

Exemption No. 9737

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

In the matter of the petition of

Alenia Aeronautica S.p.A.

for exemption from § 25.562(b)(2) of Title 14, Code
of Federal Regulations

Regulatory Docket No. FAA-2008-0494

GRANT OF EXEMPTION

By letter 04/LT/0400/T810E/080117, dated February 21, 2008, Mr. Antonio Gandolfo, Alenia Airworthiness Manager, Alenia Aeronautica S.p.A., Strada Malanthero n. 17, 10072 – Caselle Torinese, Torino, Italy, petitioned for exemption from § 25.562(b)(2), Title 14, Code of Federal Regulations (14 CFR), as amended by Amendment 25-64. The proposed exemption, if granted, would permit relief from the floor warpage testing requirement for flight deck seats on the Alenia Model C-27J airplanes.

The petitioner requests relief from the following regulations:

Section 25.562(b)(2), Amendment 25-64— which requires a misalignment of seats to be used during the forward loading dynamic test condition for all seats occupiable for takeoff and landing. The requirement is that the floor tracks used to attach the seat to the floor be misaligned with respect to the adjacent seat tracks by at least 10 degrees vertically (i.e., out of parallel) with one rolled 10 degrees.

The petitioner's supportive information is as follows This information is quoted from Mr. Antonio Gandolfo's letter 04/LT/0400/T810E/080117.

The C-27J JCA , for which an FAA TC is requested, is configured as Cargo transport aircraft. For this category FAR 25.562(b)(2) at Amendment 25-64 is applicable to crew seats only.

The preamble to Amendment 25-64 - Final Rule. Docket No. 25040; issued on 05/12/88 states: "Crash investigations have shown that localized cabin floor deformation can occur in survivable crashes. This has been confirmed by the controlled impact demonstration and drop test involving transport category airplanes. The inability of some seats to accommodate such deformations, remain in place and restrain the occupants can contribute significantly to the degree of injury during a crash. The simulated floor deformation used in the dynamic tests, while not intended to be a measure of floor strength or deformation capability, will demonstrate the tolerance of the seat and its attachments to deformations that could occur in an actual crash."

The FAA acknowledged in the preamble to Amendment 25-64 [that] the likelihood of seats designed to meet this amendment costing more to manufacture and therefore to purchase as well as increasing the airplane operating cost due to a weight increase. In order to justify the increased costs, it must be expected that some lives will be saved that otherwise may not have been.

This does not appear to be the case for Alenia C27J aircraft flight deck seats.

Since that position was first taken (see, e.g. Docket 26649, Exemption Grant 5436, dated April 1, 1992), FAA has granted numerous exemptions from the floor warpage testing requirements for flight deck seats to both US and non-US applicants.

It was determined that, although some cockpit floor distortions have occurred during accidents, there has not been a problem with flight deck seat separations due to floor buckling on "narrow body" and larger airplanes having at least 40 inches of frangible structure between the flight deck floor and the extended lower fuselage contour. Consequently, the FAA has concluded that requiring the testing of flight deck seats under conditions of floor warpage cannot be justified on airplanes of this minimum size.

C-27J cockpit has been designed with more than 40" of frangible A/C structure between the flight deck floor and the lower fuselage contour, on similar design FAA granted exemptions.

Alenia Aeronautica seeks exemption from § 25.562(b)(2) to demonstrate compliance by testing the flight deck seats in accordance with the FAR requirement 25.562.

Alenia Aeronautica submits that granting this petition is in the public interest, because such action will:

1. Not adversely affect flight safety, as the FAA itself has stated;
2. Improve the efficiency of the C-27J JCA Airplane;

3. Tend to reduce air transportation and air cargo fares for all users; and
 4. Reduce the cost of the aircraft to US operators.
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***Federal Register* publication**

The FAA has determined that good cause exists for waiving the requirement for *Federal Register* publication because the exemption, if granted, would not set a precedent.

The FAA's analysis

The petitioner's request for relief from the requirement to misalign the seat tracks for dynamic seat testing is limited to the Alenia Aeronautica C-27J flight deck seats. These seats are individually mounted single seats with both vertical and horizontal adjustments to accommodate differences in the size of crewmembers. Crew seats are required to be fairly rigid so they can withstand the loads imposed by crew movements during operation of the flight controls. Although it is conceivable that too much flexibility in the seat mounting structure could interfere with safe operation of the airplane, some flexibility in the seat attachment is considered necessary to conform to likely floor distortions during crash conditions.

The FAA has reviewed the arguments presented by the petitioner in support of the exemption and agrees that the service history of flight deck seats on larger airplanes supports the petitioner's request. Although some flight deck floor distortions have been observed after accidents, there has not been a problem with flight deck seat separations due to floor buckling on narrow body and larger airplanes that have a minimum of 40 inches of frangible structure between the flight deck floor and the lower fuselage contour. The FAA now considers that requiring floor warpage testing of flight deck seats cannot be justified on narrow body and larger airplanes with a minimum of 40 inches of frangible structure between the flight deck floor and the lower fuselage contour.

The FAA's decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest, and will not adversely affect safety. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator (14 CFR 11.53), Alenia Aeronautica is hereby granted an exemption from the floor warpage testing requirements of 14 CFR 25.562(b)(2), Amendment 25-64 to the extent required to permit type certification of the Alenia Aeronautica C-27J flight deck seats. The following limitations apply to this exemption:

1. This exemption is limited to the Alenia Aeronautica C-27J airplanes and applies only to the seats in the flight deck.
2. The flight deck seats are exempted from compliance with the § 25.562(b)(2) testing requirement for 10 degrees of track misalignment. Compliance with all other requirements of § 25.562 is required.
3. The airplane must have a minimum of 40 inches of frangible structure between the flight deck floor and the lower fuselage contour.

Issued in Renton, Washington, on August 11, 2008.

/s/Ali Bahrami
Ali Bahrami
Manager, Transport Airplane Directorate,
Aircraft Certification Service, ANM-100