

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 25**

[Docket No. NM245; Special Conditions No. 25-229-SC]

Special Conditions: Bombardier Aerospace Model BD-100-1A10; Sudden Engine Stoppage

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued to Bombardier Aerospace for the Model BD-100-1A10 airplane. This airplane will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes, associated with engine size and torque load which affects sudden engine stoppage. 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.

DATES: The effective date of these special conditions is March 6, 2003. Comments must be received on or before May 1, 2003.

ADDRESSES: Comments on these special conditions may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM-113), Docket No. NM245, 1601 Lind Avenue SW., Renton, Washington 98055-4056; or delivered in duplicate to the Transport Airplane Directorate at the above address. All comments must be marked: Docket No. NM245. 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: Todd Martin, FAA Airframe/Cabin Safety Branch, ANM-115, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98055-4056; telephone (425) 227-1178; facsimile (425) 227-1320.

SUPPLEMENTARY INFORMATION:**FAA Determination as to Need for Public Process**

The FAA has determined that notice and opportunity for prior public

comment are unnecessary in accordance with 14 CFR 11.38, because the FAA has provided previous opportunities to comment on substantially identical special conditions and has fully considered and addressed all the substantive comments received. Based on a review of the comment history and the comment resolution, the FAA is satisfied that new comments are unlikely. The FAA therefore finds that good cause exists for making these special conditions effective upon issuance.

Comments Invited

Although this action is in the form of final special conditions and, for the reasons stated above, is not preceded by notice and an opportunity for public comment, comments are invited on these special conditions. We invite interested persons to participate in this rulemaking by submitting 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. The docket is available for public inspection 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 in light of the comments we receive.

If you want the FAA to acknowledge receipt of your comments on these special conditions, 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 June 28, 1999, Bombardier Aerospace applied for a new type certificate for their Model BD-100-1A10 airplane. The BD-100-1A10 is a medium range transport category airplane, powered by two rear fuselage-mounted Allied Signal AS907 engines. This engine model is a high bypass turbofan engine, with 6826 lb. takeoff thrust at sea level flat rated to ISA+20°.

Type Certification Basis

Under the provisions of 14 CFR 21.17, Bombardier Aerospace must show that the Model BD-100-1A10 meets the applicable provisions of part 25, as amended by Amendments 25-1 through 25-98. The type certification basis for the Model BD-100-1A10 will therefore include 14 CFR part 25, effective February 1, 1965, including Amendments 25-1 through 25-98; 14 CFR, part 34, effective September 10, 1990, including Amendment 34-1, and any subsequent amendments that will be applicable on the date the type certificate is issued; and 14 CFR part 36, effective December 1, 1969, including Amendments 36-1 through 36-22, and any subsequent amendments that will be applicable on the date the type certificate is issued. The certification basis may also include certain exceptions, exemptions, and other special conditions that are not relevant to these special conditions:

If the Administrator finds that the applicable airworthiness regulations (that is, part 25) do not contain adequate or appropriate safety standards for the Model BD-100-1A10 airplane 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 BD-100-1A10 must comply with the fuel vent and exhaust emission requirements of part 34 and the noise certification requirements of part 36; and the FAA must issue a finding of regulatory adequacy pursuant to Section 611 of Public Law 92-574, the "Noise Control Act of 1972."

Special conditions, as defined in § 11.19, are issued in accordance with § 11.38 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(a)(1) [Amendment 21-69, effective September 16, 1991].

Novel or Unusual Design Features

The Bombardier Aerospace Model BD-100-1A10 will incorporate novel or unusual design features involving engine size and torque load that affect sudden engine stoppage conditions.

Discussion

The limit engine torque load imposed by sudden engine stoppage due to malfunction or structural failure (such as compressor jamming) has been a specific requirement for transport category airplanes since 1957. In the past, the design torque loads associated with typical failure scenarios have been estimated by the engine manufacturer and provided to the airframe manufacturer as limit loads. These limit loads were considered simple, pure torque static loads. The size, configuration, and failure modes of jet engines have changed considerably from those envisioned when the engine seizure requirement of § 25.361(b) was first adopted. Current engines are much larger and are now designed with large bypass fans capable of producing much larger torque loads if they become jammed. It is evident from service history that the frequency of occurrence of the most severe sudden engine stoppage events is rare.

Relative to the engine configurations that existed when the rule was developed in 1957, the present generation of engines are sufficiently different and novel to justify issuance of special conditions to establish appropriate design standards. The latest generation of jet engines are capable of producing, during failure, transient loads that are significantly higher and more complex than the generation of engines that were present when the existing standard was developed. Therefore, the FAA has determined that special conditions are needed for the Bombardier Aerospace Model BD-100-1A10 airplane.

In order to maintain the level of safety envisioned in § 25.361(b), more comprehensive criteria is needed for the new generation of high-bypass engines. The special conditions would distinguish between the more common engine failure events and those rare events resulting from structural failures. For these rarer but more severe seizure events, the criteria could allow some deformation in the engine supporting structure (ultimate load design) in order to absorb the higher energy associated with the high-bypass engines, while at the same time protecting the adjacent primary structure in the wing and fuselage by providing a higher safety factor. The criteria for the more severe events would no longer be a pure static torque load condition, but would account for the full spectrum of transient dynamic loads developed from the engine failure condition.

Applicability

As discussed above, these special conditions are applicable to the Bombardier Aerospace Model BD-100-1A10 airplane. Should Bombardier Aerospace apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well under the provisions of § 21.101(a)(1) [Amendment 21-69, effective September 16, 1991].

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

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 Bombardier Aerospace Model BD-100-1A10 airplanes.

1. *Sudden Engine Stoppage.* In lieu of compliance with § 25.361(b), the following special conditions apply:

a. For turbine engine installations, the engine mounts, pylons, and adjacent supporting airframe structure must be designed to withstand 1g level flight loads acting simultaneously with the maximum limit torque loads imposed by each of the following:

(1) Sudden engine deceleration due to a malfunction which could result in a temporary loss of power or thrust.

(2) The maximum acceleration of the engine.

b. For auxiliary power unit installations, the power unit mounts and adjacent supporting airframe structure must be designed to withstand 1g level flight loads acting simultaneously with the maximum limit torque loads imposed by each of the following:

(1) Sudden auxiliary power unit deceleration due to malfunction or structural failure.

(2) The maximum acceleration of the auxiliary power unit.

c. For engine supporting structure, an ultimate loading condition must be considered that combines 1g flight loads with the transient dynamic loads resulting from each of the following:

(1) The loss of any fan, compressor, or turbine blade.

(2) Where applicable to a specific engine design, and separately from the conditions specified in paragraph c(1)

above, any other engine structural failure that results in higher loads.

d. The ultimate loads developed from the conditions specified in paragraphs c(1) and c(2) above are to be multiplied by a factor of 1.0 when applied to engine mounts and pylons and multiplied by a factor of 1.25 when applied to adjacent supporting airframe structure.

Issued in Renton, Washington, on March 6, 2003.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 03-6332 Filed 3-14-03; 8:45 am]

BILLING CODE 4910-13-U

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Airspace Docket No. 02-AEA-13]

Establishment of Class D Airspace; Rome, NY

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; delay of effective date.

SUMMARY: This corrective action changes the effective date for the establishment of the Class D airspace area at Rome, NY. The proposed commissioning date for the Airport Traffic Control Tower (ATCT) has been delayed; therefore, the effective date of the establishment of the Class D airspace must also be delayed.

EFFECTIVE DATE: 0901 UTC May 15, 2003

FOR FURTHER INFORMATION CONTACT: Mr. Francis Jordan, Airspace Specialist, Airspace Branch, AEA-520, Air Traffic Division, Eastern Region, Federal Aviation Administration, 1 Aviation Plaza, Jamaica, New York 11434-4809, telephone: (718) 553-4521.

SUPPLEMENTARY INFORMATION:

History

Federal Register Document 02-29902, Airspace Docket No. 02-AEA-13, published in the **Federal Register** on November 25, 2002 (67 FR 70533-70534), established the description of the Class D airspace area at Rome, NY. This action was originally scheduled to become effective on March 20, 2003; however, a delay in the commissioning of the ATCT has required the effective date of this action to be delayed until May 15, 2003.

Accordingly, pursuant to the authority delegated to me, the effective date for the Class D airspace area at