Billing Code 4910‑13

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part {CFRPart}

[Docket No. {DocketNo}; Notice No. {NoticeNo}]

Special Conditions: 4[Modifier], {AirplaneManufacturer} Model {AirplaneModel} Airplane; {SubjectOfSC}

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the {AirplaneManufacturer} Model {AirplaneModel} if applicable (see issue paper/worksheet):seriesairplane. This airplane**4[**, as modified by NEED: Modifier,**]** will have a novel or unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. This design feature is {Summary}. 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: Send comments on or before [INSERT DATE 45 (or 30, if appropriate; no fewer than 20 days under urgent circumstances) DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Send comments identified by Docket No. {DocketNo} using any of the following methods:

Federal eRegulations Portal: Go to www.regulations.gov and follow the online instructions for sending your comments electronically.

Mail: Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, DC, 20590-0001.

Hand Delivery or Courier: Take comments to Docket Operations in Room W12‑140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Fax: Fax comments to Docket Operations at 202-493-2251.

Docket: Background documents or comments received may be read at [www.regulations.gov](https://www.regulations.gov/) at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: {SMEName}, {SMESection}, {SMERoutingSymbol}, Technical Policy Branch **OR** Organization and System Policy Branch, Policy and Standards Division, Aircraft Certification Service, Federal Aviation Administration, {SMEROAddress}; telephone {SMEPhone}; email {SMEEmail}.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the proposed special conditions, explain the reason for any recommended change, and include supporting data.

For notices with a comment period of less than 45 days (30 days, or no fewer than 20 days under urgent circumstances) the following justification may be used, if appropriate:

Certification of the {AirplaneManufacturer} Model {AirplaneModel} series airplane is currently scheduled for {CertDate}. The substance of these special conditions, in all material respects, has been subject to the notice and public-comment procedure in several prior instances. Therefore, because a delay would significantly affect the applicant’s installation of the new or unusual feature, and delay certification of the airplane, the FAA is reducing the public-comment period to 20 days.

The FAA will consider all comments received by the closing date for comments, and will consider comments filed late if it is possible to do so without incurring delay. The FAA may change these special conditions based on the comments received.

Privacy

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in title 14, Code of Federal Regulations (14 CFR) 11.35, the FAA will post all comments received without change to [www.regulations.gov](https://www.regulations.gov/), including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about these special conditions.

Confidential Business Information

Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to these special conditions contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to these special conditions, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and the indicated comments will not be placed in the public docket of these proposed special conditions. Send submissions containing CBI to the individual listed in the For Further Information Contact section above. Comments the FAA receives, which are not specifically designated as CBI, will be placed in the public docket for these proposed special conditions.

Background

On {ApplicationDate}, {ApplicantName} applied for **1[**a type certificate for its new Model NEED: Airplane model**]** **2[**an amendment to Type Certificate No. {TCNumber} to include the new Model {AirplaneModel}**]** **3[**a change to Type Certificate No. {TCNumber} for description of change in/on the {AirplaneModel}**]** **4[**a supplemental type certificate for description of change in the Model {AirplaneModel}**]** if applicable (see issue paper/worksheet): series airplane. The **1, 3 or 4[**{AirplaneManufacturer} Model {AirplaneModel} if applicable: series airplane**]** **2[**{AirplaneManufacturer} Model {AirplaneModel} if applicable: series**]** airplane, which is a derivative of the Model preceding model name currently approved under Type Certificate No. {TCNumber}, is provide brief description of the airplane, including such parameters as function (freighter, etc.), passenger capacity, max. takeoff weight, range, powerplants, etc.

Type Certification Basis

**1[**Under the provisions of 14 CFR 21.17, {ApplicantName} must show that the Model {AirplaneModel} if applicable: series airplane meets the applicable provisions of part {CFRPart}, as amended by amendments applicable amendment number, e.g. 25-1 through amendment in effect on the date of application].

**2[**Under the provisions of 14 CFR 21.101, {ApplicantName} must show that the Model {AirplaneModel} if applicable: series airplane meets the applicable provisions of the regulations listed in Type Certificate No. {TCNumber}, or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.]

**3 or 4[**Under the provisions of 14 CFR 21.101**,** {ApplicantName} must show that the {ApplicantName} must show that changes to the {AirplaneManufacturer} Model {AirplaneModel} if applicable: series airplane, as changed, continues to meet the applicable provisions of the regulations listed in Type Certificate No. {TCNumber} or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.]

2, 3, or 4[If applicable (rarely): In addition, if the regulations listed do not provide adequate standards regarding the change, the applicant must comply with certain regulations in effect on the date of application for the change. The FAA has determined that the {AirplaneManufacturer} Model {AirplaneModel} if applicable, per TCDS/Worksheet: series airplane must also comply with the following sections of part {CFRPart}, as amended by amendments applicable amendment number, e.g. 25-1 through amendment in effect on the date of application:

List the additional sections.**]**

If the Administrator finds that the applicable airworthiness regulations (e.g., 14 CFR part 25) do not contain adequate or appropriate safety standards for the {AirplaneManufacturer} Model {AirplaneModel} if applicable, per TCDS/Worksheet: series airplane because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. **1[**Should the type certificate for that model be amended later to include any other model that incorporates**]** **2 or 3[**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**]** **4[**Should the applicant apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate] the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the {AirplaneManufacturer} Model {AirplaneModel} applicable, per TCDS/Worksheet: series airplane must comply with the only for 14 CFR part 23 and 27: fuel-vent and only for 14 CFR part 23, 25, 27, 29: exhaust-emission requirements of 14 CFR part 34 only for 14 CFR part 23, 25, 27, 29:, and the noise-certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with as appropriate: title 14, Code of Federal Regulations (14 CFR) **OR** 14 CFR **OR** § 11.38, and they become part of the type certification basis under **1[**§ 21.17(a)(2)**]** **2, 3 or 4[**§ 21.101**]**.

Novel or Unusual Design Features

The {AirplaneManufacturer} Model {AirplaneModel} if applicable: series airplane will incorporate the following novel or unusual design feature(s):

The Airbus Model A321 neo ACF and A321 neo XLR series airplanes will incorporate single occupant oblique seats, with airbag devices and 3-point restraints or pretensioner restraint system, installed at 49 degrees relative to the aircraft cabin bow-to-stern centerline.

Discussion

(Extracted from the discussion section of the 25-811-SC: as modified to correct applicant, and change airplane model. Pretensioner restraint related discussion has been added and extracted from the discussion section of the 25-861-SC.)  
Section 25.785(d) requires that each occupant of a seat installed at an angle of more than 18 degrees, relative to bow-to-stern airplane cabin centerline, must be protected from head injury using a seatbelt and an energy-absorbing rest that supports the arms, shoulders, head, and spine, or using a seatbelt and shoulder harness designed to prevent the head from contacting any injurious object.  
The Airbus Model A321 neo ACF and A321 neo XLR airplane’s single occupant oblique seat installation with airbag devices and 3-point restraint or pretensioner restraint system is novel such that the current requirements do not adequately address airbag or pretensioner devices and protection of the occupant’s neck, spine torso, and legs for seating configurations that are positioned at an angle of 49 degrees from the airplane centerline. The seating configuration installation angle is beyond the installation-design limits of current special conditions issued for seat positions at angles between 18 degrees and 45 degrees. For example, at these angles, lateral neck bending and other injury mechanisms prevalent from a fully side-facing installation become a concern. To account for these concerns, these special conditions are based on FAA policy statement PS-AIR-25-27, “Technical Criteria for Approving Obliques seats” as well as policy statement PS-ANM-25-03-R1, “Technical Criteria for Approving Side-Facing Seats.”  
To provide a level of safety equivalent to that afforded to the occupants of forward and aft-facing seats, additional airworthiness standards, in the form of dynamic testing requirements, including both the injury criteria limits from the oblique-seat policy and the fully side-facing seat policy through new special conditions are necessary.  
Other restraint systems have been used to comply with the occupant injury criteria of § 25.562(c)(5). For instance, shoulder harnesses have been widely used on flight-attendant seats, flight-deck seats, in business jets, and in general-aviation airplanes to reduce occupant head injury in the event of an emergency landing. Special conditions, pertinent regulations, and published guidance relate to other restraint systems. However, the use of pretensioners in the restraint system on transport-airplane seats is a novel design.  
Pretensioner technology involves a step-change in loading experienced by the occupant for impacts below and above that at which the device deploys, because activation of the shoulder harness, at the point at which the pretensioner engages, interrupts upper-torso excursion. Such excursion could result in the head-injury criteria (HIC) being higher at an intermediate impact condition than that resulting from the maximum impact condition corresponding to the test conditions specified in § 25.562. See condition a.3 in these special conditions.  
The ideal triangular maximum-severity pulse is defined in Advisory Circular (AC) 25.562–1B, “Dynamic Evaluation of Seat Restraint Systems and Occupant Protection on Transport Airplanes”. For the evaluation and testing of less-severe pulses for purposes of assessing the effectiveness of the pretensioner setting, a similar triangular pulse should be used with acceleration, rise time, and velocity change scaled accordingly. The magnitude of the required pulse should not deviate below the ideal pulse by more than 0.5g until 1.33 t1 is reached, where t1 represents the time interval between 0 and t1 on the referenced pulse shape, as shown in AC 25.562–1B. This is an acceptable method of compliance to the test requirements of the special conditions.  
Additionally, the pretensioner might not provide protection, after actuation, during secondary impacts. Therefore, the case where a small impact is followed by a large impact should be addressed. If the minimum deceleration severity at which the pretensioner is set to deploy is unnecessarily low, the protection offered by the pretensioner may be lost by the time a second, larger impact occurs.  
Conditions a through g address occupant protection in consideration of the oblique-facing seats. Condition h addresses airbag systems. Conditions i.1 through i.3 ensures that the pretensioner system activates when intended and protects a range of occupants under various accident conditions. Conditions i.4 through i.9 addresses maintenance and reliability of the pretensioner system, including any outside influences on the mechanism, to ensure it functions as intended.  
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.

The 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.

Applicability

As discussed above, these proposed special conditions are applicable to the model for which they are issued. **1[**Should the type certificate for that model be amended later to include any other model that incorporates**]** **2 or 3[**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**]** **4[**Should the applicant apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate**]** the same novel or unusual design feature, these special conditions would apply to the other model as well.

Conclusion

This action affects only (a) certain novel or unusual design feature(s) on one model if applicable: series of airplanes. It is not a rule of general applicability **4[**and affects only the applicant who applied to the FAA for approval of these features on the airplane**]**.

List of Subjects in 14 CFR Part {CFRPart}

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

Authority Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(f), 40113, 44701, 44702, and 44704.

The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for {AirplaneManufacturer} Model {AirplaneModel} if applicable: series airplanes **4[**, as modified by {ApplicantName}**]**.

{SpecialConditions}

**[**Note that the OFR Document Drafting Handbook (DDH) recommends **no more than 3 paragraph-numbering levels**. The following indicate autonumbering style names in the style sheet. NOTE: OFR does not accept what they call “autonumbering”. Numbering should use SC Text style and be hand-numbered. If previous SCs have been issued, its acceptable to use that numbering if it differs from the sample below. All numbering should be aligned left without indents for each paragraph.

(a) First level

(1) Second level

(i) Third level

(A) Fourth level

(1) Fifth level

(i) Sixth level

If SME is from the Technical Policy Branch, AIR‑620:

Issued in Kansas City, Missouri, on date.

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If SME is from the Systems Policy Branch, AIR‑630:

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If an Acting Manager signs the SC, use this signature block:

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