

By the Office of Thrift Supervision.

James E. Gilleran,
Director.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 23

[Docket No. CE171; Special Conditions No. 23-128-SC

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

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for the Eclipse Aviation Corporation, Model 500 airplane. This airplane will have a novel or unusual design feature(s) associated with aft mounted turbine engines. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These 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.

EFFECTIVE DATE: October 28, 2002.

FOR FURTHER INFORMATION CONTACT: Lowell Foster, FAA, Aircraft Certification Service, Small Airplane Directorate, ACE-111, 901 Locust Street, Kansas City, Missouri 64106, 816-329-4111.

SUPPLEMENTARY INFORMATION:

Background

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

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 Eclipse 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 special conditions;

(6) Exemptions, if any;

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

(8) Special conditions adopted by this rulemaking action.

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 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 certifications 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 Model 500 will incorporate the following novel or unusual design features:

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 special condition covers a fire extinguishing system for the engines of the Model 500.

Discussion of Comments

Notice of proposed special conditions No. 23-01-04-SC-A for the Eclipse Model 500 airplanes was published on January 29, 2002 (67 FR 4215). On June

17, 2002, we published an amended notice of proposed special conditions (67 FR 46927). No comments were received, and the special conditions are adopted as proposed.

Applicability

As discussed above, these special conditions are applicable to the Eclipse Model 500 airplane. 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

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 Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for the Eclipse Aviation Model 500 airplane.

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 September 11, 2002.

Michael Gallagher,

Manager, Small Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2002-NM-220-AD; Amendment 39-12893; AD 2002-19-13]

RIN 2120-AA64

Airworthiness Directives; Certain Airplanes Originally Manufactured by Lockheed

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment adopts a new airworthiness directive (AD) that is applicable to certain airplanes originally manufactured by Lockheed for the military as the P2V. This action requires, among other actions, repetitive dye penetrant and detailed inspections to detect cracks in certain areas located on the left- and right-side lower wing surface between the fuselage and inboard engine nacelle; repetitive detailed inspections of adjacent areas; and repair, if necessary. This action also requires operators to submit a report of the initial inspection findings. This action is necessary to detect and correct stress-related cracking on the left- and right-side lower wing surface between the fuselage and inboard engine nacelle, which could result in structural failure of the wings and consequent loss of control of the airplane. This action is intended to address the identified unsafe condition.

DATES: Effective October 1, 2002.

Comments for inclusion in the Rules Docket must be received on or before November 25, 2002.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2002-NM-220-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056. Comments may be inspected at this location between 9 a.m. and 3 p.m., Monday through Friday, except Federal holidays. Comments may be submitted via fax to (425) 227-1232. Comments may also be sent via the Internet using

the following address: *9-anm-iarcomment@faa.gov*. Comments sent via fax or the Internet must contain "Docket No. 2002-NM-220-AD" in the subject line and need not be submitted in triplicate. Comments sent via the Internet as attached electronic files must be formatted in Microsoft Word 97 for Windows or ASCII text.

Information pertaining to this AD may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Denver Aircraft Certification Office (ACO), FAA, 26805 E. 68th Avenue, Room 214, Denver, Colorado.

FOR FURTHER INFORMATION CONTACT:

Roger Caldwell, Aerospace Engineer, ANM-100D, FAA, Denver ACO, 26805 E. 68th Avenue, Room 214, Denver, Colorado, 80249-6361; telephone (303) 342-1086; fax (303) 342-1088.

SUPPLEMENTARY INFORMATION: The FAA has received reports of extensive cracking found on the left- and right-side lower wing surface between the fuselage and inboard engine nacelle on certain airplanes originally manufactured by Lockheed that, in some cases, are used for the special purpose of forest and wildlife conservation (fighting fires). The cracking generally started from the fuel tank inspection cutouts and access holes (panels 53, and 151 through 153 inclusive) in a chordwise direction. Such cracking may be caused by the age of the airplanes and high stresses that occur during fire-fighting missions. Such cracking, if not detected and corrected, could result in structural failure of the wings and consequent loss of control of the airplane.

FAA's Determination

We have determined that repetitive dye penetrant and detailed inspections of the left- and right-side lower wing surface between the fuselage and inboard engine nacelle, and repetitive detailed inspections of adjacent areas are necessary to ensure that cracks will be detected, and corrective action taken (before further flight), to preclude crack growth to a size that would create an unacceptable risk of structural failure.

Based on the reports of cracking, the required inspections focus on the lower wing surface area surrounding the access holes. The identified method of inspection is considered adequate to detect any cracking in those areas. Also, based on the reports of cracking, and considering the loading environment the affected airplanes may be subjected to in a fire-fighting mission, we have determined that an initial dye penetrant inspection should be performed within