[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 23

[Docket No. FAA-2018-0200; Special Conditions No. 23-287-SC]

Special Conditions: Honda Aircraft Company, Inc., HA-420 Airplane; Single-Place Side-Facing Lavatory Seat Dynamic Test

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Honda Aircraft Company, Inc., HA-420 airplane. This airplane will have a novel or unusual design feature associated with a single-place side-facing seat in the lavatory that can be used as a passenger seat during taxi, takeoff, and landing. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. 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.

DATES: The special conditions are effective **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, and are applicable March 7, 2018.

We must receive your comments by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Send comments identified by docket number FAA-2018-0200 using any of the following methods:

- Federal eRegulations Portal: Go to http://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, D.C., 20590-0001.
- Hand Delivery of Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, S.E., Washington, D.C., between 9 a.m., and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: Fax comments to Docket Operations at 202-493-2251.

Privacy: The FAA will post all comments it receives, without change, to http://regulations.gov, including any personal information the commenter provides. Using the search function of the docket web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the Federal Register published on April 11, 2000 (65 FR 19477-19478), as well as at http://DocketsInfo.dot.gov.

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

FOR FURTHER INFORMATION CONTACT: Bob Stegeman, Federal Aviation Administration, AIR-691, Policy & Innovation Division, Small Airplane Standards Branch, Aircraft Certification Service, 901 Locust; Kansas City, Missouri 64106; telephone (816) 329-4140; facsimile (816) 329-4090.

SUPPLEMENTARY INFORMATION: The FAA has determined that notice and opportunity for prior public comment are impracticable because these procedures would significantly delay issuance of the approval design and thus delivery of the affected airplanes.

Comments Invited

We invite 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 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 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 these special conditions based on the comments we receive.

Background

On January 6, 2017, Honda Aircraft Company, Inc. applied for a change to Type Certificate (TC) No. A00018AT for the installation of a single-place side-facing belted lavatory seat in the HA-420 airplane. The HA-420, currently approved under TC No. A00018AT, is a 7-seat, lightweight business jet with a 43,000-foot service ceiling and a maximum takeoff weight of 9,963 pounds. The airplane is powered by two GE-Honda Aero Engines (GHAE) HF-120 turbofan engines.

The airplane will be equipped with a “belted” lavatory seat cover that a passenger can be seated in during taxi, takeoff, and landing. Therefore, compliance with the provisions of 14 CFR 23.562 and 23.785—in addition to the certification basis as established in TC No. A00018AT—and any additional requirements the FAA determines, are applicable. In this case, the approval of a side-facing seat to these provisions is considered novel or unusual; therefore, special conditions are required.

14 CFR part 23, amendment 23-36[2], effective September 14, 1988, revised the emergency landing conditions that must be considered in the design of the airplane. Specifically, it revised the static load conditions in § 23.561 and added § 23.562 to require dynamic testing for all seats approved for occupancy during takeoff and landing. The intent of amendment 23-36 is to provide an improved level of safety for occupants on airplanes certificated under part 23 (part 23 airplanes). In part 23 airplanes, most seating is forward or aft facing; therefore, the pass/fail criteria in amendment 23-36 focuses on forward- and aft-facing seats.

Type Certification Basis

Under the provisions of 14 CFR 21.101, Honda Aircraft Company, Inc., must show that the HA-420, as changed, continues to meet the applicable provisions of the regulations incorporated by reference in TC No. A00018AT or the applicable regulations in effect on the date of application for the type certificate. The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis**.**" The regulations incorporated by reference in TC No. A00018AT are as follows:

[2] *Ref* 53 FR 30802, August 15, 1988.

14 CFR part 23, Airworthiness Standards: Normal, Utility, Acrobatic, and Commuter Airplanes, effective February 1, 1965, as amended by amendments 23-1, July 29, 1965, through amendment 23-62, dated December 2, 2011.

14 CFR part 34, Fuel Venting and Exhaust Emission Requirements for Turbine-Engine-Powered Airplanes, effective September 10, 1990, as amended by amendments 34-1, dated July 31, 1995 through amendment 34-5, dated December 31, 2012.

14 CFR part 36, Noise Standards: Aircraft Type Certification and Airworthiness Certification, effective March 11, 1994, as amended by amendments 36-1, dated December 1, 1965, through amendment 36-29, dated March 11, 2013.

Exemption 11123, dated December 16, 2014, § 23.181(b), Dynamic Stability Compliance with § 23.181(b) during takeoff and landing.

ELOS ACE-15-08, dated June 5, 2015: Use of 1-g Stall Speeds in lieu of Minimum Speed in the Stall as a Basis for Determining.

ELOS ACE-15-09, dated March 26, 2015: Electronic Display of Engine Instruments N1, N2, ITT, Oil Pressure, Oil Temperature, Fuel Flow, and Fuel Quantity on a Garmin G3000 Integrated Flight Deck.

ELOS ACE-15-10, dated March 25, 2015: Storage Battery Design and Installation Compliance.

ELOS ACE-15-11, dated September 14, 2015: Airspeed Indicator (ASI) Flap Markings.

ELOS ACE-15-15, dated September 1, 2015: Amendment 23-62 Corrections.

Special Condition No. 23-263-SC, dated March 25, 2015, Dynamic Test Requirements for Single-Place Side-Facing Seats.

Special Condition No. 23-264-SC, dated March 25, 2015, Electronic Engine Control System.

Special Condition 23-265-SC, dated June 9, 2015, Fire Extinguishing. Note: This special condition supersedes the ELOS finding of ELOS Memo ACE-15-15.

Special Condition No. 23-269-SC, dated Sept 14, 2015, Lithium-Ion Battery Installation.

Special Condition No. 23-270-SC, dated August 3, 2015: High Altitude Operations.

Special Condition Notice No. 23-271-SC, dated October 26, 2015, Cruise Speed Control.

If the Administrator finds the applicable airworthiness regulations (i.e., 14 CFR part 23, § 23.562) do not contain adequate or appropriate safety standards for the HA-420 because of a novel or unusual design feature, special conditions are prescribed under the provisions of 14 CFR 21.16.

The FAA issues special conditions, as defined in 14 CFR 11.19, under § 11.38, and they become part of the type certification basis under § 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 FAA would apply these special conditions to the other model.

Novel or Unusual Design Features

The HA-420 will incorporate the following novel or unusual design feature:

A single-place side-facing lavatory seat intended for taxi, takeoff, and landing.

Discussion

The seat is to incorporate design features that reduce the potential for injury in the event of an accident. The seat is essentially a padded toilet cover. In a severe impact, the occupant will be restrained by a 2-point seatbelt attached to the sidewall and, in an accident, bear on an adjacent wall/bulkhead forward of the occupant. This wall/bulkhead may or may not be padded, depending upon test results. Due primarily to its close proximity to the occupant, the wall provides the same function of the upper torso restraint for forward facing occupants.

The testing should represent features in the cabin that may influence dynamic test results. Notable details include a representative bulkhead forward lavatory wall and any objects that may influence its ability to attenuate load or otherwise affect its stiffness. This could include cabin furniture or seats forward of the bulkhead.

Dynamic seat testing also requires seat attachment points be deflected in pitch and roll in order to demonstrate the seat will remain attached as the airplane deforms in an accident. In this installation, pitch and roll are not practicable and not required because the seat is primarily attached to the sidewall and the seatbelt and bulkhead primarily restrain the occupant.

In addition to the design features intended to minimize occupant injury during an accident sequence, the installation will also require operational procedures that will facilitate egress in the event of an accident, including leaving the lavatory door locked open during taxi, takeoff, and landing. The adjacent forward wall/bulkhead interior structure may have padding that will provide some protection to the head of the occupant if head injury criteria (HIC) values require it.

Applicability

As discussed above, these special conditions are applicable to the HA-420. Should Honda Aircraft Company, Inc. apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the FAA would apply these special conditions to that model as well.

Conclusion

This action affects only certain novel or unusual design features on one model of airplane. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the airplane.

The FAA has determined that notice and opportunity for prior public comment are impracticable because these procedures would significantly delay issuance of the approval design and thus delivery of the affected airplanes. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

List of Subjects in 14 CFR Part 23

Aircraft, Aviation safety, Signs and symbols.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40113, 44701-44702; 44704, Pub. L. 113-53, 127 Stat 584 (49 U.S.C. 44704) note, 14 CFR 21.16 and 21.101(d).

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Honda Aircraft Company, Inc., HA-420 airplanes.

(1) Single-Place Side-Facing Lavatory Seat Dynamic Test

(a) *Existing Criteria*. As referenced by § 23.785(b), all injury protection criteria of § 23.562(c)(l) through (c)(7) apply to the occupants of the side-facing seat. Head injury criteria (HIC) assessments are only required for head contact with the seat and/or adjacent structures.

(b) *Body-to-wall furnishing contact*. The seat must be installed aft of a structure such as an interior wall or furnishing that will contact the pelvis, upper arm, chest, or head of an occupant seated next to the structure. A conservative representation of the structure and its stiffness must be included in the tests.

(c) *Thoracic Trauma*. Testing with a Side Impact Dummy (SID), as defined by 49 CFR part 572, subpart F or its equivalent, must be performed in order to establish Thoracic Trauma Index (TTI) injury criteria. TTI acquired with the SID must be less than 85, as defined in 49 CFR part 572, subpart F. SID TTI data must be processed as defined in Federal Motor Vehicle Safety Standard (FMVSS) part 571.214, section S11.5 Rational analysis, comparing an installation with another installation where TTI data were acquired and found acceptable, may also be viable.

(d) *Pelvis*. Pelvic lateral acceleration must not exceed 130g. Pelvic acceleration data must be processed as defined in FMVSS part 571.214, section S11.5.

(e) *Shoulder Strap Loads*. Where upper torso straps (shoulder straps) are used for occupants, tension loads in individual straps must not exceed 1,750 pounds. If dual straps are used for restraining the upper torso, the total strap tension loads must not exceed 2,000 pounds.

(f) *Compression Loads.* The compression load measured between the pelvis and the lumbar spine of the Anthropomorphic Test Device (ATD) may not exceed 1,500 pounds.

(g) *Emergency Evacuation*. When occupied, the lavatory door must be latched open for taxi, takeoff and landing and remain latched under the § 23.561(b) loads. The airplane configuration must meet the emergency evacuation requirements of its certification basis with the seat occupied.

(h) *Lavatory Placard*. A placard specifying that the lavatory door must be latched (in the open position) for taxi, takeoff, and landing when the lavatory is occupied must be displayed in an acceptable manner for § 23.791 compliance.

(i) *Test Requirements in § 23.562 dynamic loads*. The tests in § 23.562(a), (b), and (c) must be conducted on the lavatory seat. Floor deformation is generally required except for a seat that is cantilevered to the bulkhead.

(j) The following are the agreed upon methods of compliance and test requirements:

(1) General Test Guidelines

(i) One longitudinal test with the SID ATD or its equivalent, un-deformed floor, no yaw, and with all lateral structural supports (armrests/walls) will be accomplished.

– Pass/fail injury assessments: TTI and pelvic acceleration.

(ii) One longitudinal test with the Hybrid II ATD, deformed floor, with 10 degrees yaw, and with all lateral structural supports (armrests/walls) will be accomplished.

– Pass/fail injury assessments: HIC and upper torso restraint load, restraint system retention, and pelvic acceleration.

(iii) Vertical (15 g's) test is to be conducted with modified Hybrid II ATDs with existing pass/fail criteria.

(iv) The ATD can be tethered for the floor deformation test.

(v) The seatbelt is not required to have a TSO Authorization but will need to comply with the TSO-C22g Minimum Performance Standards (MPS).

(2) Special Notes

(i) The ATD head and torso must remain supported by the forward divider (wall) during the event. The ATD is not permitted to move inboard of the divider.

(ii) Honda Aircraft Company, Inc. must determine whether the last cabin seat will become a partition panel or bulkhead restraint that can increase ATD inertial loading or otherwise affect the test whether the last cabin seat is occupied or unoccupied.

(iii) The ATD should be fitted in a manner reflecting the worst occupant seating. Belts, buckles, and other clothing must remain restrained for the event duration and not become loose items of mass.

Issued in Kansas City, Missouri on March 7, 2018.

Pat Mullen,
Manager, Small Airplane Standards Branch,
Aircraft Certification Service.

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