

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

All of the escape systems on the upper deck and one pair of the escape systems on the main deck of this airplane are installed in non-pressurized compartments. These non-pressurized compartments will be exposed to extremely cold temperatures on every flight.

When the certification testing was conducted for previous airplane programs, the FAA considered that the extreme environmental conditions to which the escape systems can be exposed would be independent of other certification criteria. For example, the escape system would be tested under conditions of extreme cold in one test and exposed to 25-knot winds at ambient temperature in a separate test. On the Model A380-800 airplane, however, all the upper deck escape systems and one pair of the main deck escape systems are located in non-pressurized compartments. As a result, these escape systems will be exposed to extremely cold temperatures on every flight. Therefore, the escape systems must be tested under conditions of both extremely cold temperatures and strong winds.

In the past, several airplanes have had a pair of escape systems installed in non-pressurized compartments. These escape systems were off-wing systems that are less affected by wind than are other escape systems, and only one pair of exits was affected. Testing the combined effects of extremely cold temperature and strong winds was not

required for these systems. On the A380, however, one-half of the escape systems are installed in non-pressurized compartments. Therefore, the adverse effects of a failure of the escape system—due to the combination of extremely cold temperatures and strong wind—would be much more severe.

The regulations do not adequately address escape systems installed in non-pressurized compartments; therefore, the FAA is proposing a special condition to require the applicant to demonstrate that escape systems in non-pressurized compartments function properly when exposed to both extremely cold temperatures and strong winds.

#### 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 §§ 25.810, 25.1301 and 25.1309, the following special condition applies:

For the escape systems on the Model A380 airplane that are installed in non-pressurized compartments and thus are exposed to extremely cold temperatures on every flight, it must be demonstrated that the escape systems function properly in the combination of the cold soak associated with long flight at

altitude and a 25-knot wind from the critical angle.

Issued in Renton, Washington, on July 19, 2005.

**Ali Bahrami,**

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

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**BILLING CODE 4910-13-P**

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 25

[Docket No. NM320; Notice No. 25-05-15-SC]

#### Special Conditions: Airbus Model A380-800 Airplane, Escape Systems Inflation Systems

**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 escape system reliability. 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. NM320, 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. NM 320. 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**

The inflation system for the escape systems associated with the exits includes a pressurized cylinder with a mixture of carbon dioxide and argon in both gaseous and liquid states. The inflation system also includes a smaller cylinder containing a solid propellant that burns to generate gaseous propellant. The opening of the valve and the ignition of the propellant are accomplished by the firing of squibs. The firing of these squibs is sequenced to improve their performance in the extreme temperatures to which they are subjected. Firing of the squibs is controlled by a system mounted on the the emergency exit.

The proposed design for the escape systems on the A380 is much more complex than the design of systems currently in use. Typically, inflation systems for escape systems consist of a pressurized cylinder containing a mixture of gases and a regulator valve that reduces the outlet pressure supplied from the inflation cylinder. The regulator valve is opened either by mechanical means or by the firing of a squib.

The regulations governing the certification of the A380 do not adequately address the certification requirements of this type of inflation system for an escape system. Furthermore, the Technical Standard Order (TSO) that addresses escape systems (*i.e.*, TSO-C69c) does not adequately address this type of inflation system. The current requirements for escape system reliability are predicated on a simple inflation system, where reliability is driven by the performance of the inflatable itself. The existing requirements do not account for an inflation system that could adversely affect the overall reliability of the escape system.

Since the A380 has 16 emergency exits, the requirements of § 25.810 require a total of 80 successful deployments (5 successive deployments for each exit). However, since the requirements apply to each system independently, failures in a system common to all the escape systems

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.*

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## 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.

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