

# Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 25

[Docket No. NM304; Notice No. 25-05-03-SC]

#### Special Conditions: Airbus Model A318 Airplanes Equipped With Pratt and Whitney PW6000 Engines; Sudden Engine Stoppage

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

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

**SUMMARY:** This document proposes special conditions for Airbus Models A318-121 and A318-122 airplanes equipped with Pratt and Whitney PW6000 engines. These airplanes will have novel or unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes, associated with engine size and torque load, which affects sudden engine stoppage. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. 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.

**DATES:** Comments must be received on or before May 26, 2005.

**ADDRESSES:** Comments on this proposal may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM-113), Docket No. NN304, 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. NM304. 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:** Tim Dulin, FAA, International Branch, ANM-116, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2141; facsimile (425) 227-1232.

#### 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 proposal, 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 preamble 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 this proposal for 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

On December 22, 1998, Airbus submitted an application to the FAA to amend Type Certificate No. A28NM to include the new Model A318 airplane equipped with Pratt and Whitney PW6000 engines (Models A318-121 and A318-122) or with optional CFMI CFM56 engines (Models A318-111 and A318-112). On May 14, 2002, Airbus applied for extension of the application for the Model A318 airplanes equipped with PW6000 engines and selected a

new reference date of application of November 15, 2001.

The Airbus Model A318 airplane is a shortened reduced capacity version of the Model A320-200. The Model A318 will have a maximum passenger capacity of 136 versus a maximum passenger capacity of 179 for the Model A320 series airplanes and 145 for the Model A319 series airplanes. The fuselage length is reduced by four and one half frames (94 inches) compared to the Model A319 series airplanes. The maximum takeoff weight will be 59,000 kg (130,000 pounds) with growth options to 68,000 kg (150,000 pounds) versus maximum takeoff weight range of 68,000 kg to 77,000 kg for the Model A320 series airplanes and 64,000 kg to 75,500 kg for the Model A319 series airplanes. The Model A318 will be powered by all new Pratt and Whitney PW6000 engines or by CFMI CFM56-5B engines all in the 22,000 to 24,000 pound thrust range. Other changes include a new engine/nacelle and pylon adaptation for the PW6000 engine installation.

##### Type Certification Basis

Under the provisions of 14 CFR 21.101, Airbus must show that the Model A318 airplane, equipped with Pratt and Whitney PW6000 engines, meets the applicable provisions of the regulations incorporated by reference in Type Certificate No. A28NM or the applicable regulations in effect on the date of application for the change to the type certificate.

The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis."

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 Airbus Model A318 airplane, equipped with Pratt and Whitney PW6000 engines, because of a novel or unusual design feature, special conditions are prescribed under the provisions of 14 CFR 21.16.

Special conditions, as defined in 14 CFR 11.19, are issued in accordance with § 11.38 and become part of the type certification basis in accordance with 14 CFR 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 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 feature, the special conditions would also apply to the other model under the provisions of 14 CFR 21.101.

#### Novel or Unusual Design Features

The Airbus Model A318 airplane, equipped with Pratt and Whitney PW6000 engines, will incorporate novel or unusual design features involving engine size and torque load that affect sudden engine stoppage conditions.

#### Discussion

The limit engine torque load imposed by sudden engine stoppage due to malfunction or structural failure (such as compressor jamming) has been a specific requirement for transport category airplanes since 1957. The size, configuration, and failure modes of jet engines have changed considerably from those envisioned when the engine seizure requirement of § 25.361(b) was first adopted. Current engines are much larger and are now designed with large bypass fans capable of producing much larger torque loads if they become jammed. It is evident from service history that the frequency of occurrence of the most severe sudden engine stoppage events is rare.

Relative to the engine configurations that existed when the rule was developed in 1957, the present generation of engines is sufficiently different and novel to justify issuance of special conditions to establish appropriate design standards. The latest generation of jet engines is capable of producing, during failure, transient loads that are significantly higher and more complex than the generation of engines that were present when the existing standard was developed. Therefore, the FAA has determined that special conditions are needed for Airbus Models A318-121 and A318-122 (equipped with Pratt and Whitney PW6000 engines).

Airbus Models A318-111 and A318-112 (equipped with CFMI CFM56-5B engines) will not be subject to the same special conditions because these engines and their supporting structure are unchanged from the basic Model A320, for which no special conditions were applied.

In order to maintain the level of safety envisioned in § 25.361(b), more comprehensive criteria are needed for the new generation of high bypass engines. The proposed special conditions would distinguish between

the more common seizure events and those rare seizure events resulting from structural failures. For these rare but severe seizure events, the proposed criteria could allow some deformation in the engine supporting structure (ultimate load design) in order to absorb the higher energy associated with the high bypass engines, while at the same time protecting the adjacent primary structure in the wing and fuselage by providing a higher safety factor. The criteria for the more severe events would no longer be a pure static torque load condition, but would account for the full spectrum of transient dynamic loads developed from the engine failure condition.

#### Applicability

As discussed above, these special conditions are applicable to Airbus Models A318-121 and A318-122 airplanes equipped with Pratt and Whitney PW6000 engines. 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 feature, these special conditions would apply to that model as well under the provisions of § 21.101.

#### Conclusion

This action affects certain novel or unusual design features on the Airbus Model A318 airplane equipped with Pratt and Whitney PW6000 engines. 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 Proposed Special Conditions

Accordingly, The Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for Airbus Model A318 airplane equipped with Pratt and Whitney PW6000 engines.

In lieu of compliance with 14 CFR 25.361(b), the following special condition applies:

##### 1. Sudden Engine Stoppage.

(a) For turbine engine installations, the engine mounts, pylons and adjacent supporting airframe structure must be designed to withstand 1g 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.

(2) The maximum acceleration of the engine.

(b) For auxiliary power unit installations, the power unit mounts and adjacent supporting airframe structure must be designed to withstand 1g level flight loads acting simultaneously with the maximum limit torque loads imposed by each of the following:

(1) Sudden auxiliary power unit deceleration due to malfunction or structural failure.

(2) The maximum acceleration of the auxiliary power unit.

(c) For engine supporting structure, an ultimate loading condition must be considered that combines 1g flight loads with the transient dynamic loads resulting from each of the following:

(1) The loss of any fan, compressor, or turbine blade.

(2) Where applicable to a specific engine design, and separately from the conditions specified in paragraph 1(c)(1), any other engine structural failure that results in higher loads.

(d) The ultimate loads developed from the conditions specified in paragraphs (c)(1) and (c)(2) above are to be multiplied by a factor of 1.0 when applied to engine mounts and pylons and multiplied by a factor of 1.25 when applied to adjacent supporting airframe structure.

Issued in Renton, Washington, on March 24, 2005.

**Ali Bahrami,**

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

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2005-20848; Directorate Identifier 2005-NE-02-AD]

RIN 2120-AA64

#### Airworthiness Directives; Aviointeriors S.p.A. (formerly ALVEN), Series 312 Box Mounted Seats

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** The FAA proposes to adopt a new airworthiness directive (AD) for Aviointeriors S.p.A. (formerly ALVEN),