

# Proposed Rules

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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 25

[Docket No. NM378 Special Conditions No. 25-07-11-SC]

#### Special Conditions: Boeing Model 787-8 Airplane; Operation Without Normal Electrical Power

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed special conditions.

**SUMMARY:** This notice proposes special conditions for the Boeing Model 787-8 airplane. This airplane will have novel or unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. The Boeing Model 787-8 airplane will have numerous electrically operated systems whose function is needed for continued safe flight and landing of the airplane. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for these design features. 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. Additional special conditions will be issued for other novel or unusual design features of the Boeing Model 787-8 airplanes.

**DATES:** Comments must be received on or before November 15, 2007.

**ADDRESSES:** Comments on this proposal may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attention: Rules Docket (ANM-113), Docket No. NM378, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; or delivered in duplicate to the Transport Airplane Directorate at the above address. All comments must be marked Docket No. NM378. 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:** Stephen Slotte, FAA, Airplane & Flight Crew Interface Branch, ANM-111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-2315; facsimile (425) 227-1320.

#### SUPPLEMENTARY INFORMATION:

##### Comments Invited

The FAA invites 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 proposed 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 notice 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 the proposed special conditions based on 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 March 28, 2003, Boeing applied for an FAA type certificate for its new Boeing Model 787-8 passenger airplane. The Boeing Model 787-8 airplane will be an all-new, two-engine jet transport airplane with a two-aisle cabin. The maximum takeoff weight will be 476,000 pounds, with a maximum passenger count of 381 passengers.

#### Type Certification Basis

Under provisions of Title 14 Code of Federal Regulations (CFR) 21.17, Boeing must show that Boeing Model 787-8 airplanes (hereafter referred to as "the 787") meet the applicable provisions of 14 CFR part 25, as amended by Amendments 25-1 through 25-117, except §§ 25.809(a) and 25.812, which will remain at Amendment 25-115. If the Administrator finds that the applicable airworthiness regulations do not contain adequate or appropriate safety standards for the 787 because of a novel or unusual design feature, special conditions are prescribed under provisions of 14 CFR 21.16.

In addition to the applicable airworthiness regulations and special conditions, the 787 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. In addition, 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 14 CFR 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 or similar 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 787 will incorporate a number of novel or unusual design features, some of which have not been previously installed on large commercial aircraft. Because of these design features, these proposed special conditions differ from similar previously proposed special conditions for other airplane models. Due to rapid improvements in airplane technology, the applicable airworthiness regulations do not contain adequate or appropriate safety standards for these design features. These proposed special conditions for the 787 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.

In addition to an electronic flight control system, a number of systems that have traditionally been pneumatically or mechanically operated have been implemented as electrically powered systems on the 787. Examples include the hydraulic power, equipment cooling, wing anti-ice, and the auxiliary power unit (APU) and engine start systems. The criticality of some of these systems is such that their failure will either reduce the capability of the airplane or the ability of the crew to cope with adverse operating conditions, or prevent continued safe flight and landing of the airplane. The airworthiness standards of part 25 do not contain adequate or appropriate standards for protection of these systems from the adverse effects of operation without normal electrical power.

The current rule, 14 CFR 25.1351(d), Amendment 25-72, requires safe operation under visual flight rules (VFR) conditions for at least five minutes after loss of all normal electrical power. This rule was structured around traditional airplane designs that used mechanical control cables and linkages for flight control. These manual controls allowed the crew to maintain aerodynamic control of the airplane for an indefinite period of time after loss of all electrical power. Under these conditions, the mechanical flight control system provided the crew with the ability to fly the airplane while attempting to identify the cause of the electrical failure, start the engine(s) if necessary, and reestablish some of the electrical power generation capability, if possible.

To maintain the same level of safety associated with traditional designs, the 787 must be designed for operation with the normal sources of engine- and auxiliary-power-unit (APU)-generated electrical power inoperative. Service experience has shown that loss of all electrical power from the airplane's engine- and APU-driven generators is not extremely improbable. Thus, Boeing must demonstrate that the airplane is capable of recovering adequate primary electrical power generation for safe flight and landing. This demonstration would provide that the ability to restore operation of portions of the electrical power generation capability would be considered if unrecoverable loss of those portions is shown to be extremely improbable. An alternative source of electrical power would have to be provided for the time necessary to restore the minimum power generation capability necessary for safe flight and landing.

### Applicability

As discussed above, these proposed special conditions are applicable to the 787. Should Boeing apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design features, these proposed special conditions would apply to that model as well under the provisions of § 21.101.

### Conclusion

This action would affect only certain novel or unusual design features of the 787. It is not a rule of general applicability, and it would affect only the applicant that applied to the FAA for approval of these features on the airplane.

### 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 Proposed Special Conditions

Accordingly, the Administrator of the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for the Boeing Model 787-8 airplane.

In lieu of the requirements of 14 CFR 25.1351(d), the following special conditions apply:

(1) The applicant must show by test or a combination of test and analysis that the airplane is capable of continued safe flight and landing with all normal sources of engine- and auxiliary-power-unit (APU)-generated electrical power inoperative, as prescribed by paragraphs (1)(a) and (1)(b) below. For purposes of this special condition, normal sources of electrical power generation do not include any alternate power sources such as the battery, ram air turbine (RAT), or independent power systems such as the flight control permanent magnet generating system. In showing capability for continued safe flight and landing, consideration must be given to systems capability, effects on crew workload and operating conditions, and the physiological needs of the flightcrew and passengers for the longest diversion time for which approval is sought.

(a) Common cause failures, cascading failures, and zonal physical threats must be considered in showing compliance with this requirement.

(b) In showing compliance with this requirement, the ability to restore operation of portions of the electrical power generation and distribution

system may be considered if it can be shown that unrecoverable loss of those portions of the system is extremely improbable. An alternative source of electrical power must be provided for the time required to restore the minimum electrical power generation capability required for safe flight and landing. (Unrecoverable loss of all engines may be excluded when showing that unrecoverable loss of critical portions of the electrical system is extremely improbable.)

(2) Regardless of any electrical generation and distribution system recovery capability shown under paragraph 1, sufficient electrical system capability must be provided—

(a) to allow time to descend, with all engines inoperative, at the speed that provides the best glide slope, from the maximum operating altitude to the altitude at which the soonest possible engine restart could be accomplished, and

(b) to subsequently allow multiple start attempts of the engines and APU. This capability must be provided in addition to the electrical capability required by existing part 25 requirements related to operation with all engines inoperative.

(3) The electrical energy used by the airplane in descending with engines inoperative from the maximum operating altitude at the best glide slope, and in making multiple attempts to start the engines and APU, must be considered when showing compliance with paragraphs (1) and (2) of these special conditions and with existing 14 CFR part 25 requirements related to continued safe flight and landing.

Issued in Renton, Washington, on October 5, 2007.

**Ali Bahrami,**

*Manager, Transport Airplane Directorate, Aircraft Certification Service.*

[FR Doc. E7-20310 Filed 10-15-07; 8:45 am]

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 71

[Docket No. FAA-2007-29011; Airspace Docket No. 07-AAL-14]

#### Proposed Revision of Class D and E Airspace; Kenai, AK

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** This action proposes to revise Class D and E airspace at Kenai, AK.