

Exemption No. 9735

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

In the matter of the petition of

The Boeing Company

for an exemption from § 25.809(f)(1) of
Title 14, Code of Federal Regulations

Regulatory Docket No. FAA-2008-0218

GRANT OF EXEMPTION

By letter dated February 19, 2008, and e-mail dated February 26, 2008, Mr. Rick Baggette, Airplane Certification Manager, The Boeing Company, P.O. Box 3707, Seattle, WA 98124, petitioned the Federal Aviation Administration (FAA) for an amendment to exemption number 1870E from the passenger requirements of § 25.809(f)(1) of Title 14, Code of Federal Regulations (14 CFR) for all Boeing Model 747-400F airplanes that have incorporated an all-cargo main deck configuration. The proposed amendment to the exemption, if granted, would allow the removal of the escape slide installed on the right hand crew service door.

The petitioner requests relief from the following regulations:

Section 25.809(f)(1), at Amendment 25-15, for all 747 series models except 747-400F, and at Amendment 25-47 for the 747-400F, requires, in part pertinent to the certification basis of the 747-400F, that each passenger emergency exit (other than overwing exits) located more than 6 feet from the ground must be provided with a self-supporting slide or equivalent to assist the occupants in descending to the ground. It further defines certain criteria for the assist means: automatic deployment capabilities; maximum erection times; and, usability under certain landing gear collapse conditions and 25-knot wind conditions. Section 25.809(f)(1)(v), at Amendment 25-47, testing requirements (commonly known as repeatability testing) are excepted for the 747-400F airplanes.

Related sections of 14 CFR

Section 121.583(a) contains, in pertinent part, a listing of categories of persons who may be carried aboard an airplane in part 121 service without complying with all of the requirements of part 121 pertaining to carriage of passengers.

Section 121.547 contains, in pertinent part, a listing of categories of persons who may be admitted to the flight deck during operation.

The petitioner's supports its request with the following information:

“As provided in 14 CFR 11.61(b), Boeing hereby petitions the FAA for an amendment to Exemption No. 1870. The current revision level of Exemption No. 1870 is at level ‘E’ previously issued on 9/8/92. The existing exemption provided FAA approval for supernumerary carriage on the following Boeing 747 Freighter airplanes: all Boeing Model 747-100 and 747-200 airplanes incorporating an FAA-approved modification from a passenger configuration to an all-cargo main deck configuration, all Boeing Model 747-200F and 747-400F airplanes, and all Boeing Model 747-200C airplanes incorporating an all-cargo main deck configuration.

“Boeing hereby requests an amendment to Exemption No. 1870 from the requirements contained in CFR 25.809(f)(1) of Title 14, Code of Federal Regulations, specifically, permitting the removal of the crew escape slide while maintaining the upper deck occupancy for all airplanes that are currently approved for supernumerary carriage by Exemption 1870 through revision level ‘E’.

“For clarification, all Model 747-100 and -200 Freighter airplanes listed above are approved to carry up to five (5) supernumeraries and the Model 747-400F is approved to carry up to six (6). All models listed have a maximum occupancy limit of eight (8) persons and all have a quantity of eight (8) inertia descent devices installed in the flight deck.

Boeing seeks relief from the following regulations:

“Section 25.809(f)(1), as amended by Amendment 25-47, requires a self supporting slide, or equivalent, of certain specified characteristics at each passenger emergency exit to assist occupant to the ground. Amendment 25-47 is applicable to the Model 747-400F and Amendment 25-15 is applicable to the remaining airplanes covered by Exemption No. 1870. The requirements of CFR 25.809(f)(1), from which relief is being sought, are essentially identical at Amendments 25-15 and 25-47.”

Related sections of the regulations

“CFR 121.583(a) contains, in pertinent part, a listing of categories of persons who may be carried aboard an airplane in part 121 service without complying with all the requirements of part 121 pertaining to carriage of passengers.

Supporting Information

“Inertia reel decent devices have been demonstrated and FAA-approved to provide an equivalent level of safety as the primary escape means for the number and types of individuals that are being proposed in this request. The evacuation capability and capacity of inertia reel descent devices being used by supernumeraries through a floor-level exit was satisfactorily demonstrated during the Boeing 767-300F and 757-200PF programs. In both cases, the FAA approved carriage of up to seven (7) occupants with the only assist means being inertia reel descent devices at simplified forward entry doors and ropes adjacent to openable cockpit windows. Exemptions No. 5993A and 4808B provide the regulatory approval for the Model 767-300F and 757-200PF, respectively.

Public Interest

“Boeing contends that the requested amendment to existing Exemption No. 1870 is in the public interest for the following reasons:

Avoiding the on-going maintenance costs associated with the escape slide will assist Boeing’s 747 Freighter fleet operators in offering the lowest rates possible to its customers, both commercial and military.

Removal of the upper deck escape slide will reduce the direct operating costs for operators of Boeing’s 747 Freighter fleet by virtue of the fuel savings associated with the weight of the removed slide, resulting in the lowest rates possible as well.”

The Boeing Company’s complete petition for exemption is available on the Federal Docket Management System website located at <http://regulations.gov>. The docket number is FAA-2008-0218. The petitioner’s complete supportive information is contained in that petition.

Federal Register publication

A summary of this petition was not published in the *Federal Register*. This exemption does not set a precedent and any delay would be detrimental to The Boeing Company.

The FAA's analysis

Boeing has petitioned for an amendment to Exemption No. 1870E (FAA-2008-0391) to permit the removal of the crew service door escape slide, which is located on the right hand side of the upper deck of the airplane. We have reviewed the previous amendments to Exemption No. 1870 and have found several areas in those amended exemptions in which the information is incomplete or needs clarification. To address these issues we have determined that issuing a new exemption that addresses all of the issues was the best course of action. This new exemption is a stand alone exemption and has no effect

on Exemption No. 1870 or any of its amendments. Boeing's petition for an amended exemption and the new exemption are available in docket FAA-2008-0218.

Although the petitioner only requested an exemption from § 25.809(f)(1) for Boeing Model 747-400F airplanes, we are including all of the sections and applicable airplanes that were granted in the previous exemptions. This includes §§ 25.807(c)(1), 25.807(c)(5), 25.809(f)(1), and 25.813(b) for all Boeing Model 747-100 and 747-200 airplanes that have incorporated an FAA-Approved modification from a passenger configuration to an all-cargo main deck configuration, and all 747-200C, 747-200F, and 747-400F airplanes that have incorporated an all-cargo main deck configuration with provisions for the carriage of supernumeraries.

The certification regulations for transport category airplanes address airplane occupants as being either "crew" or "passengers." Due to differences in training, physical capabilities, and other factors (such as familiarity with the airplane), the means required by part 25 to address emergency evacuation and emergency equipment differ for passengers and crewmembers.

Because supernumeraries are not crewmembers, they must be considered "passengers" by default, with respect to part 25. However, supernumeraries do hold a special status because of their training, and other factors. The FAA, therefore, has granted certain exemptions to allow the carriage of supernumeraries on freighter airplanes without compliance with all of the part 25 standards for passengers, provided that certain other conditions are met. Those conditions have varied, depending on the airplane design, the nature of the proposals under consideration, and the number and location of persons to be carried.

For carriage of non-crewmembers, relief is needed primarily from the requirements of § 25.857(e), which permits carriage of cargo only when a Class E cargo compartment is installed on the airplane. Class E cargo compartments are usually remote from the flight deck and encompass the entire interior of the airplane. The means of controlling fires that might occur in the cargo compartment is to starve the fires of oxygen. This is accomplished by depressurizing the airplane and maintaining an altitude that will not support combustion. For this reason, only crewmembers are permitted on board such airplanes.

Due to the way that fire in the cargo compartment is to be controlled, it is necessary to limit supernumeraries on board the airplane to those who have been found physically fit by the operator and have been briefed on the use of emergency equipment. This limitation on the supernumeraries is consistent with previous approvals and will be included in this approval. Also, there must be suitable means of preventing smoke penetration into areas that are occupied. The petitioner's design accounts for this by providing a barrier, consisting of a smoke barrier for the supernumeraries located aft of the flight deck, which must comply with the smoke penetration requirements.

The petitioner's Boeing Model 747-100 and 747-200 airplanes that have incorporated an FAA-approved modification from a passenger configuration to an all-cargo main deck configuration, all Boeing Model 747-200F airplanes, all Boeing Model 747-400F airplanes, and all Boeing Model 747-200C airplanes that have incorporated an all-cargo main deck configuration have a crew service door the size of a Type I exit, but because the door has a step-up inside the airplane it is rated as a Type III exit and is available for evacuation. Also, there is an overhead hatch located on the flight deck that is used for evacuation out the left side of the airplane. Boeing is proposing to remove the escape slide installed at the crew service door and use inertia reel descent devices at both the overhead hatch and the crew service door. Section 25.807(f)(1), at Amendment 25-15, for all 747 series models except 747-400F, and at Amendment 25-47 for the 747-400F, requires, in part pertinent to the certification basis of the 747-400F, that each passenger emergency exit (other than overwing exits) located more than 6 feet from the ground must be provided with a self-supporting slide or equivalent to assist the occupants in descending to the ground. As identified by Boeing, we have granted exemptions to allow the use of inertia reels and body harnesses on cargo airplanes with supernumeraries on several other programs, including the Boeing Model 767-300F and 757-200PF airplanes.

The overhead hatch and crew service door do not provide an assist space next to the exit to allow a crewmember to assist in the evacuation of the supernumeraries, as required by § 25.813(b). With respect to the lack of an assist space adjacent to the overhead hatch and crew service door, the FAA has determined that the supernumeraries will have a higher level of training than a typical passenger, and will therefore have less need for crew assistance. Additionally, in the relatively small confines of the flight deck and supernumerary area, the flightcrew can easily provide instructions and some physical assistance, if needed. The FAA considers that an assist space is not necessary in this case due to the size of the exits and the number of occupants and to the higher level of training of the occupants.

The petitioner's Boeing Model 747-100 and 747-200 airplanes that have incorporated an FAA-approved modification from a passenger configuration to an all-cargo main deck configuration, all Boeing Model 747-200F airplanes, all Boeing Model 747-400F airplanes, and all Boeing Model 747-200C airplanes that have incorporated an all-cargo main deck configuration, have an overhead hatch located on the flight deck that is used to evacuate out the left side of the airplane. The overhead hatch does not meet the minimum size requirement of a Type IV exit as required by §§ 25.807(c)(1), at Amendment 25-39, for all models except 747-400F, and at Amendment 25-67 for the 747-400F and § 25.807 (c)(5), at Amendment 25-39, for all models except the 747-400F, and at Amendment 25-67 for the 747-400F. Boeing has demonstrated that the size of the overhead hatch is effective for evacuation using the inertia reels and body harnesses.

The FAA considers the petitioner's proposal to be in the public interest for the following reasons:

The FAA has granted several exemptions for the carriage of supernumeraries on freighter airplanes.

These supernumeraries are seen as a benefit to airplane safety and efficient operations of air cargo.

The removal of the escape slide at the crew service door does not significantly reduce the level of safety when inertia reels and body harnesses are provided for all occupants.

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, The Boeing Company is hereby granted an exemption from 14 CFR 25.807(c)(1), 25.807(c)(5), 25.809(f)(1), and 25.813(b) to the extent necessary to allow type certification for all Boeing Model 747-100 and 747-200 airplanes that have incorporated an FAA-Approved modification from a passenger configuration to an all-cargo main deck configuration, and all 747-200C, 747-200F, and 747-400F airplanes that have incorporated an all-cargo main deck configuration with provisions for the carriage of supernumeraries. The following limitations apply and must be documented in the limitations section of the airplane flight manual:

1. The limitations section of the airplane flight manual must contain a limitation that a maximum of six supernumeraries for the 747-400F and five supernumeraries for all Boeing Model 747-100 and 747-200 airplanes with an FAA-Approved modification from a passenger configuration to an all-cargo main deck configuration and all 747-200C, and 747-200F may occupy the upper deck of the airplane in-flight. The maximum total occupancy is eight persons including flight crew for all airplanes.
2. The supernumeraries are limited to the categories specified in §§ 121.583(a)(1) through 121.583(a)(7).
3. Supernumeraries are prohibited from being in the cargo area during any flight operation. The pre-flight briefing must inform supernumeraries of this requirement.
4. In lieu of an escape slide, the emergency evacuation assist means at the crew service door shall be an inertia reel descent device and harness provided for each occupant.
5. Each supernumerary must be briefed by a flightcrew member on the use of the emergency equipment prior to each flight.

6. The initial and recurrent training mandated for flightcrew by operational regulatory requirements (e.g., subpart N of part 121) shall include the use of inertia reels and harness, including for the evacuation of incapacitated occupants. The oral briefings mandated for supernumerary occupants before each flight by operational regulatory requirements (e.g., § 121.583(c)) on the location and operation of emergency exits shall include the location and operation of the associated inertia reels and harnesses, and a demonstration of the harness-donning procedures for incapacitated occupants.
7. The operator must determine that each supernumerary is physically able and trained to accomplish the necessary emergency procedures.

Issued in Renton Washington, on July 31, 2008.

Signed by Ali Bahrami

Ali Bahrami
Manager, Transport Airplane Directorate
Aircraft Certification Service