

hazardous quantity of liquid, gas, or flame can pass from the isolated compartment to the other engine and the propulsion drive system and so that firewall temperatures under all normal or failure conditions would not result in auto-ignition of flammable fluids and vapors present in the other engine and the propulsion drive system.

(2) Components, lines, and fittings located in the engine and propulsion drive system compartments must be constructed of such materials and located at such distances from the firewall that they will not suffer damage sufficient to endanger the airplane if a fire is present in an adjacent engine compartment.

(f) *Airplane Performance.*

(1) In addition to § 23.53(b)(1) (Amendment 23-34), the airplane, upon reaching a height of 50 feet above the takeoff surface level, must have reached a speed of not less than  $1.3 V_{S1}$ , or any lesser speed, not less than  $V_X$  plus 4 knots, that is shown to be safe under all conditions, including turbulence and the propeller control system failed in any configuration that is not extremely improbable.

(2) In lieu of § 23.67(c)(1) (Amendment 23-42), the steady climb gradient must be determined at each weight, altitude, and ambient temperature within the operational limits established by the applicant, with the airplane in the following configurations:

(i) Critical engine inoperative, remaining engine at not more than maximum continuous power or thrust, wing flaps in the most favorable position, and means for controlling the engine cooling air supply in the position used in the engine cooling tests required by § 23.1041 (Amendment 23-7) through § 23.1045 (Amendment 23-7);

(ii) Both engine operating normally and the propeller control system failed in any configuration that is not extremely improbable, the engines at more than maximum continuous power or thrust, wing flaps in the most favorable position, and means for controlling the engine cooling air supply in the position used in the engine cooling tests required by § 23.1041 (Amendment 23-7) through § 23.1045 (Amendment 23-7).

(3) *Enroute climb/descent.*

(i) Compliance to § 23.69(a) (Amendment 23-50) must be shown.

(ii) The steady gradient and rate of climb/descent must be determined at each weight, altitude, and ambient temperature within the operational limits established by the applicant with—

(A) The critical engine inoperative, the engines at not more than maximum continuous power, the wing flaps retracted, and a climb speed not less than  $1.2 V_{S1}$ .

(B) Both engines operating normally and the propeller control system failed in any configuration that is not extremely improbable, the engines at not more than maximum continuous power, the wing flaps retracted, and a climb speed not less than  $1.2 V_{S1}$ .

(4) In addition to § 23.75 (Amendment 23-42), the horizontal distance necessary to land and come to a complete stop from a point 50 feet above the landing surface must be determined as required in § 23.75 (Amendment 23-42) with both engines operating normally and the propeller control system failed in any configuration that is not extremely improbable.

(g) *Airspeed Indicator.* In lieu of the requirements of § 23.1545(b)(5) (Amendment 23-23), for one-engine inoperative or the propeller control system failed in any configuration that is not extremely improbable, whichever is most critical, the best rate of climb speed  $V_Y$ , must be identified with a blue sector extending from the  $V_Y$  speed at sea level to the  $V_Y$  speed at an altitude of 5,000 feet, if  $V_Y$  is less than 100 feet per minute, or the highest 1,000-foot altitude (at or above 5,000 feet) at which the  $V_Y$  is 100 feet per minute or more. Each side of the sector must be labeled to show the altitude for the corresponding  $V_Y$ .

(h) *Airplane Flight Manual.*

(1) In addition to the requirements of § 23.1585(c) (Amendment 23-34), the following information must be included in the Airplane Flight Manual (AFM):

(i) Procedures for maintaining or recovering control of the airplane at speeds above and below  $V_{S1}$  with the propeller control system failed in any configuration that is not extremely improbable.

(ii) Procedures for making a landing with the propeller control system failed in any configuration that is not extremely improbable and procedures for making a go-around with the propeller control system failed in any configuration that is not extremely improbable, if this latter maneuver can be performed safely; otherwise, a warning against attempting the maneuver.

(iii) Procedures for obtaining the best performance with the propeller control system failed in any configuration that is not extremely improbable, including the effects of the airplane configuration.

(2) In lieu of the requirements of § 23.1587(c)(2) and (c)(4) (Amendment 23-39), the following information must

be furnished in the Airplane Flight Manual:

(i) The best rate-of-climb speed or the minimum rate-of-descent speed with one engine inoperative or the propeller control system failed in any configuration that is not extremely improbable, whichever is more critical.

(ii) The steady rate or gradient of climb determined in paragraph (f)(2)(i) or paragraph (f)(2)(ii) of these special conditions, whichever is more critical, and the airspeed, power, and airplane configuration.

(3) The steady rate and gradient of climb determined in paragraph (f)(3) of these special conditions must be furnished in the Airplane Flight Manual.

(4) The landing distance determined under § 23.75 (Amendment 23-42) or in paragraph (f)(4) of these proposed special conditions whichever is more critical.

Issued in Kansas City, Missouri on March 9, 1999.

**Marvin Nuss,**

*Acting Manager, Small Airplane Directorate, Aircraft Certification Service.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 25

[Docket No. NM152; Notice No. 25-99-01-SC]

#### Special Conditions: Boeing Model 717-200 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 717-200 airplane. This airplane will have novel or unusual design features associated with its electronic flight and engine control systems. 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.

**DATES:** Comments must be received on or before April 26, 1999.

**ADDRESSES:** Comments on this proposal may be mailed in duplicate to: Federal

Aviation Administration, Office of the Assistant Chief Counsel, Attention: Rules Docket (ANM-7), Docket No. NM152, 1601 Lind Avenue SW, Renton, Washington 98055-4056, or delivered in duplicate to the Office of the Assistant Chief Counsel at the above address. Comments must be marked: NM152. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4:00 p.m.

**FOR FURTHER INFORMATION CONTACT:** Gerry Lakin, FAA, Standardization Branch, ANM-113, Transport Standards Staff, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98055-4056; telephone (425) 227-1187, facsimile (425) 227-1149.

#### **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. NM152." The postcard will be date stamped and returned to the commenter.

##### **Background**

On August 8, 1994, the Los Angeles Certification Office received an application from the McDonnell Douglas Corporation, now a wholly owned subsidiary of The Boeing Company, informing the FAA of their intention to seek an amendment to FAA Type Certificate No. A6WE to add the new Model MD-95-30, which was later renamed the Boeing Model 717-200.

The Boeing Model 717-200 is a derivative of the DC-9/MD-80/MD-90 series of airplanes, Type Certificate No.

A6WE, and is scheduled to be certificated in July 1999. The Boeing Model 717-200 is a low-wing, pressurized airplane with twin, body-mounted, jet engines that is configured for approximately 100 passengers. The airplane has a maximum takeoff weight of 121,000 pounds, a maximum landing weight of 104,000 pounds, a maximum operating altitude of 37,000 feet, and a range of 1500 nautical miles at a cruise speed of Mach 0.76. The overall length of the Boeing Model 717-200 is 124 feet, the height is 29 feet, 1 inch, and the wing span is 93 feet, 4 inches. Features have been added to the Boeing Model 717-200 to provide cost-efficient performance and decreased crew workload. These features include an advanced flight compartment, BMW/Rolls-Royce BR715 engines, an advanced auxiliary power unit (APU), advanced environmental systems, and an updated interior.

The advanced flight compartment includes an electronic instrument system, with six liquid crystal displays, to show navigation, engine, and system data. For decreased crew workload, the Boeing Model 717-200 has a flight management system and an autoflight system, with Category IIIa autoland capability. A central fault display system allows maintenance personnel access to fault data to perform return-to-service tests.

The Boeing Model 717-200 is equipped with two electronically controlled BMW/Rolls-Royce BR715 high-bypass ratio engines capable of supplying up to 21,000 pounds of thrust. For reverse thrust, the engine has fixed pivot door type thrust reversers.

The advanced APU is a simple design with a single-stage compressor and turbine. The APU uses modular components for increased reliability and decreased maintenance and is controlled by an electronic control unit.

The Boeing Model 717-200 has a simplified pneumatic system to supply bleed-air for the airplane systems. The dual cabin pressure control system has automatic control, with a manual backup.

The passenger compartment interior has overhead stowage compartments, forward and aft lavatories, and two forward service galleys. The interior also has a full-grip lighted handrail attached to the overhead stowage compartments, for safety and convenience. Class C cargo compartments are located in the lower forward and aft ends of the airplane.

##### **Type Certification Basis**

Under the provisions of § 21.101, The Boeing Company must show that the

Boeing Model 717-200 meets the applicable provisions of the regulations incorporated by reference in Type Certificate No. A6WE or the applicable regulations in effect on the date of application for the change to the type certificate. The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis." The regulations incorporated by reference in Type Certificate No. A6WE are as follows:

The type certification basis for the Boeing Model 717-200 airplane is 14 CFR part 25, effective February 1, 1965, as amended by Amendments 25-1 through 25-82, except for certain reversion to earlier amendments for parts of the airplane not affected by these special conditions.

In addition, the certification basis for the Boeing Model 717-200 includes the fuel vent and exhaust emission requirements of 14 CFR part 34, effective September 10, 1990, plus any amendments in effect at the time of certification; and the noise certification requirements of 14 CFR part 36, effective December 1, 1969, as amended by Amendment 36-1 through the amendment in effect at the time of certification. These special conditions will form an additional part of the type certification basis. The certification basis may also include other special conditions and exemptions that are not relevant to these special conditions.

If the Administrator finds that the applicable airworthiness regulations (i.e., part 25 as amended) do not contain adequate or appropriate safety standards for the Boeing Model 717-200 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions, as appropriate, are issued in accordance with § 11.49 after public notice, as required by §§ 11.28 and 11.29(b), and become part of the type certification basis in accordance with § 21.101(b)(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, or should any other model already included on the same type certificate be modified to incorporate 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).

##### **Novel or Unusual Design Features**

The Boeing Model 717-200 will utilize electronic flight and engine control systems that establish the

criticality of the electrical power generation and distribution systems. Since the loss of all electrical power may be catastrophic to the airplane, a special condition is proposed to retain the level of safety envisioned by § 25.1351(d).

The Boeing Model 717-200 airplane requires a continuous source of electrical power in order for the electronic flight instrument system to remain operable. Section § 25.1351(d), "Operation without normal electrical power," requires safe operation in visual flight rule (VFR) conditions for a period of not less than five minutes with inoperative normal power. This rule was structured around a traditional design utilizing analog/mechanical flight instrumentation, which allows the crew to sort out the electrical failure, start engine(s) if necessary, and re-establish some of the electrical power generation capability. However, with today's aircraft, complex electronic/avionics systems are now performing critical functions that may require uninterrupted electrical power for continued safe flight (in instrument meteorological conditions (IMC)) and landing.

In addition, § 121.161 states that an operator may fly a twin-engine airplane over a route that allows up to one hour flying time from a suitable airport. If Boeing seeks operational approval for extended over water operations, with a possible diversion time of one hour, the emergency power system must be capable of providing at least one hour of operation to critical and essential systems. If, however, Boeing intends to exclude extended over water operations, then only 30 minutes of emergency power will be required.

In order to maintain the same level of safety associated with traditional designs, the Boeing Model 717-200 design must provide at least 30 minutes of emergency power without the normal source of engine or APU generated electrical power. It should be noted that service experience has shown that the loss of all electrical power generated by the airplane's engine generators or APU is not extremely improbable. Thus, it must be demonstrated that the airplane can continue through safe flight and landing with only the use of its emergency electrical power systems. These emergency electrical power systems must be able to power loads that are essential for continued safe flight and landing. The emergency electrical power system must be designed to:

1. Continue to operate the airplane for immediate safety without the need for crew action following the loss of the

normal engine (which includes APU power) generator electrical power system,

2. Supply electrical power required for continued safe flight and landing, and

3. Supply electrical power required to restart the engines.

For compliance purposes a test demonstration of the loss of normal engine generator power is to be established such that:

1. The failure condition is assumed to occur during night IMC at the most critical phase of the flight relative to the electrical power system design and distribution of equipment loads on the system.

2. The airplane engine restart capability must be provided and operations continued in IMC after the unrestorable loss of normal engine generator power.

3. The airplane is demonstrated to be capable of continuous safe flight and landing. The length of time must be computed based on the maximum diversion time capability for which the airplane is being certified.

Consideration for speed reductions resulting from the associated failure must be made.

4. The availability of APU operation should not be considered in establishing emergency power system adequacy.

#### Applicability

As discussed above, these special conditions are applicable to the Boeing Model 717-200. Should The Boeing Company 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(a)(1).

#### Conclusion

This action affects only certain novel or unusual design features on Boeing Model 717-200 airplanes. 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 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 Federal Aviation Administration (FAA) proposes the following special conditions as part of

the type certification basis for Boeing Model 717-200 airplanes.

1. *Operation Without Normal Electrical Power.* In lieu of compliance with § 25.1351(d), "It must be demonstrated by test, or combination of test and analysis, that the airplane can continue safe flight and landing with inoperative normal engine and APU generator electrical power (electrical power sources excluding the battery and any other standby electrical sources). The airplane operation must be considered at the critical phase of flight and include the ability to restart the engines and maintain flight for the maximum diversion time capability being certified."

Issued in Renton, Washington on March 17, 1999.

**John J. Hickey,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service, ANM-100.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 71

[Airspace Docket No. 99-AWA-1]

RIN 2120-AA66

#### Proposed Revision to the Legal Description of the Riverside, March Air Force Base (AFB) Class C Airspace Area; CA

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** The FAA proposes to revise the legal description of the Riverside, CA, March AFB Class C airspace area by replacing references to the former active duty AFB with the current civil/military joint-use designation of "March Field," and to change the operating hours to be consistent with the current mission requirements of the U.S. Air Force (USAF) Reserve, the U.S. Customs Service, and other tenants operating at the airport. Specifically, the Class C airspace area, as proposed, would be designated effective during the specific days and hours of operation of the March Field Ground Controlled Approach (GCA) facility as established in advance by a Notice to Airmen (NOTAM). The effective dates and times would thereafter be continuously published in the Airport/Facility Directory. This proposed action would