



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No.FAA-2014-0240; Notice No. 25-558-SC]

Special Conditions: Embraer S.A.; Model EMB-550 Airplane; Stowage Compartment Fire Protection

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 when compared to the state of technology and design envisioned in the airworthiness standards for transport category airplanes. This design feature is the installation of a stowage compartment in the lavatory. The isolation of this stowage compartment from the main cabin could hinder the ability of the flight crew to detect a fire. 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.

EFFECTIVE DATE: [Insert date 30 days after date of publication in the Federal Register].

FOR FURTHER INFORMATION CONTACT: Robert C. Jones, FAA, Propulsion and Mechanical Systems Branch, ANM-112, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98057-3356; telephone (425) 227-1234; facsimile (425) 227-1149.

SUPPLEMENTARY INFORMATION:

Background

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 on or before the closing date for comments.

We may change these special conditions based on the comments we receive.

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 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 AS907-3-1E medium bypass ratio turbofan engines mounted on aft fuselage pylons. Each engine produces approximately 6,540 pounds of thrust for normal takeoff.

Type Certification Basis

Under the provisions of 14 CFR 21.17, Embraer S.A. must show that the Model EMB-550 meets the applicable provisions of part 25, as amended by Amendments 25-1 through 25-127.

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 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 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 will incorporate the following novel or unusual design features: A stowage compartment, designed to store passenger belongings, located in the lavatory. The stowage compartment may be isolated from the main passenger cabin by two doors (lavatory and stowage compartment doors), which could hinder the ability to detect smoke or fire. The installation of a stowage compartment in the lavatory is a novel and unusual design feature for which the applicable airworthiness regulations do not contain adequate or appropriate safety standards.

Discussion

Embraer did not classify the EMB-550 stowage compartment in the aft part of the pressurized area as a Class B cargo compartment due to its relatively small volume of 37 cubic

feet. The compartment has a door that is intended to be closed in all phases of flight but can be opened to allow passenger access during flight. The lavatory door must be kept open for takeoff and landing but will likely be kept closed in all other phases of flight.

Due to the facts that the stowage compartment is not classified as a Class B cargo compartment and may be isolated from the main cabin by two doors during flight, and considering that it will be used to store passenger belongings, existing requirements for stowage compartments are not adequate to address fire protection concerns. The isolation characteristics and the possibility of storing items that may start a fire create the potential for an undetected fire event.

Additional safety precautions are required to avoid a situation where a fire condition remains undetected in an isolated stowage compartment. 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.

Discussion of the Comments

Notice of proposed special conditions No. 25-14-02-SC for the Embraer Model EMB-550 airplane was published in the *Federal Register* on April 15, 2014 (79 FR 20818). One commenter suggested changes to two paragraphs in the proposed special conditions. The commenter believes the changes would provide more specificity and clarification.

The commenter suggested we include both “smoke” and “fire” in paragraph 1a of the special conditions, as both terms are used in the referenced regulation. We agree and have incorporated the proposed changes accordingly. We historically have used smoke and fire synonymously and believe that it remains appropriate.

The commenter also suggested the special conditions include the amendment level for § 25.858. We agree and have incorporated this comment.

The commenter suggested that the special condition only require the annunciation be provided to the flight crew, in order to be consistent with § 25.858. We agree that the requirement should be consistent with § 25.858, and have removed the flight deck indication text and simply required the system meet § 25.858.

The commenter also recommended that the special conditions require the indication to the flight deck be provided within one minute, in order to be consistent with § 25.858. In discussions with the applicant all parties agreed to the need to detect a fire within 60 seconds per the current § 25.858 as referenced. With the change to simply require the system meet § 25.858 noted above, it would be redundant to include the 60-second detection time in the special conditions.

In the second comment, the commenter suggested text changes to remove any ambiguity over whether protective breathing equipment would be required. We agree that the proposed text is clearer and have incorporated the proposed changes accordingly.

Applicability

As discussed above, these special conditions are applicable to the Embraer Model EMB-550. 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.

1. Stowage Compartment Fire Protection.

- a. A means for smoke or fire detection that meets the provisions of § 25.858 at Amendment 25.93 is required regardless of the fact that the compartment is not classified as a cargo compartment per § 25.857 (only a “stowage” compartment).
- b. In addition to the requirements of § 25.851, at least one hand-held or manually-activated compartment fire extinguisher appropriate to the kinds of fires likely to occur must be provided for the lavatory. If a hand-held fire extinguisher is provided, then protective breathing equipment must be provided with the extinguisher.
- c. Sufficient access must be provided to enable a crew member to effectively reach any part of the stowage compartment with the content of a hand-held fire extinguisher.
- d. When the access provisions are being used, no hazardous quantity of smoke, flames, or extinguishing agent will enter any compartment occupied by the crew or passengers.
- e. A liner must be provided that meets the requirements of § 25.855 at Amendment 25-60 for a Class B cargo compartment unless it can be shown that the material used to construct the stowage compartment meets the flammability requirements by a 60-second

vertical test in lieu of 12-second vertical test and by presenting past test results of typical panels that meet the 45-degree flame penetration test.

Issued in Renton, Washington, on June 17, 2014.

Michael Kaszycki
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service

[FR Doc. 2014-16644 Filed 07/15/2014 at 8:45 am; Publication Date: 07/16/2014]