

allows for some deformation in the structure.

The FAA concludes that modern large engines, including those on the Model A380, are novel and unusual compared to those envisioned when § 25.361(b)(1) was adopted and thus warrant a special condition. The proposed special condition contains design criteria as recommended by the ARAC.

The ARAC proposal would revise the wording of § 25.361(b), including §§ 25.361(b)(1) and (b)(2), removing the language pertaining to structural failures and moving it to a separate requirement that discusses the reduced factors of safety that apply to these failures. The revised wording of § 25.361(b) would also include non-substantive changes recommended by ARAC to clarify the existing requirement. The FAA is using this ARAC text in the proposed special condition, because it clarifies the supplementary conditions for engine torque.

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 lieu of compliance with § 25.361(b), the following special condition applies:

For turbine engine installations, the engine mounts, pylons, and adjacent

supporting airframe structure must be designed to withstand 1 g level flight loads acting simultaneously with the maximum limit torque loads imposed by each of the following:

1. Sudden engine deceleration due to a malfunction which could result in a temporary loss of power or thrust; and

2. The maximum acceleration of the engine.

b. In addition to the requirements of 14 CFR part 25, the following special condition applies:

1. For engine supporting structure, an ultimate loading condition must be considered that combines 1 g flight loads with the transient dynamic loads resulting from:

(a) The loss of any fan, compressor, or turbine blade; and

(b) Separately, where applicable to a specific engine design, any other engine structural failure that results in higher loads.

2. The ultimate loads developed from the conditions specified in paragraph b. 1. above are to be:

(a) multiplied by a factor of 1.0 when applied to engine mounts and pylons; and

(b) multiplied by a factor of 1.25 when applied to adjacent supporting airframe structure.

Issued in Renton, Washington, on August 1, 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. NM321; Notice No. 25-05-16-SC]

Special Conditions: Airbus Model A380-800 Airplane, Ground Turning 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. 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 ground turning 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. NM321, 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. NM321. 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 A380 has a landing gear arrangement consisting of a nose gear, two wing mounted gears, and two body mounted gears. This is different from the conventional tricycle landing gear arrangement envisioned by 14 CFR 25.495. The simple load condition specified in § 25.495, while providing a realistic approximation for designing a tricycle landing gear arrangement, will give unrealistic results for the A380. Safe sizing of the A380 landing gears necessitates a rational ground turning analysis that considers the way the airplane as a whole responds to a turning maneuver.

Furthermore, recent studies of the current generation of transport category airplanes carried out in the U.S. and in Europe indicate a correlation between lower load factors in ground turns and higher gross weight of an airplane. This correlation was documented in the FAA-sponsored report, DOT/FAA/AR-02/129 *Side Load Factor Statistics from Commercial Aircraft Ground*

Operations, dated January 2003. As stated in the report's abstract, "The results of this study clearly indicate, however, that the lateral loads experienced by the larger/heavier transport jets during ground turns are substantially less than those of smaller jet transports." Based on this rationale, for the A380 at maximum ramp weight—which is more than 30% heavier than any currently certificated airplane—the 0.5 g design turning load factor specified in § 25.495 is conservative. A load factor of 0.45 g is more appropriate for the A380. The data provided to the FAA support this reduced factor.

Therefore, in lieu of the requirements of § 25.495, a special condition regarding ground turning loads is justified for the Model A380 airplane. The proposed special condition would require the applicant to determine the loads on the airplane during ground turning in a rational manner and would allow the applicant to determine a limit turning lateral load factor—not less than 0.45 g's—which is appropriate for the A380 at maximum ramp weight.

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 lieu of the requirements of § 25.495, the following special condition applies:

a. The airplane is assumed to execute a steady turn by steering of any steerable gear or by application of any differential power. The airplane limit vertical load factor must be 1.0, and, in the absence of a more rational analysis, the limit airplane lateral load factor must be 0.5.

b. The airplane is assumed to be in static balance, the lateral load factor being reacted by friction forces applied at the ground contact point of each tire. The lateral load must be shared between each individual tire in a rational or conservative manner. The distribution of the load on the tire must account at least for the effects of the factors specified in subparagraph c. (2) of this special condition.

c. At maximum ramp weight, a limit value of lateral center of gravity (cg) inertia load factor lower than specified in subparagraph a. but not less than 0.45g (wing axis) may be used, if it can be shown by a rational analysis that this lower value cannot be exceeded. The rational analysis must consider at least the following:

1. The maximum lateral load factor that can be reached during the full range of likely ground operations at maximum ramp weight, including ground turning, "fishtailing," and high-speed runway exit. In each case, the full dynamic maneuver must be considered.

2. The rational analysis must include at least the following parameters:

(a) Landing gear spring curves and landing gear kinematics

(b) Reliable tire friction characteristics

(c) Airframe and landing gear flexibility when significant

(d) Airplane rigid body motion

(e) The worst combination of tire diameter, tire pressure, and runway shapes, specified in §§ 25.511(b)(2), 25.511(b)(3), and 25.511(b)(4).

d. The limit lateral load factor at maximum landing weight is 0.5.

e. Details of the analysis and any assumptions used must be agreed to by the FAA.

Any assumptions made in the analysis must be based on the intrinsic characteristics of the airplane and must be independent of airfield geometry. Other influences that cannot be controlled by the airplane design must be conservatively assessed.

Issued in Renton, Washington, on August 1, 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. NM313; Notice No. 25-05-08-SC]

Special Conditions: Airbus Model A380-800 Airplane; Fire Protection

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This notice proposes special conditions for the Airbus A380-800 airplane, which has novel and unusual design features, such as a full-length double deck passenger cabin and distributed electrical equipment bays. For these design features, the applicable airworthiness regulations do not contain adequate or appropriate safety standards regarding fire protection. 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. NM313, 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. NM313. 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