

remove any dispute about how to assess the severity and likelihood of occurrence of a threat over which the applicant has no control.

FAA Response: We agree that a "security threat analysis process" (or other acceptable means) should be conducted to determine the threats, vulnerabilities, and risks of each airplane network access from an external source to determine appropriate security mitigation protection and procedures for the aircraft, its operations, and maintenance. The aircraft and system safety assessments (as described in AC 25.1309) should certainly consider the impact of security vulnerabilities on aircraft safety and the capabilities of the aircraft's systems to satisfy reliability and integrity requirements. Detailed guidelines and criteria, specific to the 787 network architecture and design, have been developed for this aircraft and provide some initial guidance for an acceptable means of compliance. The FAA also intends to participate in industry efforts to develop additional guidance on the scope of security assessments and a general means of addressing aircraft network security concerns. We hope to endorse the industry-developed guidance, when it has been completed, with an advisory circular. We have made some minor changes to these special conditions as a result of this comment to clarify the scope for security threat analysis.

- *AIRBUS proposed text revision:* Airbus proposed the following revised wording for these special conditions.

The applicant shall ensure that security threats external to the aircraft (including those possibly caused by maintenance activity) are assessed and risk mitigation strategies are implemented to protect the Aircraft Control Domain and Airline Information Services Domain from adverse impacts reducing the aircraft safety.

FAA Response: Airbus's comments and proposal have merit but the proposal does not address all of the FAA concerns. We have, however, adopted several aspects of the commenter's proposal into these final special conditions. We have made these wording changes for clarification, but the meaning and intent of these special conditions remain the same as originally proposed.

Applicability

As discussed above, these 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 on the same type certificate incorporating the same novel

or unusual design features, these special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features of the 787. 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 the Boeing Model 787-8 airplane.

The applicant shall ensure system security protection for the Aircraft Control Domain and Airline Information Domain from access by unauthorized sources external to the airplane, including those possibly caused by maintenance activity. The applicant shall ensure that security threats are identified and assessed, and that risk mitigation strategies are implemented to protect the airplane from all adverse impacts on safety, functionality, and continued airworthiness.

Issued in Renton, Washington, on December 17, 2007.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM385; Special Conditions No. 25-364-SC]

Special Conditions: Boeing Model 757 Series Airplanes; Seats With Non-Traditional, Large, Non-Metallic Panels

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for Boeing Model 757 Series Airplanes. These airplanes, as modified by Triad International Maintenance Company (TIMCO), will have a novel or unusual design feature(s) associated with seats that include non-traditional, large, non-metallic panels that would affect survivability during a post-crash

fire event. 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: The effective date of these special conditions is December 18, 2007.

FOR FURTHER INFORMATION CONTACT: Dan Jacquet, FAA, Airframe/Cabin Safety Branch, ANM-115, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue, SW., Renton, Washington, 98057-3356; telephone (425) 227-2676; facsimile (425) 227-1232; electronic mail daniel.jacquet@faa.gov.

SUPPLEMENTARY INFORMATION:

Future Requests for Installation of Seats with Non-Traditional, Large, Non-Metallic Panels

We anticipate that seats with non-traditional, large, non-metallic panels will be installed in other makes and models of airplanes. We have made the determination to require special conditions for all applications requesting the installation of seats with non-traditional, large, non-metallic panels until the airworthiness requirements can be revised to address this issue. Having the same standards across the range of airplane makes and models will ensure a level playing field for the aviation industry.

Background

On July 31, 2007, Triad International Maintenance Company (TIMCO), 623 Radar Road, Greensboro, North Carolina 27410, applied for a supplemental type certificate for installing seats that include non-traditional, large, non-metallic panels in a Boeing Model 757 series airplane. The Boeing Model 757 series airplanes, currently approved under Type Certificate No. A2NM, are swept-wing, conventional tail, twin-engine, turbofan-powered, single aisle, medium-sized transport category airplanes.

The applicable regulations to airplanes currently approved under Type Certificate No. A2NM do not require seats to meet the more stringent flammability standards required of large, non-metallic panels in the cabin interior. At the time the applicable rules were written, seats were designed with a metal frame covered by fabric, not with large, non-metallic panels. Seats also met the then recently adopted standards for flammability of seat

cushions. With the seat design being mostly fabric and metal, the contribution to a fire in the cabin had been minimized and was not considered a threat. For these reasons, seats did not need to be tested to heat release and smoke emission requirements.

Seat designs have now evolved to occasionally include non-traditional, large, non-metallic panels. Taken in total, the surface area of these panels is on the same order as the sidewall and overhead stowage bin interior panels. To provide the level of passenger protection intended by the airworthiness standards, these non-traditional, large, non-metallic panels in the cabin must meet the standards of Title 14 Code of Federal Regulations (CFR), part 25, Appendix F, parts IV and V, heat release and smoke emission requirements.

Type Certification Basis

Under the provisions of 14 CFR 21.101, TIMCO must show that the Boeing Model 757 series airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A2NM, or the applicable regulations in effect on the date of application for the change. 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. A2NM are as follows:

- For Model 757-200 airplanes—part 25, as amended by Amendment 25-1 through Amendment 25-45. In addition, an equivalent safety finding exists with respect to § 25.853(c), Compartment interiors.
- For Model 757-300 airplanes—part 25, as amended by Amendment 25-1 through Amendment 25-85 with the exception listed: Section 25.853(d)(3), Compartment interiors, at Amendment 25-72.

In addition, the certification basis includes certain special conditions, exemptions, or later amended sections of the applicable part that are not relevant to these special conditions.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, part 25) do not contain adequate or appropriate safety standards for the Boeing Model 757 series airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Boeing Model 757 series 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 § 11.19, under § 11.38 and they become part of the type certification basis under § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should the applicant apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same or similar novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

Novel or Unusual Design Features

The Boeing Model 757 series airplanes will incorporate the following novel or unusual design features: These models offer interior arrangements that include passenger seats that incorporate non-traditional, large, non-metallic panels in lieu of the traditional metal frame covered by fabric. The flammability properties of these panels have been shown to significantly affect the survivability of the cabin in the case of fire. These seats are considered a novel design for transport category airplanes that include Amendment 25-61 and Amendment 25-66 in the certification basis, and were not considered when those airworthiness standards were established.

The existing regulations do not provide adequate or appropriate safety standards for seat designs that incorporate non-traditional, large, non-metallic panels in their designs. In order to provide a level of safety that is equivalent to that afforded to the balance of the cabin, additional airworthiness standards, in the form of special conditions, are necessary. These special conditions supplement § 25.853. The requirements contained in these special conditions consist of applying the identical test conditions required of all other large panels in the cabin, to seats with non-traditional, large, non-metallic panels.

A non-traditional, large, non-metallic panel, in this case, is defined as a panel with exposed-surface areas greater than 1.5 square feet installed per seat place. The panel may consist of either a single component or multiple components in a concentrated area. Examples of parts of the seat where these non-traditional panels are installed include, but are not limited to: seat backs, bottoms and leg/foot rests, kick panels, back shells, credenzas and associated furniture. Examples of traditional exempted parts of the seat include: arm caps, armrest

close-outs such as end bays and armrest-styled center consoles, food trays, video monitors, and shrouds.

Clarification of "Exposed"

"Exposed" is considered to include panels that are directly exposed to the passenger cabin in the traditional sense, and panels that are enveloped, such as by a dress cover. Traditional fabrics or leathers currently used on seats are excluded from these special conditions. These materials must still comply with § 25.853(a) and § 25.853(c) if used as a covering for a seat cushion, or § 25.853(a) if installed elsewhere on the seat. Non-traditional, large, non-metallic panels covered with traditional fabrics or leathers will be tested without their coverings or covering attachments.

Discussion

In the early 1980s the FAA conducted extensive research on the effects of post-crash flammability in the passenger cabin. As a result of this research and service experience, we adopted new standards for interior surfaces associated with large surface area parts. Specifically, the rules require measurement of heat release and smoke emission (part 25, Appendix F, parts IV and V) for the affected parts. Heat release has been shown to have a direct correlation with post-crash fire survival time. Materials that comply with the standards (*i.e.*, § 25.853 entitled "Compartment interiors" as amended by Amendment 25-61 and Amendment 25-66) extend survival time by approximately 2 minutes over materials that do not comply.

At the time these standards were written the potential application of the requirements of heat release and smoke emission to seats was explored. The seat frame itself was not a concern because it was primarily made of aluminum and there were only small amounts of non-metallic materials. It was determined that the overall effect on survivability was negligible, whether or not the food trays met the heat release and smoke requirements. The requirements therefore did not address seats. The preambles to both the Notice of Proposed Rule Making (NPRM), Notice No. 85-10 (50 FR 15038, April 16, 1985) and the Final Rule at Amendment 25-61 (51 FR 26206, July 21, 1986), specifically note that seats were excluded "because the recently-adopted standards for flammability of seat cushions will greatly inhibit involvement of the seats."

Subsequently, the Final Rule at Amendment 25-83 (60 FR 6615, March 6, 1995) clarified the definition of minimum panel size: "It is not possible

to cite a specific size that will apply in all installations; however, as a general rule, components with exposed-surface areas of one square foot or less may be considered small enough that they do not have to meet the new standards. Components with exposed-surface areas greater than two square feet may be considered large enough that they do have to meet the new standards. Those with exposed-surface areas greater than one square foot, but less than two square feet, must be considered in conjunction with the areas of the cabin in which they are installed before a determination could be made."

In the late 1990s, the FAA issued Policy Memorandum 97-112-39, *Guidance for Flammability Testing of Seat/Console Installations*, October 17, 1997 (<http://rgl.faa.gov>). That memo was issued when it became clear that seat designs were evolving to include large, non-metallic panels with surface areas that would impact survivability during a cabin fire event, comparable to partitions or galleys. The memo noted that large surface area panels must comply with heat release and smoke emission requirements, even if they were attached to a seat. If the FAA had not issued such policy, seat designs could have been viewed as a loophole to the airworthiness standards that would result in an unacceptable decrease in survivability during a cabin fire event.

In October of 2004, an issue was raised regarding the appropriate flammability standards for passenger seats that incorporated non-traditional, large, non-metallic panels in lieu of the traditional metal covered by fabric. The Seattle Aircraft Certification Office and Transport Standards Staff reviewed this design and determined that it represented the kind and quantity of material that should be required to pass the heat release and smoke emissions requirements. We have determined that special conditions would be promulgated to apply the standards defined in § 25.853(d) to seats with large, non-metallic panels in their design.

Discussion of Comments

Notice of proposed special conditions No. 25-07-17-SC, pertaining to Boeing Model 757 series airplanes, was published in the **Federal Register** on November 27, 2007. No comments were received and the special conditions are adopted as proposed.

Applicability

As discussed above, these special conditions are applicable to Boeing Model 757 series airplanes. It is not our

intent, however, to require seats with large, non-metallic panels to meet § 25.853, Appendix F, parts IV and V, if they are installed in cabins of airplanes that otherwise are not required to meet these standards. Because the heat release and smoke testing requirements of § 25.853 per Appendix F, parts IV and V, are not part of the type certification basis of the Model 757, these special conditions are only applicable if the Model 757 series airplanes are in 14 CFR part 121 operations. Section 121.312 requires compliance with the heat release and smoke testing requirements of § 25.853, for certain airplanes, irrespective of the type certification bases of those airplanes. For Model 757 series airplanes, these are the airplanes that would be affected by these special conditions. Should TIMCO apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A2NM to incorporate the same novel or unusual design feature, the special conditions would apply to that model as well.

Effective Upon Issuance

Under standard practice, the effective date of final special conditions would be 30 days after the date of publication in the **Federal Register**; however, as the delivery date for the Boeing Model 757 series airplane modified by TIMCO is imminent, the FAA finds that good cause exists to make these special conditions effective upon issuance.

Conclusion

This action affects only certain novel or unusual design features on one model series of 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 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 757 series airplanes modified by TIMCO.

1. Except as provided in paragraph 3 of these special conditions, compliance with Title 14 CFR part 25, Appendix F, parts IV and V, heat release and smoke emission, is required for seats that

incorporate non-traditional, large, non-metallic panels that may either be a single component or multiple components in a concentrated area in their design.

2. The applicant may designate up to and including 1.5 square feet of non-traditional, non-metallic panel material per seat place that does not have to comply with special condition Number 1, above. A triple seat assembly may have a total of 4.5 square feet excluded on any portion of the assembly (e.g., outboard seat place 1 square foot, middle 1 square foot, and inboard 2.5 square feet).

3. Seats do not have to meet the test requirements of Title 14 CFR part 25, Appendix F, parts IV and V, when installed in compartments that are not otherwise required to meet these requirements. Examples include:

a. Airplanes with passenger capacities of 19 or less,

b. Airplanes that do not have § 25.853, Amendment 25-61 or later, in their certification basis and do not need to comply with the requirements of 14 CFR 121.312, and

c. Airplanes exempted from § 25.853, Amendment 25-61 or later.

Issued in Renton, Washington, on December 18, 2007.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2007-28352; Directorate Identifier 2007-NM-037-AD; Amendment 39-15309; AD 2007-26-07]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747-200B, 747-300, 747-400, 747-400D, and 747-400F Series Airplanes Equipped with General Electric CF6-80C2 Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Boeing Model 747-200B, 747-300, 747-400, 747-400D, and 747-400F series airplanes. This AD requires repetitive inspections of the left- and right-hand flipper door assemblies of the engine