line must also be located or protected to prevent clogging caused by ice or other foreign matter;

(3) A means must be provided for each fire extinguishing agent container to indicate that the container has discharged or that the charging pressure is below the established minimum necessary for proper functioning;

(4) The temperature of each container must be maintained, under intended operating conditions, to prevent the pressure in the container from falling

below that necessary to provide an adequate rate of discharge, or rising high enough to cause premature discharge; and

(5) If a pyrotechnic capsule is used to discharge the fire extinguishing agent, each container must be installed so that temperature conditions will not cause hazardous deterioration of the pyrotechnic capsule.

(e) If a fire extinguishing system is installed, system materials must meet the following requirements:

(1) No material in any fire extinguishing system may react chemically with any extinguishing agent so as to create a hazard; and

(2) Each system component in an engine compartment must be fireproof.

Issued in Kansas City, Missouri on July 5, 2002.

James E. Jackson,

Acting Manager, Small Airplane Directorate.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001-CE-21-AD]

RIN 2120-AA64

Airworthiness Directives; Raytheon Aircraft Company 200, 300, and 1900 Series, and Models F90 and A100-1 Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes to adopt a new airworthiness directive (AD) that would apply to certain Raytheon Aircraft Company (Raytheon) 200, 300, and 1900 series, and Models F90 and A100-1 airplanes. This proposed AD would require you to check the airplane logbook to determine if the elevator(s) have been removed from the airplane. If the elevator(s) have been removed, this proposed AD would also require you to inspect the elevator balance weight attachment screws for correct length, and, if necessary, install new screws that are of improved design and rebalance the elevator, depending on the results of the inspection. This proposed AD is the result of the elevator balance weight attachment screws and balance weights being improperly installed when balancing the elevator after it had been removed for repair or repainting. The actions specified by this