

Proposed Rules

Federal Register

Vol. 72, No. 121

Monday, June 25, 2007

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 23

[Docket No. CE270; Notice No. 23-07-02-SC]

Special Conditions: Adam Aircraft, Model A700; Fire Extinguishing for Aft Fuselage Mounted Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the Adam Aircraft, Model A700 airplane. This airplane will have a novel or unusual design feature(s) associated with aft mounted engine fire protection. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These 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.

DATES: We must receive your comments by July 25, 2007.

ADDRESSES: Mail two copies of your comments to: Federal Aviation Administration, Regional Counsel, ACE-7, 901 Locust, Room 506, Kansas City, Missouri 64106. You may deliver two copies to the Small Airplane Directorate at the above address. Mark your comments: Docket No. CE270. You may inspect comments in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: Leslie B. Taylor, Regulations & Policy Branch, ACE-111, Federal Aviation Administration, Small Airplane Directorate, Aircraft Certification Service, 901 Locust, Kansas City, MO 64106; telephone (816) 329-4134; facsimile (816) 329-4090, e-mail at leslie.b.taylor@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite interested parties to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. You may inspect the docket before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this preamble between 7:30 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on the comments we receive.

If you want the FAA to acknowledge receipt of your comments on this proposal, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

Background

On April 12, 2004, Adam Aircraft applied for a type certificate for their new Model A700. The Model A700, is a 6 to 8 seat, pressurized, retractable-gear, composite structure airplane with two turbofan engines mounted on pylons on either side of the aft fuselage.

Part 23 has historically addressed fire protection through prevention, identification, and containment. Prevention has been provided through minimizing the potential for ignition of flammable fluids and vapors. Identification has been provided by locating engines within the pilots' primary field of view and/or with the incorporation of fire detection systems. This has provided both rapid detection of a fire and confirmation when it was extinguished. Containment has been provided through the isolation of designated fire zones, through flammable fluid shutoff valves, and firewalls. This containment philosophy

also ensures that components of the engine control system will function effectively to permit a safe shutdown of an engine. However, containment has only been demonstrated for 15 minutes. If a fire occurs in traditional part 23 airplanes, the appropriate corrective action is to land as soon as possible. For a small, simple airplane originally envisioned by part 23, it is possible to descend and land within 15 minutes. Thus, the occupants can safely exit the airplane before the firewall is breached. These simple airplanes normally have the engine located away from critical flight control systems and primary structure. This has ensured that, throughout a fire event, a pilot can continue safe flight, and it has made the prediction of fire effects relatively easy. Other design features of these simple aircraft, such as low stall speeds and short landing distances, ensure that even in the event of an off field landing, the potential for the outcome being catastrophic has been minimized.

Title 14 CFR, part 23, did not envision the type of configuration of the Model A700 airplane. The Model A700 incorporates two turbofan engines located on pylons on either side of the aft fuselage. These engines are not in the pilots' field of view. With the location in the aft fuselage, the ability to visually detect a fire is minimal.

Type Certification Basis

Under 14 CFR 21.17, Adam Aircraft must show that the Model A700 meets the applicable provisions of part 23, as amended by Amendments 23-1 through 23-55 thereto.

If the Administrator finds that the applicable airworthiness regulations in 14 CFR part 23 do not contain adequate or appropriate safety standards for the Model A700 because of a novel or unusual design feature, special conditions are prescribed under § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Model A700 must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36, and the FAA must issue a finding of regulatory adequacy under § 611 of Public Law 92-574, the "Noise Control Act of 1972."

The FAA issues special conditions, as defined in § 11.19, under § 11.38, and they become part of the type certification basis under § 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 or similar novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

Novel or Unusual Design Features

The Model A700 will incorporate the following novel or unusual design features:

The Model A700 incorporates two turbofan engines located on pylons on either side of the aft fuselage. These engines are not in the pilots' field of view. The effects of a fire in such a compartment are more varied and adverse than the typical engine fire in a simple part 23 airplane. With the location in the aft fuselage, the ability to visually detect a fire is minimal.

However, the ability to extinguish an engine fire becomes extremely critical with the Model A700 engine location.

While the certification basis for the Model A700 requires that a fire detection system be installed due to the engine location, fire extinguishing is also considered a requirement. A sustained fire could result in loss of control of the airplane and damage to primary structure before an emergency landing could be made. Because of the location of critical structures and flight controls, a means to minimize the probability of re-ignition from occurring is necessary. One acceptable method to minimize re-ignition is to install a two-shot system. The effects of a fire emanating from an enclosed engine installation are more varied, adverse, and more difficult to predict than an engine fire envisioned for typical part 23 airplanes.

Discussion

The engines are on pylons on either side of the aft fuselage so there is a need to prevent flammable vapors, flammable fluids, and flame from accumulating. Finally, there is a need to extinguish fires.

Applicability

As discussed above, these special conditions are applicable to the Model A700. Should Adam Aircraft apply later 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.

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 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 Adam Aircraft, Model A700 airplanes.

Aft fuselage mounted engines need to protect the airplane from fires that were not envisioned in the development of part 23. Therefore, special conditions for a fire extinguishing system are required for airplanes with this engine configuration.

Regulations requiring and defining engine compartment fire extinguishing systems already exist for part 23 commuter category airplanes. These regulations will provide an adequate level of safety for the normal category Model A700 aircraft with its aft pylon mounted engines.

As the extinguishing agent is subject to change during the service life of the airplane, the certification basis has the need to include 14 CFR part 23, § 23.1197 in its entirety.

Each fire zone should be ventilated to prevent the accumulation of flammable vapors. It must also be designed such that it will not allow entry of flammable fluids, vapors, or flames from other fire zones. It must be designed such that it does not create an additional fire hazard from the discharge of vapors or fluids.

1. *SC 23.1195*—Add the requirements of § 23.1195 while deleting “For commuter category airplanes.” 23.1195, Fire Extinguishing Systems

(a) Fire extinguishing systems must be installed and compliance shown with the following:

(1) Except for combustor, turbine, and tailpipe sections of turbine-engine installations that contain lines or components carrying flammable fluids or gases for which a fire originating in these sections is shown to be controllable, a fire extinguisher system must serve each engine compartment;

(2) The fire extinguishing system, the quantity of extinguishing agent, the rate

of discharge, and the discharge distribution must be adequate to extinguish fires. An individual “one-shot” system may be used except for embedded engines where a “two-shot” system is required.

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

(b) If an auxiliary power unit is installed in any airplane certificated to this part, that auxiliary power unit compartment must be served by a fire extinguishing system meeting the requirements of paragraph (a)(2) of this section.

2. *SC 23.1197*—Add the requirements of § 23.1197 while deleting “For commuter category airplanes.”

23.1197, Fire Extinguishing Agents

The following applies:

(a) Fire extinguishing agents must—

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

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

(b) If any toxic extinguishing agent is used, provisions must be made to prevent harmful concentrations of fluid or fluid vapors (from leakage during normal operation of the airplane or as a result of discharging the fire extinguisher on the ground or in flight) from entering any personnel compartment, even though a defect may exist in the extinguishing system. This must be shown by test except for built-in carbon dioxide fuselage compartment fire extinguishing systems for which—

(1) Five pounds or less of carbon dioxide will be discharged under established fire control procedures into any fuselage compartment; or

(2) Protective breathing equipment is available for each flight crewmember on flight deck duty.

3. *SC 23.1199*—Add the requirements of § 23.1199 while deleting “For commuter category airplanes.”

23.1199, Extinguishing Agent Containers

The following applies:

(a) Each extinguishing agent container must have a pressure relief to prevent bursting of the container by excessive internal pressures.

(b) The discharge end of each discharge line from a pressure relief connection must be located so that 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.

(c) 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.

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

(1) Falling below that necessary to provide an adequate rate of discharge; or
(2) Rising high enough to cause premature discharge.

(e) 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.

4. *SC 23.1201*—Add the requirements of § 23.1201 while deleting “For commuter category airplanes.”

23.1201, Fire Extinguishing System Materials

The following apply:

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

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

Issued in Kansas City, Missouri, on June 14, 2007.

Kim Smith,

Manager, Small Airplane Directorate, Aircraft Certification Service.

[FR Doc. E7-12121 Filed 6-22-07; 8:45 am]

BILLING CODE 4910-13-P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2007-28378; Directorate Identifier 2007-NM-089-AD]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 727 Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for all Boeing Model 727 airplanes. This proposed AD would require doing an initial detailed inspection for cracks in the aft pressure bulkhead web; repairing any discrepancy; and doing repetitive

detailed inspections, and doing related investigative actions, if necessary. This proposed AD results from reports of cracking in the aft pressure bulkhead web. We are proposing this AD to detect and correct a cracked pressure bulkhead web, which could result in rapid decompression of the airplane.

DATES: We must receive comments on this proposed AD by August 9, 2007.

ADDRESSES: Use one of the following addresses to submit comments on this proposed AD.

- *DOT Docket Web site:* Go to <http://dms.dot.gov> and follow the instructions for sending your comments electronically.

- *Government-wide rulemaking Web site:* Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.

- *Mail:* U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

- *Fax:* (202) 493-2251.

- *Hand Delivery:* Room W12-140 on the ground floor of the West Building, 1200 New Jersey, Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207, for the service information identified in this proposed AD.

FOR FURTHER INFORMATION CONTACT: Berhane Alazar, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6577; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to submit any relevant written data, views, or arguments regarding this proposed AD. Send your comments to an address listed in the **ADDRESSES** section. Include the docket number “FAA-2007-28378; Directorate Identifier 2007-NM-089-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the proposed AD. We will consider all comments received by the closing date and may amend the proposed AD in light of those comments.

We will post all comments we receive, without change, to <http://dms.dot.gov>, including any personal information you provide. We will also post a report summarizing each

substantive verbal contact with FAA personnel concerning this proposed AD. Using the search function of that Web site, anyone can find and read the comments in any of our dockets, including the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You may review DOT’s complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477-78), or you may visit <http://dms.dot.gov>.

Examining the Docket

You may examine the AD docket on the Internet at <http://dms.dot.gov>, or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Operations office (telephone (800) 647-5527) is located on the ground level of the West Building at the DOT street address stated in the **ADDRESSES** section. Comments will be available in the AD docket shortly after the Docket Management System receives them.

Discussion

We have received a report of a 6.8-inch crack oriented horizontally in the aft pressure bulkhead web located at station 1183 at water line 210 from right buttock line (RBL) 50.7 to RBL 57.5. We also have received a report of a 14.5-inch crack in the same bay between left buttock line (LBL) 46 to LBL 63. These events occurred on Boeing Model 727 airplanes. The cracks were attributed to fatigue of the pressure bulkhead web due to cabin pressurization cycles. Analysis by Boeing revealed multiple crack origins along the length of the web, which propagated through the web thickness. A cracked pressure bulkhead web, if not corrected, could result in rapid decompression of the airplane.

Relevant Service Information

We have reviewed Boeing Special Attention Service Bulletin 727-53-0230, dated January 8, 2007. The service information describes the following procedures:

- Doing an initial detailed inspection for cracks in the aft pressure bulkhead web;
- Doing repetitive detailed inspections if necessary; and
- Repairing any crack, doing related investigative actions if necessary, and contacting Boeing for certain repairs. The related investigative actions include a high frequency eddy current inspection and a detailed inspection to make sure that structure common to the