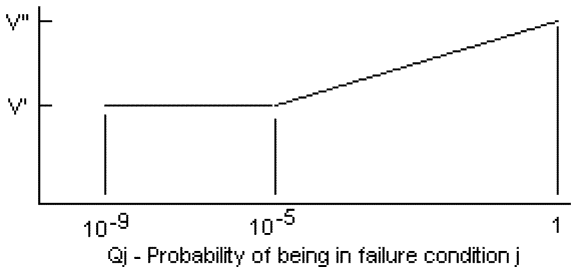
Figure 3: Clearance speed



V′ = Clearance speed as defined by § 25.629(b)(2).
V″ = Clearance speed as defined by § 25.629(b)(1).
$Q_j = (T_j)(P_j)$

Where:

T_j = Average time spent in failure mode j (in hours)
P_j = Probability of occurrence of failure mode j (per hour)

Note: If P_j is greater than 10^{-3} per flight hour, then the flutter clearance speed must not be less than V″.

vi. Freedom from aeroelastic instability must also be shown up to V′ in Figure 3, above, for any probable system-failure condition, combined with any damage required or selected for investigation by § 25.571(b).

c. Consideration of certain failure conditions may be required by other sections of part 25 regardless of calculated system reliability. Where analysis shows the probability of these failure conditions to be less than 10^{-9} per flight hour, criteria other than those specified in this paragraph may be used for structural substantiation to show continued safe flight and landing.

4. Failure indications. For system-failure detection and indication, the following apply:

a. The system must be checked for failure conditions, not extremely improbable, that degrade the structural capability below the level required by part 25, or that significantly reduce the reliability of the remaining system. As far as reasonably practicable, the flightcrew must be made aware of these failures before flight. Certain elements of the control system, such as mechanical and hydraulic components, may use special periodic inspections, and electronic components may use daily checks, in lieu of detection and indication systems, to achieve the objective of this requirement. These certification-maintenance requirements must be limited to components that are not readily detectable by normal detection-and-indication systems, and where service history shows that inspections will provide an adequate level of safety.

b. The existence of any failure condition, not extremely improbable, during flight, that could significantly affect the structural capability of the airplane, and for which the associated reduction in airworthiness can be minimized by suitable flight limitations, must be signaled to the flightcrew. For example, failure conditions that result in a factor of safety between the airplane strength and the loads of part 25, subpart C below 1.25, or flutter margins below V″, must be signaled to the crew during flight.

5. Dispatch with known failure conditions. If the airplane is to be dispatched in a known system-failure condition that affects structural performance, or that affects the reliability of the remaining system to maintain structural performance, then the provisions of these special conditions must be met, including the provisions of special condition 2 for the dispatched condition, and special condition 3 for subsequent failures.

a. Expected operational limitations may be taken into account in establishing Pj as the probability of failure occurrence for determining the safety margin in Figure 1.

b. Flight limitations and expected operational limitations may be taken into account in establishing Qj as the combined probability of being in the dispatched failure condition, and the subsequent failure condition, for the safety margins in Figures 2 and 3.

c. These limitations must be such that the probability of being in this combined failure state, and then subsequently encountering limit load conditions, is extremely improbable. No reduction in these safety margins is allowed if the subsequent system-failure rate is greater than 10^{-3} per flight hour.

Issued in Renton, Washington, on October 23, 2017.

Victor Wicklund,

Manager, Transport Standards Branch, Policy and Innovation Division, Aircraft Certification Service.

[FR Doc. 2017–23699 Filed 10–31–17; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2017–0718; Special Conditions No. 25–705–SC]

Special Conditions: The Boeing Company Model 777–8 and 777–9 Airplanes; Design Roll Maneuver for Electronic Flight Controls

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for The Boeing Company (Boeing) Model 777–8 and 777–9 airplanes. These airplanes will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport-category airplanes. This design feature is an electronic flight-control system (EFCS) that provides control of the airplane through pilot inputs to the flight computer. 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: This action is effective on Boeing on November 1, 2017. We must receive your comments by December 18, 2017.

ADDRESSES: Send comments identified by docket number FAA–2017–0718 using any of the following methods:

- *Federal eRegulations Portal:* Go to *http://www.regulations.gov/*and follow the online instructions for sending your comments electronically.
- *Mail:* Send comments to Docket Operations, M–30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue SE., Room W12–140, West Building Ground Floor, Washington, DC 20590–0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations at 202–493–2251.

Privacy: The FAA will post all comments it receives, without change, to *http://www.regulations.gov/,* including any personal information the commenter provides. Using the search function of the docket Web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the **Federal Register** published on April 11, 2000 (65 FR 19477–19478).

Docket: Background documents or comments received may be read at *http://www.regulations.gov/* at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Mark Freisthler, FAA, Airframe and Cabin Safety Branch, AIR–675, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98057–3356; telephone 425–227–1119; facsimile 425–227–1320.

SUPPLEMENTARY INFORMATION: The substance of these special conditions has been subject to the public-comment process in several prior instances with no substantive comments received. The FAA finds it is unnecessary to delay the effective date and finds that good cause exists for adopting these special conditions upon publication in the **Federal Register**.

Comments Invited

The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above. We invite interested people 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 will consider all comments we receive by the closing date for comments. We may change these special conditions based on the comments we receive.

Background

On April 19, 2017 (for the Model 777–8 airplane), and May 12, 2015 (for the 777–9 airplane), Boeing applied for an amendment to Type Certificate (TC) No. T00001SE to include the new Model 777–8 and 777–9 airplanes. These airplanes are derivatives of the Model 777–300ER airplane currently approved under TC No. T00001SE. The Model 777–9 is a stretched-fuselage, large, twin-engine airplane with seating for 408 passengers and a maximum takeoff weight of 775,000 pounds.

The Model 777–8, a shortened-body derivative of the 777–9, is a large, twin-engine airplane with seating for 359 passengers and a maximum takeoff weight of 775,000 pounds.

Type Certification Basis

Under the provisions of title 14, Code of Federal Regulations (14 CFR) 21.101, Boeing must show that the Model 777–8 and 777–9 airplanes meet the applicable provisions of the regulations listed in TC No. T00001SE, or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.

If the Administrator finds that the applicable airworthiness regulations (*i.e.,* 14 CFR part 25) do not contain adequate or appropriate safety standards for the Model 777–8 and 777–9 airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

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 features, or should any other model already included on the same type certificate be modified to incorporate the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Model 777–8 and 777–9 airplanes 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.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.101.

Novel or Unusual Design Features

The Model 777–8 and 777–9 airplanes will incorporate the following novel or unusual design feature:

An electronic flight-control system that provides control of the airplane through pilot inputs to the flight computer. Current part 25 airworthiness regulations account for control laws where aileron deflection is proportional to control-stick deflection. The regulations do not address nonlinearities, such as situations where output does not change in the same proportion as input, or other effects on aileron actuation that may be caused by electronic flight controls.

Discussion

These special conditions differ from current regulatory requirements in that they require that the roll maneuver results from defined movements of the cockpit roll control, as opposed to defined aileron deflections. These special conditions also require an additional load condition at design maneuvering speed (V_A), in which the cockpit roll control is returned to neutral following the initial roll input.

These special conditions differ from similar special conditions previously issued on this topic. These special conditions are limited to the roll axis only, whereas other special conditions also included pitch and yaw axes. Special conditions are not required for the pitch or yaw axes, because § 25.331 at Amendment 25–141, and § 25.351 at Amendment 25–91, take into account the effects of an electronic flight-control system.

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.

Applicability

As discussed above, these special conditions are applicable to Boeing Model 777–8 and 777–9 airplanes.

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 feature, these special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on one model series of airplane. It is not a rule of general applicability.

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 Boeing Model 777–8 and 777–9 airplanes.

In lieu of compliance to 14 CFR 25.349(a), the Model 777–8 and 777–9 airplanes must comply with the following:

The following conditions, speeds, and cockpit roll control motions (except as the motions may be limited by pilot effort) must be considered in combination with an airplane load factor of zero, and of two-thirds of the positive maneuvering factor used in design. In determining the resulting control-surface deflections, the torsional flexibility of the wing must be considered in accordance with § 25.301(b).

1. Conditions corresponding to steady rolling velocities must be investigated. In addition, conditions corresponding to maximum angular acceleration must be investigated for airplanes with engines or other weight concentrations outboard of the fuselage. For the angular acceleration conditions, zero rolling velocity may be assumed in the absence of a rational time history investigation of the maneuver.

2. At V_A, sudden movement of the cockpit roll control up to the limit is assumed. The position of the cockpit roll control must be maintained until a steady roll rate is achieved and then must be returned suddenly to the neutral position.

3. At V_C, the cockpit roll control must be moved suddenly and maintained so as to achieve a roll rate not less than that obtained in condition 2, above.

4. At V_D, the cockpit roll control must be moved suddenly and maintained so as to achieve a roll rate not less than one third of that obtained in condition 2, above.

Issued in Renton, Washington, on October 25, 2017.

Victor Wicklund,

Manager, Transport Standards Branch, Policy and Innovation Division, Aircraft Certification Service.

[FR Doc. 2017–23701 Filed 10–31–17; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2016–9403; Special Conditions No. 25–643–SC]

Special Conditions: Embraer, S.A., Model ERJ 190–300 Airplane; Dive-Speed Definition With High-Speed-Protection System

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; correction.

SUMMARY: This document corrects an error that appeared in Docket No. FAA–2016–9403, Special Conditions No. 25–643–SC, which was published in the **Federal Register** on March 17, 2017 (82 FR 14117). The error is an incorrect citation of a section in a cited advisory circular.

DATES: The effective date of this correction is November 1, 2017.

FOR FURTHER INFORMATION CONTACT: Greg Schneider, FAA, Airframe and Cabin Safety Section, AIR–675, Transport Standards Branch, Policy and Innovation Division, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98057–3356; telephone 425–227–2116; facsimile 425–227–1320.

SUPPLEMENTARY INFORMATION:

Background

On March 17, 2017, the **Federal Register** published a document designated as Docket No. FAA–2016–9403, Final Special Conditions No. 25–643–SC (82 FR 14117). The document issued special conditions pertaining to dive-speed definition with a high-speed-protection system. As published, the document contained an error in a citation to an advisory circular section.

Correction

In the final special conditions document (FR Doc. 2017–05329), published on March 17, 2017 (82 FR 14117), make the following correction.

On page 14119, second column, correct the last sentence in special condition no. 2 to read:

The upset maneuvers described in Advisory Circular 25–7C, ''Flight Test Guide for Certification of Transport Category Airplanes,'' Chapter 2, section 8, paragraph 32, sub-paragraphs c(3)(a) and (c), may be used to comply with this requirement.

Issued in Renton, Washington, on October 25, 2017.

Victor Wicklund,

Manager, Transport Standards Branch, Policy and Innovation Division, Aircraft Certification Service.

[FR Doc. 2017–23697 Filed 10–31–17; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2017–0219; Airspace Docket No. 17–AWP–5]

Amendment of Class E Airspace; Lemoore NAS, CA

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule, technical amendment, correction.

SUMMARY: This action corrects a final rule, technical amendment published in **Federal Register** on September 21, 2017, that removes the Notice to Airmen (NOTAM) part-time status information contained in the legal description of Class E airspace designated as an extension at Lemoore NAS (Reeves Field), Lemoore, CA. The airspace description contained the following wording in error: ''. . . within a 5.2-mile radius of Lemoore NAS (Reeves Field), and . . . .'' This wording is removed. This action does not affect the charted boundaries or operating requirements of the airspace.

DATES: Effective 0901 UTC, November 1, 2017. The Director of the Federal Register approves this incorporation by reference action under title 1, Code of Federal Regulations, part 51, subject to the annual revision of FAA Order 7400.11 and publication of conforming amendments.

FOR FURTHER INFORMATION CONTACT: Robert LaPlante, Federal Aviation Administration, Operations Support Group, Western Service Center, 1601 Lind Avenue SW., Renton, WA 98057; telephone (425) 203–4566.

SUPPLEMENTARY INFORMATION: