Exemption No. 10826

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98057-3356

In the matter of the petition of **Gore Design Completions, LLC** for an exemption from §§ 25.562(a) and 25.785(b) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA-2013-0444**

GRANT OF EXEMPTION

By letter dated May 13, 2013, Mr. Mark Creager, Certification Manager, Gore Design Completions, Ltd., (GDC) 607 N. Frank Luke Drive, San Antonio, Texas, 78226, petitioned for exemption from §§ 25.562(a) and 25.785(b) Title 14, Code of Federal Regulations (14 CFR), for Airbus Model A340-211 airplane. The proposed exemption, if granted, would permit relief from the general occupant-protection requirements for multiple- and single-place side-facing seats for the Airbus Model A340-211 airplane.

The petitioner requests relief from the following regulations:

Section 25.562(a), Amendment 25-64 – Emergency landing dynamic conditions.

(a) The seat and restraint system in the airplane must be designed as prescribed in this section to protect each occupant during an emergency landing condition when--

(1) Proper use is made of seats, safety belts, and shoulder harnesses provided for in the design; and

(2) The occupant is exposed to loads resulting from the conditions prescribed in this section.

Section 25.785(b), Amendment 25-88 – Each seat, berth, safety belt, harness, and adjacent part of the airplane at each station designed as occupiable during takeoff and landing must be designed so that a person making proper use of these facilities will not

suffer serious injury in an emergency landing as a result of the inertia forces specified in §§ 25.561 and 25.562.

The petitioner supports its request with the following information:

This section quotes the relevant information from the petitioner's request. Their complete petition is available at the Department of Transportation's Federal Docket Management System, on the Internet at http://regulations.gov, in Docket No. FAA-2013-0444.

GDC requests relief from the following regulation:

GDC has been contracted for the completion of an executive business interior for an Airbus Model A340-211 airplane. The FAA Organization Management Team (OMT) has accepted our STC application and assigned as ODA Project Number GDC-P515-STC for this project.

The certification basis for the Airbus Model A340-211 is Part 25, Amendment 25-1 through 25-63 inclusive plus Amendments 25-65, 25-66, and 25-77. There are good technical arguments to support special consideration for private use airplanes: the aircraft are not for public hire and they are configured to carry a fraction of the passengers carried in airline service. For these reasons, GDC submits a petition for exemption from 14 CFR §25.562(a) and 25.785(b) according to Policy Statement PS-ANM-25-03-R1, Technical Criteria for Approving Side-Facing Seats.

The request is supported by the following information:

14 CFR Part 25 governs design certification of transport category airplanes. The primary intent of these regulations, as written, are to be certain that airplane manufacturers provide the appropriate design features to meet the standards necessary to protect the traveling public. Clearly, there is a requirement "in the public interest" and in the interest of safety to provide regulatory guidelines for certification. However, it is also very clear these regulations are intended to regulate the certification of "commercial" airplanes, which are "for hire" to the general public.

While the greatest majority of these regulations represent a common sense inclusion for any aircraft regardless of the intended use, a few are obviously intended to regulate situations that are specific to an airline, or for hire operation. When a transport category airplane is operated under 14 CFR Part 91 or Part 125, some of the Part 25 rules have acceptance criteria that are inappropriate, or are not compatible with the type of operation and the intended use of this airplane.

The FAA clearly recognizes these differences as evidenced by the issuance of Exemption numbers 6820A, 6822, 7120A, 7489, and numerous others which eliminate many of the more onerous regulations when applied to "private use, not-for-hire" operations under 14 CFR Part 91 and Part 125.

The interior configuration being installed in this airplane will provide seating for seventy seven (77) passengers and ten (10) cabin crew. The maximum certified passenger count for this airplane is 375 seats. The passenger count of the subject airplane represents 24% of the capacity allowed for this airplane.

STC application for this modification was made March 4, 2010 and project GDC-P515- STC was assigned. At that time an issue paper was started to address special conditions on single place seats that are side-facing in the taxi, takeoff, and landing configuration per FAA Policy Memorandum ANM-03-115-30 that was current at the time. The applicant position was at stage 3 on January 17, 2012, but no conclusion was ever reached by the project ACO.

Side-facing seats are considered a novel design for transport category airplanes that include Amendment 25-64 in their certification bases, and were not considered when those airworthiness standards were promulgated. Hence, the existing regulations do not provide adequate or appropriate safety standards for occupants of multiple-place side-facing seats because they do not consider the differences in the dynamic forces that would apply to a side-facing occupant. GDC will demonstrate compliance with the proposed injury criteria which are stated in the FAA policy memo ANM-03-115-30 dated May 6, 2005.

Public Interest:

There are a number of other petitioners that have been granted similar exemptions or Special Conditions with the same injury criteria. These petitioners include, but are not limited to: Learjet L200 (Exemption No. 10743), Gulfstream Aerospace (Exemption Nos. 9761, 9900; Special Condition Nos. 25-428-SC, 25-294-SC), Cessna Aircraft Company (Exemption No. 7625A), and Raytheon Aircraft Company (Exemption No. 7512A; Special Condition No. 25-279-SC). These exemptions create an unfair disadvantage for GDC, should GDC be denied this petition.

The level of safety for the side facing seats will be equal to that of the injury criteria in the current FAA policy PS-ANM-25-030-R1. As in the cases of numerous already established exemptions, granting this petition for exemption would be clearly in the public interest for the following reasons:

1. It allows efficient and safe carriage of Head of State and executives in the sought for environment that would otherwise not be possible,

2. There is no degradation of safety involved with this request and therefore no detrimental impact to the public at large,

3. Increased sales of these executive configured transport airplanes will ultimately result in some portion of those airplanes being completed at US owned or operated aircraft

completion facilities, providing improved financial performance and work force stability for those organizations as well,

4. Improved financial performance of US owned or operated corporations, and increased work force stability translates into continued and improved tax revenue for all governmental organization involved,

5. Improved financial performance allows US corporations to continue to invest in new research and development which will allow the US to maintain or improve its competitive position in the world economy,

6. A large number of these types of sales can be predicted to be to "offshore" clients, improving the US balance of trade deficit.

Effect on Safety:

GDC believes that the proposed design features for side facing seats will provide a level of safety equal to the injury criteria outlined in FAA Policy PS-ANM-25-03-R1.

Operation Outside of the United States:

The airplane that is the subject of this petition is an Airbus Model A340-211. It is privately owned and will be operated under Part 125 regulations or other equivalent non-US foreign national operational standard. In accordance with 14 CFR Part 11.81(h), we request to exercise the privilege of this exemption outside the United States since the operator of the airplane is located in Saudi Arabia.

Conclusion

Based on the above information, GDC believes that granting this exemption would be in the public interest and would not adversely affect safety of the passenger traveling aboard the Airbus Model A340-211.

Federal Register publication

The FAA has determined that good cause exists for waiving the requirement for Federal Register publication because the request is identical in all material respects to previously granted exemptions, and the exemption, if granted, would not set a precedent.

The FAA's analysis

The FAA considers the petitioner's proposal to be in the public interest for the same reasons as those previously stated by the petitioner.

Amendment 25-64 to 14 CFR part 25 was issued June 16, 1988, to revise the emergency-landing conditions that must be considered in the design of an airplane. Amendment 25-64 revised the static-load conditions in § 25.561, and added a new § 25.562 that required dynamic testing of all seats approved for occupancy during takeoff and landing. The intent of

Amendment 25-64 was to provide an improved level of safety for occupants on transport-category airplanes. Because most seating is forward/aft facing on transport-category airplanes, the pass/fail criteria developed in Amendment 25-64 focused primarily on these seats. Side-facing seat installations were not adequately taken into account for transport-category airplanes when this amendment was issued. Therefore, in November of 1997, the FAA issued Memorandum "Side-Facing Seats on Transport Category Airplanes" and draft Issue Paper "Dynamic Test Requirements for Single Place Side-Facing Seats" to address the dynamic certification of side-facing seats. The memorandum and the issue paper introduced requirements for Thoracic Trauma Index (TTI) and lateral pelvic acceleration, which were in addition to the existing injury criteria requirements of § 25.562(c). The specified conditions are required to be measured and demonstrated during dynamic testing of the side-facing seats, and in compliance with the limitations.

Side-facing seats are considered a novel design for transport-category airplanes that include Amendment 25-64 in their certification bases and were not anticipated when those airworthiness standards were issued. Therefore, the existing regulations do not provide adequate or appropriate safety standards for occupants of multiple-place side-facing seats. The FAA has conducted research to develop an acceptable method of compliance with § 25.785(b) for multiple-place side-facing seat installations and had published policy statement PS-ANM-25-03, dated June 8, 2012. Based on the past history of this particular case and the application date for this specific project, the FAA finds that it is in the public interest to grant an exemption to the petitioner for Airbus Model A340-211 airplanes.

The FAA's decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator, Gore Design Completions. Ltd. is hereby granted an exemption from 14 CFR 25.562(a) at Amendment 25-64 and 25.785(b) at Amendment 25-72. The petition is granted to the extent necessary to allow GDC to install multiple- and single-place side-facing seats in the passenger compartment on Airbus Model A340-211 airplanes. This exemption is subject to the following conditions:

1) Dynamic Test Requirements for Multiple- and Single-occupant Side-facing Seats

In addition to the airworthiness standards in §§ 25.562 and 25.785, the following limitations provide injury criteria and installation/testing guidelines that represent the minimum acceptable airworthiness standard for multiple- and single-occupant side-facing seats:

2) The Injury Criteria

Side-facing seats are considered a novel design for transport category airplanes that include Amendment 25-64 in their certification bases, and were not considered when those airworthiness standards were promulgated. Hence, the existing regulations do not provide adequate or appropriate safety standards for occupants of multiple-place side-facing seats because they do not consider the differences in the dynamic forces that

would apply to a side-facing occupant. GDC will demonstrate compliance with the proposed injury criteria which are stated in the FAA policy memo ANM-03-115-30 dated May 6, 2005.

a. Existing Criteria**:** All injury-protection criteria of § 25.562(c)(2) through (c)(6) apply to the occupants of side-facing seats. The Head Injury Criterion (HIC) assessments are required only for head contact with the seat and/or adjacent structures.

b. Thoracic Trauma**:** If the torso of an Anthropomorphic Test Dummy (ATD) at the forward-most seat place impacts the seat and/or adjacent structure during testing, compliance with Thoracic Trauma Index (TTI) injury criterion must be substantiated by dynamic test or by rational analysis based on previous test(s) of a similar seat installation. TTI data must be acquired with a Side Impact Dummy (SID), as defined by 49 CFR part 572, subpart F, or an equivalent ATD or a more appropriate ATD, and must be processed as defined in Federal Motor Vehicle Safety Standard (FMVSS) part 571.214, section S6.13.5. The TTI must be less than 85, as defined in 49 CFR part 572, subpart F. Torso contact during rebound is acceptable and need not be measured.

c. Pelvis**:** If the pelvis of an ATD at any seat place impacts seat and/or adjacent structure during testing, pelvic lateral-acceleration-injury criteria must be substantiated by dynamic test or by rational analysis based on previous test(s) of a similar seat installation. Pelvic lateral acceleration must not exceed 130g. Pelvic acceleration data must be processed as defined in FMVSS part 571.214, section S6.13.5.

d. Body-to-Wall/Furnishing Contact**:** If the seat is installed aft of a structure—such as an interior wall or furnishing that may contact the pelvis, upper arm, chest, or head of an occupant seated next to the structure—the structure, or a conservative representation of the structure and its stiffness, must be included in the tests. It is recommended, but not required, that the contact surface of the actual structure be covered with at least two inches of energy absorbing protective padding (foam or equivalent) such as Ensolite.

e. Shoulder-Strap Loads**:** Where upper-torso straps (shoulder straps) are used for sofa occupants, the 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. Occupant Retention**:** All side-facing seats require end closures or other means to prevent the ATD's pelvis from translating beyond the end of the seat at any time during testing.

3) General Test Guidelines

a. All seat positions need to be occupied by ATDs for the longitudinal tests.

b. A minimum of one longitudinal test, conducted in accordance with the conditions specified in 14 CFR 25.562(b)(2), is required to assess the injury criteria as follows. Note that if a seat is installed aft of structure (such as an interior wall or furnishing) that does not have a homogeneous surface, an additional test or tests may be required to demonstrate that the injury criteria are met for the area which an occupant could contact. For example, different yaw angles could result in different injury considerations and may require separate tests to evaluate.

(1) For configurations without structure (such as a wall or bulkhead) installed directly forward of the forward seat place, Hybrid II ATDs or equivalent must be in all seat places.

(2) For configurations with structure (such as a wall or bulkhead) installed directly forward of the forward seat place, a SID or equivalent ATD or more appropriate ATD must be in the forward seat place and a Hybrid II ATD or equivalent must be in all other seat places.

(3) The test may be conducted with or without a deformed floor.

(4) The test must be conducted with either no-yaw or 10 degrees yaw for evaluating occupant injury. Deviating from the no yaw condition must not result in the critical area of contact not being evaluated. Allowing the test to be conducted at 10 degrees yaw will permit many occupant-injury tests to be considered in conjunction with the structural test. This test is considered acceptable since an exemption is sought in lieu of compliance with part 25. Note that this condition does not provide relief from the requirement that torso-restraint straps, where installed, must remain on the occupant's shoulder during the impact condition of § 25.562(b)(2).

c. For the vertical test, conducted in accordance with the conditions specified in § 25.562(b)(1), Hybrid II ATDs or equivalent must be used in all seat positions.

Issued in Renton Washington, on July 22, 2013

/s/

Stephen P. Boyd
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service