

would not be adequately addressed. Therefore, the inflation system needs a specific requirement that will show adequate system reliability. With a goal of achieving 95% reliability of the inflation system with a 95% confidence, we are establishing such a requirement. As we noted above, the propellant used is designed to burn. The regulations do not address this type of propellant, and some measure of fire safety protection is needed. United Nations document No.ST/SG/AC.10/I1/Rev.3 "Transport of Dangerous Goods, Manual of Tests and Criteria," section 13.7.1 contains a small scale test that addresses this concern. Propellants that pass this test will not be a fire hazard.

Therefore, the FAA is proposing a special condition to ensure that the inflation system for the A380 escape system is reliable and that the propellant itself does not constitute a fire hazard.

#### Applicability

As discussed above, these special conditions are applicable to the Airbus A380-800 airplane. Should Airbus apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design features, these special conditions would apply to that model as well under the provisions of § 21.101(a)(1), Amendment 21-69, effective September 16, 1991.

#### Conclusion

This action affects only certain novel or unusual design features of the Airbus A380-800 airplane. It is not a rule of general applicability, and it affects only the applicant which 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 Proposed Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for the Airbus A380-800 airplane.

a. In addition to the requirements of § 25.810, the following special conditions apply:

To ensure that the inflation system is a reliable design, it must be tested using 84 inflation/firing system bench tests

with no more than one failure. For these special conditions, the inflation/firing system is defined as everything upstream of the outlet connection to the inflation valve, which includes but is not limited to the door-mounted systems that provide the firing signals to the squibs, the squibs themselves, the solid propellant, and the valve.

b. In addition to the requirements of § 25.853(a) and Appendix F Part I (a)(ii), in standard atmosphere conditions the following special conditions apply:

To ensure that the propellant itself does not contribute significantly to a fire, the propellant must be subjected to and must pass a standard "Small-Scale Burning Test," as specified in United Nations document No.ST/SG/AC.10/I1/Rev.3 "Transport of Dangerous Goods, Manual of Tests and Criteria," section 13.7.1.

Issued in Renton, Washington, on July 25, 2006.

**Ali Bahrami,**

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

[FR Doc. 05-15648 Filed 8-8-05; 8:45 am]

**BILLING CODE 4910-13-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 25

[Docket No. NM319; Notice No. 25-05-14-SC]

#### Special Conditions: Airbus Model A380-800 Airplane, Crashworthiness

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

**ACTION:** Notice of proposed special conditions.

**SUMMARY:** This notice proposes special conditions for the Airbus A380-800 airplane. This airplane will have novel or unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. Many of these novel or unusual design features are associated with the complex systems and the configuration of the airplane, including its full-length double deck. For these design features, the applicable airworthiness regulations do not contain adequate or appropriate safety standards regarding crash survivability. These proposed 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. Additional

special conditions will be issued for other novel or unusual design features of the Airbus Model A380-800 airplane.

**DATES:** Comments must be received on or before September 23, 2005.

**ADDRESSES:** Comments on this proposal may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attention: Rules Docket (ANM-113), Docket No. NM319, 1601 Lind Avenue SW., Renton, Washington 98055-4056; or delivered in duplicate to the Transport Airplane Directorate at the above address. All comments must be marked: Docket No. NM319. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4 p.m.

#### FOR FURTHER INFORMATION CONTACT:

Holly Thorson, FAA, International Branch, ANM-116, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98055-4056; telephone (425) 227-1357; facsimile (425) 227-1149.

#### SUPPLEMENTARY INFORMATION:

##### Comments Invited

The FAA invites interested persons to participate in this rulemaking by submitting 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 ask that you send us two copies of written comments.

We will file in the docket all comments we receive as well as a report summarizing each substantive public contact with FAA personnel concerning these proposed special conditions. The docket is available for public inspection before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this notice between 7:30 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late, if it is possible to do so without incurring expense or delay. We may change the proposed special conditions in light of the comments we receive.

If you want the FAA to acknowledge receipt of your comments on this proposal, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

## Background

Airbus applied for FAA certification/validation of the provisionally-designated Model A3XX-100 in its letter AI/L 810.0223/98, dated August 12, 1998, to the FAA. Application for certification by the Joint Aviation Authorities (JAA) of Europe had been made on January 16, 1998, reference AI/L 810.0019/98. In its letter to the FAA, Airbus requested an extension to the 5-year period for type certification in accordance with 14 CFR 21.17(c). The request was for an extension to a 7-year period, using the date of the initial application letter to the JAA as the reference date. The reason given by Airbus for the request for extension is related to the technical challenges, complexity, and the number of new and novel features on the airplane. On November 12, 1998, the Manager, Aircraft Engineering Division, AIR-100, granted Airbus' request for the 7-year period, based on the date of application to the JAA.

In its letter AI/LE-A 828.0040/99 Issue 3, dated July 20, 2001, Airbus stated that its target date for type certification of the Model A380-800 has been moved from May 2005, to January 2006, to match the delivery date of the first production airplane. In accordance with 14 CFR 21.17(d)(2), Airbus chose a new application date of April 20, 1999, and requested that the 7-year certification period which had already been approved be continued. The part 25 certification basis for the Model A380-800 airplane was adjusted to reflect the new application date.

The Model A380-800 airplane will be an all-new, four-engine jet transport airplane with a full double-deck, two-aisle cabin. The maximum takeoff weight will be 1.235 million pounds with a typical three-class layout of 555 passengers.

## Type Certification Basis

Under the provisions of 14 CFR 21.17, Airbus must show that the Model A380-800 airplane meets the applicable provisions of 14 CFR part 25, as amended by Amendments 25-1 through 25-98. If the Administrator finds that the applicable airworthiness regulations do not contain adequate or appropriate safety standards for the Airbus A380-800 airplane because of novel or unusual design features, special conditions are prescribed under the provisions of 14 CFR 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Airbus Model A380-800 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. In addition, the FAA must issue a finding of regulatory adequacy pursuant to section 611 of Public Law 93-574, the "Noise Control Act of 1972."

Special conditions, as defined in 14 CFR 11.19, are issued in accordance with 14 CFR 11.38 and become part of the type certification basis in accordance with 14 CFR 21.17(a)(2), Amendment 21-69, effective September 16, 1991.

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 feature, or should any other model already included on the same type certificate be modified to incorporate the same novel or unusual design features, the special conditions would also apply to the other model under the provisions of 14 CFR 21.101(a)(1), Amendment 21-69, effective September 16, 1991.

## Discussion of Novel or Unusual Design Features

With its complex configuration including a full-length double deck, the Model A380 airplane has a novel and unusual design relative to large transport category airplanes which have been previously certificated under 14 CFR part 25. The A380 should provide a level of crash survivability which is at least equivalent to that demonstrated for such conventional large transport airplanes. However, its size and configuration could cause the airplane to be subject to effects of scale that decrease the ability of the occupants to survive a crash landing, compared to the occupants of those conventional airplanes.

Currently, 14 CFR 25.561 contains design load conditions covering emergency landings or minor crash landings for the local structures which support passengers, equipment, cargo, and other large items of mass in the passenger compartment. However, neither 14 CFR 25.561 nor any other part 25 requirements address the structural capability of the airframe as a whole in a crash landing. Service experience indicates that—even without specific regulatory requirements—the airframes of conventional transport category airplanes show reasonable structural capability in crash landings. Therefore, in the past we have not considered it necessary to specify design load conditions addressing the

structural capability of the airplane as a whole in a crash landing.

The FAA, however, has no information to indicate whether an airplane the size and configuration of the A380 would provide reasonable airframe structural capability in a crash landing without a specific regulatory requirement. Therefore, the FAA is proposing special conditions which specify testing and analysis to ensure that the Model A380 provides a level of crash survivability equivalent to that of conventional large transport category airplanes. These special conditions address only the vertical loading of the fuselage. The longitudinal loading is not significantly different from that of a conventional transport category airplane and thus is adequately addressed by part 25.

For the special conditions, it is necessary to establish a reference point to compare the structural capability of the A380 airplane with the structural capability of current generation airplanes in a crash. This reference point is referred to as the "Limit of Reasonable Survivability." It is defined—in terms of the vertical descent rate—as the level of structural degradation that would lead, either directly or by exceedance of physiological limits of the occupants, to a significant reduction in the probability of survival in an otherwise survivable incident. (An incident can be unsurvivable due to a non-structural cause, such as a fire. An otherwise survivable incident, then, is one in which no fire or other cause makes the incident unsurvivable.) We intend that this Limit of Reasonable Survivability must be determined first for the current generation of the applicant's airplanes and then for the A380 to show that the latter has equal or better characteristics at the same vertical descent rate.

The special conditions contain a provision to ensure that the supporting airframe structure is strong and rigid enough to provide survivable living space and to hold seats, overhead bins, and other items of mass in place, even if the local attachment hardware is designed to exceed the minimum strength required by § 25.561. To provide this protection, the special conditions specify that the airframe structure must be able to support the loads imposed by items of mass, assuming that their local supporting structure does not fail, thus relieving the load on the supporting airframe structure. This assumption will ensure that the airframe structure will not collapse, even if the strength of the local attachment for items of mass exceeds the strength required by § 25.561. Since

it is the airframe as a whole and its survivable living space that are the subject of these special conditions, the FAA does not intend to increase the strength requirements of § 25.561 by special condition. Therefore, the special conditions state explicitly that the attachments of items of mass need not be designed for static emergency landing loads in excess of those specified in § 25.561.

Since larger airframe structures typically have more volume within which to absorb energy, they normally provide occupants with reasonable protection from crash loads. Therefore, the effects of the A380 design on occupant loads are not expected to be significant. In order to confirm that this assumption is correct, these special conditions require an assessment of the effect of the design on the occupant loads. For the purposes of these special conditions, an analytical tool known as the Dynamic Response Index (DRI) is used to make the assessment. DRI was developed through research and is documented in USAA VSCOM TR 89-D-22B, "Aircraft Crash Survival Design Guide, Volume II, Aircraft Design Crash Impact Conditions and Human Tolerance." DRI approximates the effect of an impact on spinal load. Based on the results of the assessment using DRI, any additional, detailed occupant load considerations can be established.

#### Applicability

As discussed above, these special conditions are applicable to the Airbus A380-800 airplane. Should Airbus apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design features, these special conditions would apply to that model as well under the provisions of § 21.101(a)(1), Amendment 21-69, effective September 16, 1991.

#### Conclusion

This action affects only certain novel or unusual design features of the Airbus A380-800 airplane. It is not a rule of general applicability, and it affects only the applicant which 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 Proposed Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for the Airbus A380-800 airplane.

In addition to the requirements of §§ 25.561, 25.562, 25.721, and 25.785, the following special conditions apply:

It must be demonstrated that the Model A380 provides a level of crash survivability equivalent to that of conventional large transport airplanes. This may be achieved by demonstrating by test or validated analysis that—at impacts up to a vertical descent rate representing the Limit of Reasonable Survivability—the structural capability of typical fuselage sections is equal to or better than that of a conventional large transport airplane.

(The Limit of Reasonable Survivability is defined as the level of structural degradation that would either directly or by exceedance of physiological limits of the occupants lead to a significant reduction in the probability of survival in an otherwise survivable incident.) The results of this demonstration must show the following:

- a. Structural deformation will not result in infringement of the occupants' normal living space.
- b. The occupants will be protected from the release of seats, overhead bins, and other items of mass due to structural deformation of the supporting structure. That is, the supporting structure must be able to support the loads imposed by these items of mass, assuming that they remain attached during the impact event, and the floor structure must deform in a way that would allow them to remain attached. However, the attachments of these items need not be designed for static emergency landing loads in excess of those specified in § 25.561.
- c. The Dynamic Response Index experienced by the occupants will not be more severe than that experienced on conventional large transport airplanes. (The Dynamic Response Index is described in USAA VSCOM TR 89-D-22B, "Aircraft Crash Survival Design Guide, Volume II, Aircraft Design Crash Impact Conditions and Human Tolerance.")

d. Cargo loading of the fuselage for this evaluation accounts for variations that could have a deleterious effect on structural performance.

Issued in Renton, Washington on July 25, 2005.

**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. NM322; Notice No. 25-05-17-SC]

#### Special Conditions: Airbus Model A380-800 Airplane, Transient Engine Failure Loads

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

**ACTION:** Notice of proposed special conditions.

**SUMMARY:** This notice proposes special conditions for the Airbus A380-800 airplane. This airplane will have novel or unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. Some of these novel or unusual design features are associated with the high bypass engines used on the Model A380. For these design features, the applicable airworthiness regulations do not contain adequate or appropriate safety standards regarding transient engine failure loads. These proposed 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. Additional special conditions will be issued for other novel or unusual design features of the Airbus Model A380-800 airplane.

**DATES:** Comments must be received on or before September 23, 2005.

**ADDRESSES:** Comments on this proposal may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attention: Rules Docket (ANM-113), Docket No. NM322, 1601 Lind Avenue SW., Renton, Washington 98055-4056; or delivered in duplicate to the Transport Airplane Directorate at the above address. All comments must be marked: Docket No. NM322. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4 p.m.

**FOR FURTHER INFORMATION CONTACT:** Holly Thorson, FAA, International Branch, ANM-116, Transport Airplane