Exemption No. 8536

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056

In the matter of the petition of **Evergreen International Airlines, Inc.** for an exemption from § 25.809(f)(1) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA-2004-19956**

GRANT OF EXEMPTION

By letter dated December 20, 2004, Mr. Kirk Carrillo, Systems Engineer, Evergreen International Airlines, Inc., 3850 Three Mile Lane, McMinnville, Oregon 97128, petitioned for an exemption from the requirements of § 25.809(f)(1) of Title 14, Code of Federal Regulations (14 CFR). The proposed exemption, if granted, would permit the removal of the crew escape slides without reducing the upper deck occupancy on Boeing Model 747-100, -200, -200C and –200F series airplanes.

The petitioner requires relief from the following regulations:

Section 25.809(f)(1), as amended by Amendment 25-34, requires a self-supporting slide, or equivalent, of certain specified characteristics at each passenger emergency exit to assist occupants in descending to the ground.

Related sections of the regulations:

Section 25.809(f)(2), as amended by Amendment 25-34, requires a rope or other equivalent means of certain characteristics demonstrated to be suitable for the purpose at flightcrew emergency exits, to assist occupants in descending to the ground.

[Note: The above 747 certification requirements of § 25.809(f)(1) and (2) are currently found in § 25.810(a)(1) and (2), respectively.]

Section 121.583(a) contains, in pertinent part, a listing of categories of people who may be carried aboard an airplane in part 121 service without complying with all of the passenger-carrying airplane requirements of part 121.

The petitioner's supportive information is as follows:

"GENERAL DISCUSSION

"EIA [Evergreen International Airlines, Inc.] is requesting an exemption from 14 CFR § 25.809(f)(1) on certain 747 freighter aircraft in response to the eminent obsolescence of the cool gas inflated upper deck crew slide system. The OEM [original equipment manufacturer] vendor for these systems has stopped all production of parts used to support them. It is estimated that the existing stock of cool gas system spare parts available to the world 747 fleet will be exhausted in 2005. More specifically, the EIA cool gas spares will be exhausted in the first half of 2005."

"As EIA investigated options to the cool gas slide dilemma, our research revealed a solution for 747 freighters that has no appreciable costs and does not adversely affect occupant safety. It will be shown that the proposed EIA solution is fully supported by existing 747 freighter FAA certification.

"The discussion to follow will first describe the existing 747 freighter upper deck escape means and occupancy limits. Further, we will show how under existing certification rules there are times at which alternate escape means must be employed. Finally, EIA will illustrate how our proposal is identical to the aforementioned alternate escape means.

"CURRENT OCCUPANCY LIMITS AND ESCAPE MEANS

"Note: When making reference to Exemption 1870D, we are also referring to revisions of Exemption 1870 prior to revision D. Revision E pertains to the 747-400F, which is not included in this request."

The EIA solution builds atop existing 747 certification, most notably Exemption 1870D, which:

- applies to all 747-100 or 747–200 airplanes incorporating an FAA-approved modification from a passenger configuration to an all-cargo main deck configuration and all 747-200C and 747-200F airplanes incorporating an all-cargo main deck configuration.

- limits the maximum upper deck occupancy to eight (8) people, with the following additional limitation: '…total upper deck occupancy to eight persons and occupancy by other than flight crewmembers to a maximum of five persons…'

- stipulates the certified escape means that were evaluated when setting the occupancy limitations are approved with:

a. One overhead crew hatch, meeting the requirements of § 25.805(b), and eight (8) adjacent inertia reel descent devices and five (5) escape harnesses.

b. One crew service door which is dimensionally equivalent to a Type I emergency exit. This door is currently equipped with a self-supporting slide that complies with § 25.809(f)(1).

"An important component of the EIA proposed solution is understanding that the two escape means described above are not always intended to be separate and distinct. In fact, there are conditions under which the only available FAA approved means of escape is through the crew service door using the inertia reel descent devices and escape harnesses. The conditions alluded to pertain to aircraft center of gravity (CG).

"ESCAPE SLIDE LIMITATION DUE TO AIRPLANE CENTER-OF-GRAVITY

"The 747 Airplane Flight Manual (AFM) and 747 Weight and Balance Manual (WBM), for aircraft capable of carrying cargo on the main deck have an aircraft loading CG limitation that states that whenever passengers are present on the upper deck and cargo is on the main deck, the aircraft CG may not be aft of 26% Mean Aerodynamic Chord (MAC). This CG limitation does not apply if there are only crewmembers and 'persons' (as defined in the AFM and/or Exemption 1870D) on the upper deck."

The reason for this CG limitation is one of escape means. Specifically, when loaded with a CG aft of 26% MAC, if a landing is made with both body landing gear retracted, the aircraft will tip tail down. In this tail down attitude, the upper deck crew escape slide will not reach the ground.

With no passengers on the upper deck, the 26% MAC CG limitation is removed. In this configuration, should the slide not be available, the approved means of egress is use of the inertia reel descent devices and escape harnesses through either the hatch or the crew service door. Typical 747 freighter operations such as those conducted by EIA are routinely aft of the 26% MAC CG limit where the slide may be unavailable.

"It should also be noted that for flight crewmembers, the inertia reel descent devices are all that is required. For the 'persons' defined in Exemption 1870D, escape harnesses are provided for use with the inertia reel descent devices.

“SPECIFIC EXEMPTION REQUESTED

“Exemption 1870D granted exemptions to §§ 25.807(c)(1) and (5), 25.809(f)(1), and 25.813 (b). The exemption to § 25.809(f)(1) was in reference to the overhead crew hatch being available for use by ‘persons,’ since passengers require a different type of exit. No similar relief was needed for the crew service door and slide combination because it met the requirements of § 25.809(f)(1) for a passenger exit.

“Therefore, EIA requests an exemption from § 25.809(f)(1), Amendment 25-15, to permit removal of the crew service door slide on all 747-100 or 747–200 airplanes incorporating an FAA-approved modification from a passenger configuration to an all-cargo main deck configuration and all 747-200C and 747-200F airplanes incorporating an all-cargo main deck configuration.”

“REASONS RELIEF IS REQUESTED”

1. The OEM for these cool gas generation parts announced that they will no longer make replacement parts. The cool gas slide inflation system spare parts will be exhausted in 2005. This will ground all 747s equipped with the cool gas inflation systems. The only currently available option for an alternative escape slide system is a retrofit to a stored gas slide system, exceeding $300,000 per aircraft for this system.

The requested exemption would allow EIA to continue to operate our 747 freighters beyond the date at which our cool gas parts reach their calendar limits, avoid the burdensome retrofit costs, and the on-going maintenance costs associated with the escape slide. In addition, the removed weight would provide economic benefits in fuel/payloads.

2. Removing the slide entirely will simplify the emergency escape procedures from the upper deck. Under current rules, the crew or ‘person’ must remember to NOT DEPLOY THE SLIDE, but revert to the inertia reel descent devices and harnesses instead. In the configuration EIA is requesting, by eliminating the slide and depending on the inertia reel descent devices and harnesses, regardless of which exit is employed, the escape procedures are less confusing.

“EXEMPTION IS IN THE PUBLIC INTEREST

“EIA contends that the requested exemption is in the public interest for the following reasons:

“1. Avoiding the retrofit and on-going maintenance costs associated with the escape slide will assist EIA in offering the lowest possible rates to our customers, both commercial and military.

“2. EIA crewmembers and any ‘persons’ being carried on our aircraft will have a less confusing, and therefore safer, egress scheme. There will be no possibility of a slide being deployed when it should not be deployed. There will also be no possibility of an

inadvertent slide deployment. Inadvertent slide deployments in the past have caused damage to aircraft and injuries to personnel.

"EXEMPTION WILL NOT ADVERSELY AFFECT SAFETY"

Current certification already allows a 747 freighter to be operated with a potentially ineffective upper deck crew escape slide whenever the CG is aft of 26% MAC due to tail tip. In this situation, the only reliable escape means are the inertia reel descent devices and harnesses. Our exemption request would make this the escape means all of the time, instead of only when the CG is aft of 26% MAC.

"The use of inertia reel descent devices and harnesses as primary escape means approved by the FAA has historical precedent. The EIA requested exemption and our escape means are very similar to those previously granted to the 757 freighter under Exemption 4808B and the 767 freighter under Exemption 5993A. In both cases, these aircraft were granted exemptions for carriage of up to a total of seven (7) crew and 'persons,' with the only escape means being inertia reel descent devices and harnesses at a simplified forward entry door and ropes adjacent to the openable cockpit windows.

"In addition to the 757/767 examples, the FAA has also previously approved Exemption 5717, submitted by EIA, to allow a palletized groom station (up to a maximum of 8 grooms) on the main deck of a 747 freighter. In this scenario, grooms are carried in the aftmost section of the main deck. When stipulating the conditions of approval in the grant of exemption, the FAA listed one condition as: 'An escape slide at both doors 5L and 5R, or inertia reels that allow each groom to egress from either door.'

"This statement not only asserts the safety equivalence of slides and inertia reels for the grooms, but also validates the concept of having a single inertia reel descent device that may be deployed out of two possible exits as we are proposing in this request.

"It should also be noted that the original Exemption 1870 for the 747 contained information showing that eight (8) occupants could evacuate through the overhead hatch in 86 seconds using the inertia reels. It is obvious that the same occupants could egress in even less time through a crew service door.

"OPERATION OUTSIDE OF THE UNITED STATES

"EIA is an US Flag carrier with international routes to, or over, many countries on all continents. We therefore request that our exemption be approved for use outside of the United States per 14 CFR Section 11.83.

"REQUEST TO WAIVE PUBLICATION IN THE FEDERAL REGISTER"

In accordance with 14 CFR Section 11.87, EIA requests that a finding of good cause be made for waiving publication in the Federal Register. Our rationale is that granting the exemption request will not set a precedent.

The inherent delaying action caused by publication in the Federal Register may cause EIA to exhaust our spares of cool gas generator system parts for use on in-service aircraft prior to having an approved slide alternative. This would render the upper deck escape slide inoperative. The result is that some of our 747 freighter fleet could become unairworthy as soon as 2005, due to the lack of an upper deck escape slide.

EIA has filed this petition in a timely manner and diligent manner.

The FAA's analysis/summary is as follows:

The FAA is convinced that the petitioner has satisfactorily substantiated replacement of the evacuation slides with inertial reel and harness. The proposal for an inertial reel and harness as a means of emergency egress has been reviewed and found acceptable on previous exemptions as described by the petitioner. The FAA recognizes that supernumerary occupants, as opposed to passengers, may be selected and trained appropriately in the use of inertia reels and harnesses. For such occupants, both ambulatory and incapacitated, the FAA considers that inertia reels and harnesses offer an acceptable escape means of emergency egress. The FAA concludes, provided certain conditions defined below are observed, that inertial reels and harnesses for a limited application of this nature can provide an equivalent level of safety to that provided by escape slides. The applicant confirms that they intend to use the inertia reels currently installed for the overhead hatch for egress out of the main door as indicated in the Boeing Maintenance Manual. The FAA is satisfied that there is public interest considering that each occupant will be provided with their own reliable escape means, and EIA will be able to offer the lowest possible rates by avoiding the cost of retrofitting the aircraft.

In consideration of the foregoing, we find that a grant of exemption is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. 40113 and 44701, delegated to me by the Administrator, Evergreen International Airlines Inc. is hereby granted an exemption from § 25.809(f)(1). The petition is granted to the extent required to permit removal of the crew escape slides without reducing the upper deck occupancy on the Boeing model 747-100, -200, -200C and –200F freighter airplanes with provisions for the carriage of persons other than flight crewmembers, with the following conditions:

1. In lieu of an escape slide, the emergency evacuation assist means at the entry door shall be an inertia reel descent device and harness provided for each occupant.

2. The intended inertia reels and harnesses must be demonstrated, in accordance with an FAA-approved test plan, to be suitable for the purpose by a full-scale emergency

evacuation demonstration utilizing the maximum number of occupants allowed by approved seating. This demonstration should include the satisfactory evacuation of incapacitated occupants. The demonstration must be found to be acceptable by the FAA.

3. The procedures found to be acceptable during the emergency evacuation demonstration shall be those that are incorporated into approved operator's procedures. Any deviations from this condition require a fully coordinated FAA approval.

4. Flightcrew shall receive initial and recurrent training using the assist means provided and the approved procedures.

5. The airplane flight manual must contain a limitation that maximum occupancy is restricted by Condition numbers 1 and 2 above (not to exceed 8).

Issued in Renton, Washington, on April 1, 2005.

/S/

Kalene Yanamura
Acting Manager
Transport Airplane Directorate
Aircraft Certification Service