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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2020–0476; Special Conditions No. 25–780A–SC]

Special Conditions: TC Inter-Informatics A.S., Airbus Model A330–243 Airplane; Single-Occupant, Oblique (Side-Facing) Seats With Inflatable Lap Belts

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final special conditions; amendment.

SUMMARY: These amended special conditions are issued for the Airbus Model A330–243 series airplane, as modified by TC Inter-Informatics A.S. (TC Inter-Informatics). This airplane will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport-category airplanes. This design feature is single-occupant, oblique, B/E Aerospace Super Diamond seats, equipped with inflatable lap belts. 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: This action is effective on TC Inter-Informatics on August 29, 2022.

FOR FURTHER INFORMATION CONTACT: Alan Sinclair, Human-Machine Interface Section, AIR–626, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service, Federal Aviation Administration, 2200 South 216th Street, Des Moines, Washington 98198; telephone and fax 206–231–3215; email *alan.sinclair@faa.gov.*

SUPPLEMENTARY INFORMATION:

Background

On March 21, 2017, TC Inter-Informatics applied for a supplemental type certificate to install B/E Aerospace Super Diamond specific Model 1031301 seats, equipped with inflatable restraint systems, at oblique angles of 27.25 and 30 degrees to the longitudinal centerline on Airbus Model A330–243 airplanes. The Airbus Model A330–243 airplane, which is a derivative of the Airbus Model A330 airplane currently approved under Type Certificate No. A46NM, is a twin-engine, transport-category airplane with a maximum takeoff weight of 507,063 pounds and seating for 375 passengers.

Type Certification Basis

Under the provisions of title 14, Code of Federal Regulations (14 CFR), § 21.101, TC Inter-Informatics must show that the Airbus Model A330–243 airplane, as changed, continues to meet the applicable provisions of the regulations listed in Type Certificate No. A46NM or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.

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 Airbus Model A330–243 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. 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 Airbus Model A330–243 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.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.101.

Novel or Unusual Design Features

The Airbus Model A330–243 airplane, as modified by TC Inter-Informatics, will incorporate the following novel or unusual design feature:

Single-occupant, oblique seats equipped with inflatable lapbelts.

Discussion

Amendment 25–15 to part 25, dated October 24, 1967, introduced the subject of side-facing seats, and a requirement that each occupant in a side-facing seat must be protected from head injury by a safety belt and a cushioned rest that will support the arms, shoulders, head, and spine.

Subsequently, amendment 25–20, dated April 23, 1969, clarified the definition of side-facing seats to require that each occupant of a seat, positioned at more than an 18-degree angle to the vertical plane of the airplane longitudinal centerline, must be protected from head injury by a safety belt and an energy-absorbing rest that will support the arms, shoulders, head, and spine; or by a safety belt and shoulder harness that will prevent the head from contacting any injurious object. The FAA concluded that an 18-degree angle would provide an adequate level of safety based on tests that were performed at that time, and thus adopted that standard.

Part 25 was amended June 16, 1988, by amendment 25–64, to revise the emergency-landing conditions that must be considered in the design of the airplane. Amendment 25–64 revised the static-load conditions in 14 CFR 25.561, and added the new § 25.562 that requires dynamic testing for all seats approved for occupancy during takeoff and landing. The intent of amendment 25–64 is to provide an improved level of safety for occupants on transport-category airplanes. Because most seating is forward-facing on transport-category airplanes, the pass/fail criteria developed in amendment 25–64 focused primarily on these seats. As a result, the FAA issued Policy Statement ANM–03–115–30, ''Side-facing Seats on Transport Category Airplanes,'' and Policy Memorandum PS–ANM100–2000–00123, ''Guidance for Demonstrating Compliance with Seat Dynamic Testing for Plinths and Pallets,'' to provide the

additional guidance necessary to demonstrate the level of safety required by the regulations for side-facing seats.

To reflect current research findings, the FAA issued Policy Statement PS–ANM–25–03–R1, ''Technical Criteria for Approving Side-Facing Seats,'' on November 5, 2012, which updates injury criteria for fully side-facing seats. This policy statement was issued to define revised injury criteria associated with neck and leg injuries.

The proposed Airbus Model A330–243 airplane, with an oblique seating configuration by TC Inter-Informatics, is novel such that the Airbus Model A330–243 airplane certification basis does not adequately address protection of the occupant's neck and spine for seat configurations that are positioned at an angle greater than 18 degrees from the airplane centerline. Therefore, the TC Inter-Informatics proposed configuration requires new special conditions.

These special conditions will provide head-injury criteria, neck-injury criteria, spine-injury criteria, and body-to-wall contact criteria. They 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.

Discussion of Comments

The FAA issued Final Special Conditions, Request for Comment, Special Conditions No. 25–780–SC for the Airbus Model A330–243 airplane, as modified by TC Inter-Informatics, which was published in the **Federal Register** on February 2, 2021 (86 FR 7799). The FAA received responses from two commenters.

One commenter recommended changing Condition no. 5 to require longitudinal tests to be conducted with the Hybrid III anthropomorphic test dummy (ATD), versus tests ''as necessary,'' stating that, as written, the wording implies that the tests are optional. The FAA concurs with the comment and has changed ''as necessary'' to ''as required.''

The Boeing Company submitted eight comments, each requesting clarification in keeping with corresponding text from FAA Policy PS–AIR–25–27, ''Technical Criteria for Approving Oblique Seats,'' dated July 11, 2018. The certification project to which these Special Conditions apply is a validation of a supplemental type certificate issued by the European Aviation Safety Agency (EASA) prior to the issuance of FAA Policy PS–AIR–25–27. The certification basis for the project is based on the date of application for the EASA design approval in accordance with the Technical Implementation Procedures for Airworthiness and Environmental Certification between the FAA and the EASA.

The FAA agrees to incorporate six comments affecting Condition nos. 1, 2, 3, 3.a, 3.b, and 3.d., and has made the changes. These six comments better align the wording of these Conditions with FAA Policy PS–AIR–25–27, but do not alter the criteria or intent of the Conditions, thus do not affect the certification basis of this supplemental type certificate.

Boeing recommended changing the Condition no. 4.a, Lumbar Spine, to include, ''The lumbar spine tension (F_z) cannot exceed 1,200 lbs.'' Boeing also recommended adding conditions for pelvis criteria and femur criteria.

The FAA does not concur because these criteria were established by FAA Policy PS–AIR–25–27, and, as mentioned previously, the certification basis for the project is based on the date of application for the EASA design approval pursuant to the Technical Implementation Procedures for Airworthiness and Environmental Certification between the FAA and the EASA, which is before that policy was established.

These special conditions are being amended as discussed above. All other special conditions are adopted as issued.

Applicability

These special conditions are applicable to Airbus Model A330–243 airplanes with B/E Aerospace Super Diamond business class seats installed, per TC Inter-Informatics project-specific certification plan JD–45AC01–1. Should TC Inter-Informatics apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A46NM to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only a certain novel or unusual design feature 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 this feature on the airplane.

List of Subjects in 14 CFR Part 25

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), 106(g), 40113, 44701, 44702, 44704.

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 Airbus Model A330–243 airplanes, as modified by TC Inter-Informatics.

Single-Occupant, Oblique (Side-Facing) Seats Special Conditions

1. Existing Criteria

All injury protection criteria of § 25.562(c)(1) through (6) apply to the occupant of an oblique (side-facing) seat. Head-injury criterion (HIC) assessments are only required for head contact with the seat and adjacent structures. If the ATD has no apparent contact with a seat or structure, but does have contact with an airbag, a HIC unlimited score in excess of 1000 is acceptable, provided that the HIC15 score for that contact is less than 700.

2. Body-to-Wall/Furnishing Contact Criteria

If an oblique seat is installed aft of structure (*e.g.,* an interior wall or furnishing) that does not provide a homogenous contact surface for the expected range of occupants and yaw angles, then additional analysis or tests may be required to demonstrate that the injury criteria are met for the area which an occupant could contact. For example, if different yaw angles could result in different airbag performance, then additional analysis or separate tests may be necessary to evaluate performance.

3. Neck-Injury Criteria

The seating system must protect the occupant from experiencing serious neck injury. The assessment of neck injury must be conducted with the airbag activated, unless there is reason to also consider that the neck-injury potential would be higher below the inflatable restraint threshold. If so, additional tests may be required.

a. The N_{ij} (calculated in accordance with 49 CFR 571.208) must be below 1.0, where $N_{ij} = F_z/F_{zc} + M_y/M_{yc}$, and N_{ij} intercepts limited to:

i. F_{zc} = 1530 lb. for tension
ii. F_{zc} = 1385 lb. for compression
iii. M_{yc} = 229 lb-ft in flexion
iv. M_{yc} = 100 lb-ft in extension

b. In addition, peak upper-neck F_z must be below 937 lb. in tension and 899 lb. in compression.

c. Rotation of the head about its vertical axis relative to the torso is limited to 105 degrees in either direction from forward-facing.

d. The neck must not impact any surface.

4. Spine and Torso Injury Criteria

a. The shoulders must remain aligned with the hips throughout the impact sequence, or support for the upper torso must be provided to prevent forward or lateral flailing beyond 45 degrees from the vertical during significant spinal loading.

b. Significant concentrated loading on the occupant's spine, in the area between the pelvis and shoulders during impact, including rebound, is not acceptable.

c. Occupant must not interact with the armrest or other seat components in any manner significantly different than would be expected for a forward-facing seat installation.

5. Longitudinal Tests

These must be performed, as required, with the Hybrid III ATD, as described in SAE 1999–01–1609, ''A Lumbar Spine Modification to the Hybrid III ATD for Aircraft Seat Tests.'' The tests must be conducted with an undeformed floor, most critical yaw cases for injury, and with all lateral structural supports (armrests and walls) installed. For the pass/fail injury assessments, see the criteria listed in special conditions 1 through 4, above.

Note: TC Inter-Informatics A.S. must demonstrate that the installation of seats via plinths or pallets meets all applicable requirements. Compliance with the guidance contained in FAA Policy Memorandum PS–ANM–100–2000–00123, dated February 2, 2000, titled ''Guidance for Demonstrating Compliance with Seat Dynamic Testing for Plinths and Pallets,'' is acceptable to the FAA.

Inflatable Lapbelt Conditions

If inflatable lapbelts are installed on single-place side-facing seats, the inflatable lapbelts must meet the requirements of Special Conditions No. 25–395–SC.

Issued in Kansas City, Missouri, on August 24, 2022.

Patrick R. Mullen,

Manager, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service.

[FR Doc. 2022–18568 Filed 8–26–22; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2021–0958; Project Identifier 2019–CE–010–AD; Amendment 39–22133; AD 2022–16–04]

RIN 2120–AA64

Airworthiness Directives; Gulfstream Aerospace Corporation Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; correction.

SUMMARY: The FAA is correcting an airworthiness directive (AD) that published in the **Federal Register**. That AD applies to all Gulfstream Aerospace Corporation (Gulfstream) Model GV and GV–SP airplanes. As published, a revision level and a table number in certain document citations in the Credit for Previous Actions section of the regulatory text are incorrect. This document corrects those errors. In all other respects, the original document remains the same.

DATES: This correction is effective September 7, 2022. The effective date of AD 2022–16–04 remains September 7, 2022.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of September 7, 2022 (87 FR 47337, August 3, 2022).

ADDRESSES:

AD Docket: You may examine the AD docket at regulations.gov by searching for and locating Docket No. FAA–2021–0958; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

- For service information identified in this final rule, contact Gulfstream Aerospace Corporation, Technical Publications Dept., P.O. Box 2206, Savannah, GA 31402; phone: (800) 810–4853; fax: (912) 965–3520; email: *pubs@gulfstream.com;* website: *gulfstream.com/en/customer-support/.*
- You may view this referenced service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222–5110. It is also available at *regulations.gov* by searching for and locating Docket No. FAA–2021–0958.

FOR FURTHER INFORMATION CONTACT: Ronald Wissing, Aviation Safety Engineer, Atlanta ACO Branch, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: (404) 474–5552; email: *9-ASO-ATLACO-ADs@faa.gov*.

SUPPLEMENTARY INFORMATION: AD 2022–16–04, Amendment 39–22133 (87 FR 47337, August 3, 2022) (AD 2022–16–04), requires inspecting the horizontal stabilizer lower skin and associated bonded doublers and bonded stringers, repairing any area with corrosion beyond allowable damage limits, and incorporating revisions to the airworthiness limitations section (ALS) in the existing aircraft maintenance manual (AMM) or progressive maintenance program for all Gulfstream Model GV and GV–SP airplanes.

Need for the Correction

As published, the regulatory text of AD 2022–16–04 includes the following errors:

- The revision level of the Gulfstream V Aircraft Maintenance Manual specified in paragraph (j)(1) of the regulatory text is incorrectly identified as ''Revision 53.'' The correct revision for February 28, 2020, is ''Revision 51''; and
- The number specified for the Horizontal Stabilizer Inspection Table in the document citation in paragraph (j)(2) of the regulatory text is incorrectly referenced as ''Table 11.'' The correct reference is ''Table 12.''

Related Service Information Under 1 CFR Part 51

The FAA reviewed Gulfstream G500–5000 Customer Bulletin No. 190, Revision B; Gulfstream G550 Customer Bulletin No. 190, Revision B; and Gulfstream GV Customer Bulletin No. 228, Revision B; all dated October 31, 2019. For the applicable marketing designation specified on each document, the customer bulletins specify procedures for inspecting the horizontal stabilizer lower bonded skin.

The FAA also reviewed Section F and Table 12: Horizontal Stabilizer Inspection Table in Section 05–10–10, Airworthiness Limitations, of Chapter 05, Time Limits/Maintenance Checks, of the Gulfstream V Aircraft Maintenance Manual, Revision 55, dated March 15, 2022; Section F and Table 11: Horizontal Stabilizer Inspection Table in Section 05–10–10, Airworthiness Limitations, of Chapter 05, Time Limits/