

**DEPARTMENT OF TRANSPORTATION****Federal Aviation Administration****14 CFR Part 25**

[Docket No. NM383; Notice No. 25-367-SC]

**Special Conditions: Boeing Model 777 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 for Boeing Model 777 series airplanes. These airplanes 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:** The effective date of these special conditions is February 7, 2008.

**FOR FURTHER INFORMATION CONTACT:** Alan Sinclair, FAA, Airframe/Cabin Safety Branch, ANM-115, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-2195; facsimile (425) 227-1232; electronic mail [alan.sinclair@faa.gov](mailto:alan.sinclair@faa.gov).

**SUPPLEMENTARY INFORMATION:****Change to Special Condition Number 4**

The FAA previously notified the public of our intent to issue special conditions for seats with non-traditional, large, non-metallic panels on various airplane makes and models. Notice of Proposed Special Conditions No. 25-06-13-SC, applicable to Boeing Model 737 series airplanes, was published in the **Federal Register** on November 9, 2006 (71 FR 65761). The special conditions were issued on June 29, 2007 (Docket No. NM 359, Special Conditions No. 25-358-SC), published in the **Federal Register** on July 10, 2007 (72 FR 37425), and became effective on August 9, 2007. Both the Notice and the Final Special Conditions contained these words:

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.

Special condition number 4 in the 737 special conditions limits the applicability of the special conditions to new seat certification programs applied for after the effective date of the special conditions. In these special conditions the FAA changed the applicability to make the special conditions applicable to new seat certification programs that are approved after the effective date of the special conditions. This change could affect pending as well as future project applications. The rationale behind this change is that these seat installations affect survivability during a post-crash fire event and should be implemented as soon as possible. Additionally, the public has been previously notified of the FAA's intent to issue similar special conditions on other airplane makes and models. Because of an imminent certification program, these special conditions are effective immediately. However, in view of the standard practice to make special conditions effective 30 days after issuance, these special conditions permit 30 days before compliance is required.

**Background**

On August 8, 2005, Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124, applied for a design change to Type Certificate No. T00001SE for installation of seats that include non-traditional, large, non-metallic panels in Boeing Model 777 series airplanes. The Boeing Model 777 series airplanes, currently approved under Type Certificate No. T00001SE, are swept-wing, conventional tail, twin-engine, turbofan-powered, dual aisle, large-sized transport category airplanes.

The applicable regulations to airplanes currently approved under Type Certificate No. T00001SE 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, Boeing must show that the Model 777 series airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. T00001SE, 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. T00001SE are as follows:

- For Model 777-200 airplanes—Title 14 CFR part 25, as amended by Amendment 25-1 through Amendment 25-82.
- For Model 777-200LR airplanes—Title 14 CFR part 25, as amended by Amendment 25-1 through Amendment 25-100 with the exceptions listed: §§ 25.831(a) and 25.831(g) at Amendment 25-86; § 25.841(a) at Amendment 25-86; and § 25.853(d)(3) at Amendment 25-82.
- For Model 777-300 airplanes—Title 14 CFR part 25, as amended by Amendment 25-1 through Amendment 25-86 with the exception listed: § 25.853(d)(3), Compartment interiors, at Amendment 25-82.
- For Model 777-300ER airplanes—Title 14 CFR part 25, as amended by Amendment 25-1 through Amendment 25-98 with the exception listed: § 25.853(d)(3), Compartment interiors, at Amendment 25-82.

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., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Boeing Model 777 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 777 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.

Special conditions, as defined in § 11.19, are issued in accordance with § 11.38 and become part of the type certification basis in accordance with § 21.101.

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, or should any other model already included on the same type certificate be modified 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 777 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.

#### Definition of “Non-Traditional, Large, Non-Metallic Panel”

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 14 CFR 25.853(d) to seats with large, non-metallic panels in their design.

#### Discussion of Comments

Notice of proposed special conditions No. 25-07-15-SC, pertaining to Boeing Model 777 series airplanes, was published in the **Federal Register** on October 29, 2007 (72 FR 61085). We only received comments from Boeing.

#### Change "Approved" to "Applied for" in Special Condition Number 4

Boeing requested that the word "approved" in the following sentence be changed to "applied for."

Only airplanes associated with new seat certification programs approved after the effective date of these special conditions will be affected by the requirements in these special conditions.

Boeing also requested clarification regarding what is meant by "approved."

**FAA Response:** Special condition number 4 was revised from what was issued for the final special conditions applicable to Model 737 airplanes. The Model 737 final special conditions contained the phrase "applied for." That phrase was changed to "approved" in these final special conditions to ensure that these special conditions are applicable to as many Model 777 certification projects as possible. The 737 special conditions, in effect, notified Boeing that the flammability issue regarding seats with non-traditional, large, non-metallic panels must be addressed. The FAA discussed this issue with Boeing and stated that all subsequent special conditions related to this matter would be based on the project approval date.

To clarify what we mean by the approval date, the approval date is the date of approval of the affected amended type certificate or supplemental type certificate.

#### These Special Conditions Are Not Being Applied to Other Airplane Manufacturers

Boeing did not request a specific change in this comment, but did draw attention to the fact that the standards promulgated by these special conditions have not yet achieved a "level playing field for the aviation industry." Boeing stated that it agreed with the FAA's goals to ensure that all parties in the industry are treated fairly, and the new standards are applied uniformly. However, Boeing noted that it is not apparent that those goals have yet been met.

**FAA Response:** As projects are identified that include seats with large, non-metallic panels, the FAA will issue

special conditions for the affected airplane makes and models. We are currently working on several other special condition packages for airplanes produced by other manufacturers. In addition, we are considering rulemaking to revise § 25.853 to address this issue.

These special conditions are adopted as proposed.

#### Applicability

As discussed above, these special conditions are applicable to Boeing Model 777 series airplanes. Because the heat release and smoke testing requirements of § 25.853 are part of the type certification basis for the Model 777, these special conditions are applicable to all new seat certification programs for Model 777 series airplanes. The existing (i.e. with unchanged interiors) Model 777 fleet and follow-on deliveries of Model 777 series airplanes with previously certificated interiors are not affected. 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, 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 an affected Boeing Model 777 series airplane 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.

#### 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 series airplanes. Compliance may be elected until March 8, 2008.

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, and

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

4. Only airplanes associated with new seat certification programs approved after the effective date of these special conditions will be affected by the requirements in these special conditions. Previously certificated interiors on the existing airplane fleet and follow-on deliveries of airplanes with previously certificated interiors are not affected.

Issued in Renton, Washington, on February 7, 2008.

**Kevin Hull,**

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

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2008-0164; Directorate Identifier 2007-SW-43-AD; Amendment 39-15375; AD 2008-04-03]

**RIN 2120-AA64**

**Airworthiness Directives; Eurocopter France Model AS-365N2 and N3, SA-365C, C1 and C2, and SA-365N and N1 Helicopters**

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

**ACTION:** Final rule; request for comments.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for