

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 §§ 25.785(j), 25.807(d),
25.807(g)(1), 25.807(i)(1), 25.810(a)(1),
25.812(e), 25.813(b), 25.857(e) and
25.1447(c)(1) of Title 14, Code of Federal
Regulations

Regulatory Docket No. FAA-2007-27563

GRANT OF EXEMPTION

By letter dated April 13, 2009, from Mark Hamm, Manager, Puget Sound Certification Office, The Boeing Company, PO Box 3707, Seattle, Washington, 98124, petitioned for reconsideration of exemption 9749 which provided relief from §§ 25.785(j), 25.807(d), 25.807(g)(1), 25.807(i)(1), 25.810(a)(1), 25.812(e), 25.813(b), 25.857(e), and 25.1447(c)(1) of Title 14, Code of Federal Regulations (14 CFR). That exemption allowed the carriage of up to four non-crewmembers (commonly referred to as supernumeraries) in the flight deck on Boeing Model 767-200 airplanes converted from passenger to freighter airplanes. Exemption 9749 also allowed the non-crewmembers access into the Class E main-deck cargo compartment during flight for the purpose of attending to cargo types requiring care or inspection, or both (e.g., live animals and/or hazardous materials). The petitioner now requests that the exemption be revised to change the in-flight access limitations of the cargo compartment.

The petitioner has previously been granted relief from the following regulations:

Section 25.785(j), at Amendment 25-88, states, “If the seat backs do not provide a firm hand hold, there must be a hand grip or rail along each aisle to enable occupants to steady themselves while using the aisles in moderately rough air.”

Section 25.807(d) and (g)(1), at Amendment 25-114, requires that for a passenger-seating configuration of 1 to 9 seats, if overwing exits are not provided, at least one

exit must be on each side and which meet the minimum dimensions of a Type III exit, and that the number of passenger seats permitted is based on the smaller of the two exits.

Section 25.807(i)(1), at Amendment 25-114, requires that, for airplanes that have a passenger-seating configuration of nine or fewer seats, at least one ditching emergency exit must be located above the waterline on each side of the airplane, meeting at least the dimensions of a Type IV exit.

Section 25.810(a)(1), at Amendment 25-114, requires, in pertinent part, that each non-overwing emergency exit more than 6 feet from the ground have an approved means to assist occupants in descending to the ground. For passenger exits, this must be a self-supporting, automatically deployed and erected slide at each applicable exit.

Section 25.812(e), at Amendment 25-58, requires, in pertinent part, that floor-proximity emergency-escape path markings must provide emergency-evacuation guidance for passengers.

Section 25.813(b), at Amendment 25-88, requires that each emergency exit, addressed by § 25.810(a), have adjacent assist space.

Section 25.857(e), at Amendment 25-93, requires, in pertinent part, that when a Class E cargo compartment is installed on the airplane, the airplane is used for carriage of cargo only.

Section 25.1447(c)(1), at Amendment 25-87, requires, in pertinent part, that oxygen dispensing units must be automatically presented to the occupants before the cabin altitude exceeds 15,000 feet, 10 % extra oxygen masks, and that there be two oxygen masks in each lavatory.

Related regulations:

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 the requirements of part 121 pertaining to carriage of passengers.

The petitioner supports its request with the following information:

Only the pertinent parts of the petition and the supplemental information are quoted below. Boeing's complete petition for an amended exemption and the supplemental information letter can be found under docket number FAA-2007-27563 at www.regulations.gov.

In order to better understand the existing jet cargo fleet operations from a mixed cargo perspective, Boeing conducted a survey of a number of freighter operators. The survey requested responses from a sample set of worldwide operators (inclusive of US operators)...

The summary of responses from the operators is as follows:

Mixed Cargo Flights are the Norm in the Industry

All airlines which accepted live animals for carriage on scheduled flights, advised us that they routinely carry large live animals requiring care/attention during flight in combination with other cargo. One operator reported that they have \approx 30 flights per month of this type. On some routes, such as into and out of Calgary, Alberta, Canada, 100% of the cargo flights for one operator are of the mixed type. One of the queried operators stated that "...100% of live animal flights have other cargo in the same compartment." Two other operators stated that "99% of cargo flights with live animals carry other cargo in the same compartment." Another operator advised that depending on the season, the frequency of carrying mixed cargo varies from "every flight" to "once every fourteen days." Clearly, cargo operators carry mixed cargo on a regular basis and such capability/flexibility is needed by the shippers of large, live animals.

Not Allowing Access for Mixed Cargo on the 767-200SF will Create a Hardship

All airlines which accepted live animals for carriage on scheduled flights responded that if mixed cargo access were not allowed it would create financial hardship for their operations. Most stated that it would effectively stop large, live animal shipment by air on scheduled flights. Two airlines stated that the cost of shipping horses by air would skyrocket if mixed cargo were not allowed because the horse shipper would, in effect, have to pay for the empty pallet positions not filled because mixed cargo access would not be allowed.

Not allowing access for mixed cargo operations would necessarily drive cargo operators to ship horses (and other large live animals) exclusively on dedicated/chartered flights. Such flights would have to be scheduled far in advance and they would likely be infrequent due to limited traffic, creating cost and schedule hardship to horse shippers due to the relative infrequent flights. Race horses are typically shipped by air and are shipped a day or two prior to their races because horses are prone to jet lag and their performance suffers as a result. Infrequent dedicated/chartered flights for horse carriage would be a hardship to the horse racing industry.

Not allowing mixed cargo access will very likely create an additional and extreme hardship to the US cargo fleet, one that places them at a competitive disadvantage to their foreign counterparts. Airlines not under US jurisdiction will most likely pursue certifying mixed cargo access through their own regulatory authorities. If they succeed, and most probably will, US carriers will be at a severe disadvantage. The foreign carriers will be able to economically ship smaller quantities of horses on a particular flight while US carriers will not be able to do likewise. They will have no choice but to ship much larger quantities of horses much less frequently in order to fill their main deck cargo compartments.

Additional Supporting Information

With minor exception, all large live animals being shipped by air need persons (grooms/handlers) on board for their care/attention during flight and to also ensure that the animals will not compromise safe flight.

Large animals may need special attention in flight for their safety and well being. Handlers need to have the ability in flight to calm horses down so they will not try to jump and hurt themselves. Whales or other large marine animals need handlers capable of keeping them in a wet environment while in flight. Large animals in these categories represent a high value. From the shippers' side as well as from the airlines' perspective, having grooms/handlers on board and being able to attend to them during flight is a must. It is also imperative that a sufficient quantity of grooms be allowed inside the compartment at the same time. During flight these grooms assist in maintaining a safe environment and help to adequately protect the animal owners' investments.

The quantities of large animals (horses) typically being carried in mixed cargo operations varies from one or two stalls holding two to six horses all the way up to the main deck being almost completely full with these stalls. If the number of horse stalls does not completely fill the main deck compartment, other cargo is routinely loaded into the available pallet positions as long as the combination of large animals and other cargo is in accordance with IATA [International Air Transport Association] guidelines. Most respondents advised that they follow IATA guidelines for live animal carriage, meaning that they separate the live animals from certain dangerous goods that may be harmful to the large animals (horses) if they were placed too close.

In order to safely transport large live animals by air, cargo airplane operators (in combination with the shippers) need the flexibility to determine for themselves the proper number of grooms/handlers to accompany the large animals without being unduly restricted by an AFM limitation that limits main deck access to a few individuals. Although a main deck compartment may not be fully loaded with large animals on a particular flight, it may be the decision of the carrier (in combination with the shipper) that the number of grooms that should accompany the large animals (horses) is the same as the maximum number of supernumeraries allowed to be carried on that model.

Additional Item to Consider

In order to avoid confusion and to avoid a potentially more restrictive limitation than that intended by the FAA, Boeing suggests that use of the terms "live animals requiring care/attention during flight" and "live animals requiring care/attention carriage" replace "live animals" and "live animal carriage." Use of these terms would eliminate from consideration certain types of live animals that do not require care/attention during flight (e.g., day-old chicks, tropical fish, etc.). It does not appear that it was the FAA's intention to include these smaller animals in its determination that only three (3) persons may be inside the compartment for 'Cargo Only, No Live Animals' operations.

Evaluation of Public Interest

Based upon the responses of Boeing's customers/operators and the original request to provide an exemption for in-flight Main Deck access for mixed cargo operations, Boeing would like the FAA to reconsider their position and find that it is in the public interest to provide an exemption for in-flight Main Deck Class E access for mixed cargo operations. The rationale is as follows:

- It is not economical to dispatch a cargo airplane with less than a full load. Operators of the 767-200 SF wish to routinely transport types of cargo that require care and/or inspection during flight (e.g. large live animals and/or hazardous materials). The effect of the current AFM limitations prohibiting supernumerary access into the main deck cargo compartment during flight limits the type of cargo that can be carried, creating hardships for these operators. If access is not allowed for mixed cargo operations, shipping rates would necessarily be higher due to the inefficiency of partially loaded cargo compartments. Whole categories of live animal carriage commerce such as medical evacuation, shipment of horses for race, show, sale or breeding may be regulated out of existence by this restriction. The public interest is served by allowing live animal carriage commerce to continue to exist in a viable form.
- As stated above, cargo operators routinely carry all types of cargo including mixed cargo and approving main deck access for such operations of a 767-200 SF will improve cargo carrying efficiency. Additionally, common operating requirements and common FAA Exemption allowances for manufacturers will tend to reduce the airlines' operating and asset costs through market competition. This will tend to reduce overall air freight rates, as competitive pricing structures among freight operators will be promoted; the public interest is served by lower freight rates and competitive pricing.

Request to operate under this exemption outside the United States.

Per the requirements of § 11.83, Boeing requests that the relief granted by this exemption remain in effect for operations outside of the United States. As a long range freighter aircraft, the 767-200 SF will be used for international flights including flights between points outside of the United States.

Request for Waiver of Publication

Boeing requests a waiver for the publication and comment period of this exemption, similar to those granted to other applicants for the same operational capability. Boeing believes that good cause exists to waive the publication and comment requirements of FAR 11.85, 11.87 and 11.89. Boeing further believes that the

additional relief requested by this petition is identical to exemptions granted previously.

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 in acting on this petition would be detrimental to The Boeing Company.

The FAA's analysis

The FAA considers the petitioner's proposal to amend Exemption No. 9749 to be in the public interest for the following reasons:

- These supernumeraries are seen as a benefit to airplane safety and efficient operations of air cargo.
- A significant disruption of air commerce could occur if the petition was not granted.
- The FAA has granted several exemptions for the carriage of supernumeraries with access into the Class E cargo compartment in-flight to attend to cargo on freighter airplanes.

Exemption No. 9749 granted The Boeing Company relief from §§ 25.785(j), 25.807(d), 25.807(g)(1), 25.807(i)(1), 25.810(a)(1), 25.812(e), 25.813(b), 25.857(e), and 25.1447(c)(1). The exemption from those regulations still applies to the Boeing Model 767-200 airplanes converted from a passenger to a freighter configuration.

The original petition for exemption granted access to the Class E cargo compartment, but was limited to two types of operation. They are:

- Operations for the carriage of live animals and material to support the safe transport of the animals, no other cargo. The maximum number of supernumeraries allowed in the cargo compartment in-flight is four.
- Operations for cargo only, no live-animal carriage. The maximum number of supernumeraries allowed in the cargo compartment in-flight is three.

The FAA has previously granted exemptions for in-flight access of the Class E cargo compartment by supernumeraries, provided that certain other conditions are met. These conditions have varied, depending on the airplane design and the number of supernumeraries involved. We have been reviewing the operational need for access into the Class E cargo compartment in-flight and the number of persons needed in the cargo compartment for the type of operation. We have divided access into the cargo compartment into three different types of operations. They are:

1. Carriage of live animals requiring care/attention during flight and associated material only, no other cargo.
2. Cargo only, no live animal requiring care/attention during flight.

3. Carriage of live animals requiring care/attention during flight, and cargo.

In the first type of operation we understand that the industry standard for the carriage of horses is one supernumerary for every three or four horses. Considering the size of the 767-200SF airplane there could be many horses in the main deck cargo compartment. As a result of the large number of horses or other large animals, a large number of supernumeraries (groom/handler) would be needed. In the past, under certain conditions, we have granted exemptions for large numbers of supernumeraries with access into the main deck Class E cargo. These conditions have included limiting the permitted cargo to large live animals and associated cargo only. In considering this type of operation, we have considered that live animals present less of a fire hazard than other types of cargo. Therefore, we have allowed less-restrictive access for this type of cargo configuration. Exemption No. 9749 allows a maximum of four supernumeraries access into the main deck Class E cargo compartment in-flight for the care/handling of live animals. In this case, the petitioner has requested only a maximum of four supernumeraries. Therefore, this limitation remains the same.

With regard to the second type of operation, we have limited access into the cargo compartment to a very small number of supernumeraries (one to three). During flight this number of supernumeraries should be capable of addressing the access needs for the hazardous materials and valuable or perishable goods. This limitation remains the same.

Concerning the third type of operation, live animals requiring care/attention during flight, and cargo, we understand this is the most common operation used for transporting horses. The industry standard for carriage of horses is one supernumerary for every three or four horses. The petitioner has requested a maximum of four supernumeraries be allowed to access the Class E cargo compartment in-flight for the care/attention of live animals and/or inspection of cargo. We accept the proposal for a maximum of four supernumeraries to be allowed access into the main deck Class E cargo compartment in flight for the care/attention of live animals and to inspect the cargo with the following limitation:

The addition of cargo to a live-animals-carriage operation causes additional risk of exposure from the smoke and fumes of a fire. As the number of supernumeraries increases, and the duration of exposure increases, we must provide for a reasonable level of protection from smoke inhalation. Several factors are considered when making a determination of the acceptable level of safety. Past industry practice, the number of supernumeraries with access, the airplane configuration, cargo compartment size, limited egress paths, potential cargo present, and the duration of exposure are all relevant factors. Considering the above factors, if Class E cargo compartment access is approved for four or more supernumeraries for this type of operation, a portable system (e.g., smoke hood, full-face-mask oxygen system) must also be carried by each supernumerary.

The FAA's decision

In consideration of the foregoing, I find that a partial 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 25.785(j), 25.807(d), 25.807(g)(1), 25.807(i)(1), 25.810(a)(1), 25.812(e),

25.813(b), 25.857(e), and 25.1447(c)(1). The petition is granted to the extent necessary to allow type certification of Boeing Model 767-200 series airplanes converted from passenger to freighter with provisions for the carriage of supernumeraries. The limitations are repeated from the original exemption and have been modified as necessary to account for the addition of the mixed cargo/live animal operation. This exemption is subject to the conditions and limitations below.

The FAA understands there are two categories of operations that will occur in service:

- I. The airplane does not carry cargo that requires special attention during any operation. Therefore, supernumeraries do not need to access the Class E cargo compartment in flight during any operation. The following limitations apply: 1, 3.a, 3.b, 4.a, 4.b, 5, 6.b, 6.c, 7 (for lavatory only), 8, 10, and 11. Limitations 1 and 5, and the pre-flight briefings required by 6 and 7 (as appropriate), must be documented in the Limitations Section of the Airplane Flight Manual (AFM). Access to the cargo compartment is prohibited during taxi, takeoff, flight, and landing. A placard to identify this prohibited access is required to be located outside the cargo compartment in a conspicuous location, either on or adjacent to the smoke barrier door/curtain. This placard must be documented in the Limitations Section of the AFM.
- II. The airplane does carry cargo that needs special attention during flight, therefore requiring supernumerary access to the Class E cargo compartment during flight. For those operations, limitations 1 through 12 apply, except limitation 1.e. Limitations 1, 2, 5, 9, and the pre-flight briefings required by 6, 7, and 9, must be documented in the Limitations Section of the AFM. Access to the cargo compartment is prohibited during taxi, takeoff, and landing.

The Conditions and Limitations are:

1. Supernumeraries:
 - a. A maximum of four supernumeraries may occupy the modified flight deck. The total occupancy of the airplane is limited to six persons, including the flightcrew (two on-duty flightcrew members, and up to four off-duty flightcrew members, observers, or supernumeraries).
 - b. The supernumeraries are limited to the categories specified in §§ 121.583(a)(1) through 121.583(a)(7).
 - c. Prior to each flight, a flightcrew member must brief each supernumerary on the use of exits, including instructions to inspect the ground to determine whether a safe landing can be achieved, before using an assist means and emergency equipment.
 - d. The operator must determine that each supernumerary is physically capable of, and trained to accomplish, the necessary emergency procedures.
 - e. Supernumeraries are prohibited from being in the cargo area behind the smoke barrier during taxi, takeoff, and landing. The pre-flight briefing must inform supernumeraries of this requirement.

2. Main Deck Class E Cargo Compartment Access Limitations:

- a. Supernumeraries are prohibited from being in the cargo area behind the smoke barrier during taxi, takeoff, and landing. The pre-flight briefing must inform supernumeraries of this requirement. Access is limited to the main deck Class E cargo compartment.
- b. Access into the main deck Class E cargo compartment in-flight is allowed for only three types of operation. They are:
 - Carriage of live animals requiring care/attention during flight, and associated material only, no other cargo. The maximum number of supernumeraries allowed in the cargo compartment in-flight is four.
 - Cargo only, no live animal requiring care/attention during flight. The maximum number of supernumeraries allowed in the cargo compartment in-flight is three.
 - Carriage of live animals, requiring care/attention during flight, and cargo. The maximum number of supernumeraries allowed in the cargo compartment is four.

3. Supernumeraries' Supplemental Oxygen and Protection from Smoke Inhalation:

Locations and Use:

- a. Supplemental oxygen equipment with a mask connected to it must be located so each occupant can don the mask and activate oxygen flow while seated.
- b. A portable oxygen bottle with one mask connected to it must be available in the lavatory.
- c. There must be at least one portable oxygen unit with a mask connected to it provided for each supernumerary allowed to enter the main-deck Class E cargo compartment during flight. These portable units must be located outside the cargo compartment (e.g., in the common area).
- d. Each supernumerary must carry a portable oxygen unit with a mask connected to it whenever he or she is in the cargo compartment during flight.
- e. If Class E cargo-compartment access is approved for four supernumeraries for the mixed-cargo-and-live-animals type of operation, a portable system (e.g., smoke hood, full-face-mask oxygen system, etc.) that affords protection from smoke inhalation must be carried at all times when accessing the cargo compartment. Note that a single system that meets both protection from smoke inhalation and hypoxia could be used (e.g., a full face mask with oxygen bottle).

4. Design Requirements:

- a. The oxygen units must provide an indication to the user when oxygen is flowing.
- b. The oxygen units must be sized adequately for continuous and uninterrupted use during worst-case flight duration following decompression, or must be of sufficient

duration to allow the supernumerary to return to his or her seat where oxygen for the remainder of the decompression is readily accessible.

- c. The portable oxygen unit must meet the performance requirements of § 25.1443(a) or (b), or the equipment must be shown to protect the supernumerary from hypoxia at an activity level required to return to his or her seat following a rapid decompression, to 25,000 feet cabin altitude.
- d. One acceptable means of compliance is the use of a continuous-flow, passenger-oxygen mask that meets FAA technical standard order TSO-C64a or later, and is approved for use up to at least 40,000 feet cabin altitude, connected to an oxygen bottle that supplies a flow rate of at least 4 liters per minute NTPD (Normal Temperature and Pressure Dry), at a cabin altitude of 23,000 feet. If the petitioner uses this means of compliance and the bottle has more than one setting for flow rate, the supernumeraries must be trained to use the 4-liters-per-minute NTPD setting.

5. Training:

The supernumeraries must be trained in the use of the oxygen/protection from smoke inhalation units. The supernumeraries must also be trained in making the determination whether oxygen is being delivered to the dispensing units.

6. Decompression Alert:

- a. Based on the petitioner's proposal, an automatically activated aural decompression alert must be provided, and immediately recognizable in accessible areas of the Class E cargo compartment, to notify supernumeraries when to don the portable oxygen units, return to their seats, and ensure that the smoke barrier is secured (i.e., the door or curtain is closed). As a backup to the automated alert system, the flightcrew must be able to manually activate the alert. The pre-flight briefing must include training in what the alert means and the response to the alert (i.e., procedures for donning the mask and activating the flow of oxygen).
- b. Based on the petitioner's proposal, an automatically activated visual decompression alert must be provided and immediately recognizable in the lavatory to notify supernumeraries when to don oxygen masks. The pre-flight briefing must include training in what the visual alert means and the response to the alert (i.e., procedures for donning the masks and activating the flow of oxygen.)
- c. Based on the petitioner's proposal, an automatically activated high cabin altitude warning in the flight deck must be provided to notify the supernumeraries in the supernumerary seating area to return to their seats and don oxygen masks. Each supernumerary, while seated, must have a direct view of the flight crew so they are able to observe the flight crew donning their oxygen masks. The pre-flight briefing must include training in the sound of the alert, the meaning of the alert, and the response to the alert (i.e., procedures for donning the mask and activating the flow of oxygen).

7. Turbulence, Smoke, and/or Fire Alert:

Based on the petitioner's proposal, a flightcrew-member-operated visual alert, which is recognized in the lavatory and in accessible areas in the main-deck Class E cargo compartment, must be installed to indicate, during turbulence/predicted turbulence, fire or smoke in a Class E cargo compartment, that persons must return to their seats and ensure that the smoke barrier is secured (i.e., the door/curtain is closed).

Appropriate procedures and limitations must be established to ensure that, at the onset of a turbulence, fire, or smoke event, the flightcrew member alerts the supernumeraries to return to their seats and secure the smoke barrier. The pre-flight briefing must explain these alerts to the supernumeraries.

8. Supernumerary Emergency Exit:

- a. For the forward left-hand entry door, emergency lighting must provide adequate illumination at the ground-end of the assist means, where an evacuee would normally make first contact with the ground, with the airplane in each of the attitudes corresponding to the collapse of one or more legs of the landing gear.
- b. For the forward left-hand entry door, six descent devices (commonly known as inertia reels) and six harnesses for use with the descent devices must be provided for supernumeraries use.

9. Placards:

- Placard(s) are to be located outside the cargo compartment in a conspicuous location, either on or adjacent to the smoke-barrier door/curtain. The placards must indicate the following:
- Occupancy of the Class E cargo compartment is prohibited during taxi, take-off, and landing.
- Access is limited to the care and handling of animals and hazardous/perishable cargo only.
- Access is limited to a maximum of three persons unless transporting live animals and associated material. Access is limited to four persons when transporting live animals.
- The smoke barrier must be secured (i.e., the door/curtain must be closed) except when entering or leaving the cargo compartment.
- A portable oxygen bottle (with mask attached) must be carried at all times when in the cargo compartment.
- A portable smoke-inhalation-prevention device must be carried at all times, for mixed-cargo operation, for configurations with four supernumeraries.
- Smoking is not allowed within the cargo compartment.
- The compartment must not be entered in case of fire/smoke being detected inside any Class E cargo compartment.

The pre-flight briefing must inform supernumeraries of these requirements.

10. Alerting Requirements:

- Must be distinctive and effective. Alerts must distinguish between decompression and turbulence/smoke/fire.
- Visual alerts must be visible from all occupant locations and orientations, and during all expected operational conditions including a rapid decompression where moisture in the air may condense.
- Aural alerts must be loud enough to be heard during all expected operational conditions including a rapid decompression where the ambient noise level will increase.

11. Public Address System:

A standard airplane public address (PA) system must be installed. It must be audible throughout the supernumeraries' seating area, the galley, and the lavatory.

12. Flight Tests:

Flight tests must be conducted to show compliance with the provisions of § 25.857 concerning the entry of hazardous quantities of smoke into compartments occupied by the crew or passengers. The amount of time that the smoke barrier is open, as a result of the supernumeraries evacuating the main-deck cargo compartment, must be accounted for in the testing.

Note: Based on the results of these tests, the occupancy of the main-deck Class E cargo compartment may be limited to less than the maximum allowed in condition 2.

Issued in Renton, Washington, on July 24, 2009.

/s/

Ali Bahrami
Manager, Transport Airplane Directorate
Aircraft Certification Service