DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2013–0772; Special Conditions No. 25–520–SC]

Special Conditions: Embraer S.A., Model EMB–550 Airplanes; Flight Envelope Protection: Normal Load Factor (g) Limiting

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for the Embraer S.A. Model EMB–550 airplane. This airplane will have a novel or unusual design feature associated with an electronic flight control system that prevents the pilot from inadvertently or intentionally exceeding the positive or negative airplane limit load factor. 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: *Effective Date:* May 14, 2014.

FOR FURTHER INFORMATION CONTACT: Joe Jacobsen, FAA, Airplane and Flight Crew Interface Branch, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98057–3356; telephone 425–227–2011; facsimile 425–227–1149.

SUPPLEMENTARY INFORMATION:

Background

On May 14, 2009, Embraer S.A. applied for a type certificate for its new Model EMB–550 airplane. The Model EMB–550 airplane is the first of a new family of jet airplanes designed for corporate flight, fractional, charter, and private owner operations. The airplane has a conventional configuration with low wing and T-tail empennage. The primary structure is metal with composite empennage and control surfaces. The Model EMB–550 airplane is designed for 8 passengers, with a maximum of 12 passengers. It is equipped with two Honeywell HTF7500–E medium bypass ratio turbofan engines mounted on aft fuselage pylons. Each engine produces approximately 6,540 pounds of thrust for normal takeoff. The primary flight controls consist of hydraulically powered fly-by-wire elevators, ailerons, and rudders controlled by the pilot or copilot sidestick.

The design of the electronic flight control system for the Model EMB–550 airplane incorporates normal load factor limiting on a full time basis that prevents the flight crew from inadvertently or intentionally exceeding the positive or negative airplane limit load factor. This feature is considered novel and unusual in that the current regulations do not provide standards for maneuverability and controllability evaluations for such systems.

Type Certification Basis

Under the provisions of Title 14, Federal Code of Regulations (14 CFR) 21.17, Embraer S.A. must show that the Model EMB–550 airplane meets the applicable provisions of part 25, as amended by Amendments 25–1 through 25–127 thereto.

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 EMB–550 airplane 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 or similar novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Model EMB–550 airplane 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 14 CFR 11.19, in accordance with § 11.38, and they become part of the type-certification basis under § 21.17(a)(2).

Novel or Unusual Design Features

The Model EMB–550 airplane will incorporate the following novel or unusual design features: The design of the electronic flight control system incorporates normal load factor limiting on a full-time basis that will prevent the flight crew from inadvertently or intentionally exceeding the positive or negative airplane limit load factor. This feature is considered novel because the current regulations do not provide standards for maneuverability and controllability evaluations for such systems. Therefore, special conditions are needed to ensure adequate maneuverability and controllability when using this design feature.

Discussion

Title 14, Code of Federal Regulations, part 25 sections do not specify requirements or policy for demonstrating maneuver control that impose any handling qualities requirements beyond the design limit structural loads. Nevertheless, some pilots have become accustomed to the availability of this excess maneuver capacity in case of extreme emergency such as upset recoveries or collision avoidance.

As with previous fly-by-wire airplanes, the FAA has no regulatory or safety reason to prohibit a design for an electronic flight control system with load factor limiting. It is possible that pilots accustomed to this feature feel more freedom in commanding full-stick displacement maneuvers because of the following:

- Knowledge that the limit system will protect the structure,
- Low stick force/displacement gradients,
- Smooth transition from pilot elevator control to limit control.

These special conditions will ensure adequate maneuverability and controllability when using this design feature.

Discussion of Comments

Notice of proposed special conditions No. 25–13–05–SC for Embraer S.A. Model EMB–550 airplanes was published in the **Federal Register** on October 25, 2013 (78 FR 63902). No comments were received, and the special conditions are adopted as proposed.

Applicability

As discussed above, these special conditions are applicable to the Model EMB–550 airplane. Should Embraer S.A. 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.

Conclusion

This action affects only certain novel or unusual design features on one model of airplanes. 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 Embraer S.A. Model EMB–550 airplanes.

1. Flight Envelope Protection: Normal Load Factor (*g*) Limiting.

To meet the intent of adequate maneuverability and controllability required by § 25.143(a), and in addition to the requirements of § 25.143(a) and in the absence of other limiting factors, the following special conditions are issued based on § 25.333(b):

(a) The positive limiting load factor must not be less than:

(1) 2.5*g* for the normal state of the electronic flight control system with the high lift devices retracted.

(2) 2.0*g* for the normal state of the electronic flight control system with the high lift devices extended.

(b) The negative limiting load factor must be equal to or more negative than:

(1) Minus 1.0*g* for the normal state of the electronic flight control system with the high lift devices retracted.

(2) 0.0*g* for the normal state of the electronic flight control system with high lift devices extended.

(c) Maximum reachable positive load factor wings level may be limited by the characteristics of the electronic flight control system or flight envelope protections (other than load factor protection) provided that:

(1) The required values are readily achievable in turns, and

(2) That wings level pitch up is satisfactory.

(d) Maximum achievable negative load factor may be limited by the characteristics of the electronic flight control system or flight envelope protections (other than load factor protection) provided that:

(1) Pitch down responsiveness is satisfactory, and

(2) From level flight, 0*g* is readily achievable, or alternatively, a satisfactory trajectory change is readily achievable at operational speeds. For the FAA to consider a trajectory change as satisfactory, the applicant should propose and justify a pitch rate that provides sufficient maneuvering capability in the most critical scenarios.

(e) Compliance demonstration with the above requirements may be performed without ice accretion on the airframe.

(f) These special conditions do not impose an upper bound for the normal load factor limit, nor does it require that the limiter exist. If the limit is set at a value beyond the structural design limit maneuvering load factor *n* of §§ 25.333(b), 25.337(b), 25.337(c), there should be a very obvious positive tactile feel built into the controller so that it serves as a deterrent to inadvertently exceeding the structural limit.

Issued in Renton, Washington, on April 8, 2014.

John P. Piccola,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 2014–08275 Filed 4–11–14; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 36

[Docket No. FAA–2012–0948; Amdt. No. 36–30]

RIN 2120–AJ96

Stage 3 Helicopter Noise Certification Standards; Correction

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; correction.

SUMMARY: The Federal Aviation Administration (FAA) published in the **Federal Register** of March 4, 2014 a document adopting more stringent noise certification standards for helicopters that are certificated in the United States (U.S.). Inadvertently the incorrect amendment number was assigned. This document corrects the amendment number cited in the heading of the final rule.

DATES: This correction is effective April 14, 2014.

FOR FURTHER INFORMATION CONTACT: Katherine Haley, Office of Rulemaking, ARM–203, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591; telephone (202) 267–5708; fax (202) 267–5075; email *ralen.gao@faa.gov.*

SUPPLEMENTARY INFORMATION: The FAA published a document in the **Federal Register** of March 4, 2014 (79 FR 12040) as Amendment Number 36–29. In FR Doc. 2014–04479, Amdt. No. 36–29 is incorrect. This document corrects the amendment number published on March 4, 2014.

In FR Doc. 2014–04479, beginning on page 12040 in the **Federal Register** of March 4, 2014, make the following correction:

On page 12040, in the second column heading, correct the amendment number from ''36–29'' to ''36–30''.

Issued in Washington, DC, on April 4, 2014.

Lirio Liu,

Director, Office of Rulemaking.

[FR Doc. 2014–07941 Filed 4–11–14; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2013–0951; Airspace Docket No. 13–ASW–22]

RIN 2120–AA66

Modification of Area Navigation (RNAV) Route Q–20, TX

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This action modifies RNAV route Q–20 by relocating the FUSCO waypoint (WP) southwest to match the intersection of Jet routes J–15 and J–183. This action enhances the safe and efficient management of aircraft within the National Airspace System.

DATES: Effective Date: 0901 UTC, July 24, 2014. The Director of the **Federal Register** approves this incorporation by reference action under 1 CFR part 51, subject to the annual revision of FAA Order 7400.9 and publication of conforming amendments.

FOR FURTHER INFORMATION CONTACT: Colby Abbott, Airspace Policy and Regulations Group, Office of Airspace Services, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591; telephone: (202) 267–8783.

SUPPLEMENTARY INFORMATION:

History

The FAA published in the **Federal Register** a notice of proposed rulemaking (NPRM) to amend Q–20 by moving the FUSCO WP to match the intersection of Jet Routes J–15 and J–183, and re-designate the WP as a fix (78 FR 70900, November 27, 2013). Interested parties were invited to participate in this rulemaking effort by submitting written comments on the proposal to the FAA. No comments were received.