Exemption No. 9487

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

In the matter of the petition of **ST Mobile Aerospace Engineering, Inc.** for an exemption from §§ 25.785(d), 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-2007-28177**

PARTIAL GRANT OF EXEMPTION

By letter dated July 24, 2007, Mr. Collins Soh, Certification Manager, Mobile Aerospace Engineering, 2100 9th Street, Brookley Complex, Mobile, AL 36615, petitioned the Federal Aviation Administration (FAA) for an exemption from the cargo-only provisions of § 25.857(e), and the passenger requirements of §§ 25.785(d), 25.812(e), 25.813(b) and 25.1447(c)(1) of Title 14 Code of Federal Regulations (14 CFR) for Boeing Model 757-200 passenger airplanes converted to freighter airplanes. The proposed exemption, if granted, would allow carriage of three non-crewmembers (commonly referred to as supernumeraries) in an area just aft and outside of the flight deck and two non-crewmembers on the flight deck on these freighter airplanes. The maximum occupancy for these freighter airplanes is seven persons, including the flightcrew.

The petitioner requests relief from the following regulations:

Section 25.785(d), at Amendment 25-32, requires, in pertinent part, handholds to enable passengers to steady themselves when moving about the cabin, in the event the airplane encounters moderately rough air.

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 25-32, requires, in pertinent part, that each passenger emergency floor level exit equipped with an assist means have an assist space next to it.

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 be used for carriage of cargo only.

Section 25.1447(c)(1), at Amendment 25-41, requires, in pertinent part, that oxygen dispensing units must be automatically presented to the occupants before the cabin altitude exceeds 15,000 feet. The total number of dispensing units and outlets must exceed the number of seats by at least 10 percent. The extra units must be uniformly distributed throughout the cabin as practicable, and there must be two oxygen masks in each lavatory.

Related sections of the 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 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 supportive information is as follows:

ST Mobile Aerospace Engineering applied for a multiple airplane Supplemental Type Certificate to convert Boeing Model 757-200 passenger airplanes into 14 pallet freighter airplanes. They have petitioned for an exemption from the requirements of certain sections of Title 14, Code of Federal Regulations (14 CFR), part 25, to allow carriage of three non-crewmembers (commonly referred to as supernumeraries) in an area just aft and outside of the flight deck and two non-crewmembers (supernumeraries) on the flight deck on these freighter airplanes. Supernumeraries will be restricted to those persons complying with §§ 121.583(a)(1) through 121.583(a)(8). The two supernumeraries that may occupy the flight deck observers' seats must also meet the requirements of § 121.547. The maximum occupancy of the 14 pallet freighter airplane is seven persons. This limitation will be included in the Airplane Flight Manual Supplement (AFMS). The Operations Manual Supplement will provide instructions on the recommended evacuation procedures using door 1 left or 1 right and the AFMS will include a requirement for the flightcrew to brief supernumeraries on use of the escape provisions prior to each flight.

The freighter configuration retains passenger doors 1 left and 1 right, complete with escape slides or slide-rafts. A rigid 9G barrier is installed just aft of door 1 left, permitting both door 1 left and door 1 right to be used in an emergency evacuation; however, an assist space adjacent to these doors is not provided.

The rigid barrier is sealed to prevent smoke penetration. A salvaged triple passenger seat is installed immediately forward of the rigid barrier. The three supernumerary seats are provided with supplemental oxygen, supplied from an added 115 cubic foot oxygen bottle

and quick-donning flightcrew-type oxygen masks. These masks are not automatically presented. Two-way communication is provided from the flight deck to each supernumerary seat.

In accordance with 14 CFR 121.583, all persons that may be carried on this airplane will have special training, including proper methods for egress from the airplane, use of emergency equipment, and flight operations associated with controlling fires in a Class E cargo compartment. Limitations will be imposed on the airplane operator to find that all occupants are physically able to use the escape means provided. When supernumeraries are carried, they will be briefed prior to each flight to the location and use of the egress equipment, the supplemental oxygen equipment and the communication equipment.

The rigid cargo barrier has a sliding door that is used for access of the cargo compartment only when the airplane is on the ground. The sliding door will be closed and locked prior to taxi and will not be opened again for access to the cargo area unit the airplane has parked at its destination.

Section 25.785(d), Amendment 25-32, requires handholds to enable passengers to steady themselves when moving about the cabin, in the event the airplane encounters moderately rough air. Handholds are not available in the supernumerary area and the Class E cargo compartment.

Section 25.812(e), Amendment 25-58, requires floor proximity emergency lighting in passenger areas. The configuration of the converted Boeing Model 757-200 does not provide floor proximity emergency lighting, as required by § 25.812(e). However, since both of the exits are close to the supernumeraries, and supernumeraries have a higher level of training and knowledge of the airplane configuration than the typical passenger, an acceptable level of safety is provided.

Section 25.813(e), Amendment 25-32, requires that each emergency exit addressed by Section 25.810(a) has an adjacent assist space. The configuration of the converted Boeing Model 757-200 does not provide an assist space and there are no flight attendants, but since the supernumeraries will have a higher level of training than a typical passenger, they will have no need for crew assistance.

Section 25.857(e), Amendment 25-93, limits Class E cargo compartments to all-cargo airplanes. There will be up to five non-crew member carried on the airplane.

Section 25.1447(c)(1), Amendment 25-41, requires that passenger oxygen masks be automatically presented upon cabin depressurization. All occupants of the airplane will have available quick-donning flightcrew-type oxygen masks that are not automatically presented. However, the high level of training of the supernumeraries and the aural warning system will allow the flightcrew to command supernumeraries to don the masks, providing an acceptable level of safety to all occupants.

ST Mobile Aerospace Engineering's complete petition for exemption is available on the Department of Transportation's Docket Management Website located at http://dms.dot.gov. The docket number is FAA-2007-28177. 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*. The nature of this exemption is effectively identical to those of previous petitions for which there were no public comments received.

The FAA's analysis/summary is as follows:

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; and

A significant disruption of air commerce could occur if the petition were not granted.

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.

The petitioner has requested relief primarily from the requirements of § 25.857(e), which permit 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 fire 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.

The FAA has previously granted exemptions for carriage of supernumeraries in addition to crew on freighter airplanes, provided that certain other conditions are met. These conditions have varied, depending on the airplane design and the number of supernumeraries involved. 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 requested an exemption from § 25.812(e) that requires floor proximity emergency escape path marking in the passenger areas of the airplane. During the evaluation of this petition the FAA determined the original certification basis for the 757-200 did not include Amendment 25-58, which codified the requirements for the floor proximity emergency escape path marking requirements. The petitioner has volunteered to step up to this amendment level of § 25.812 and then request an exemption from that requirement. The FAA has elected to revert to Amendment 25-32 for § 25.812 which does not include the floor proximity emergency escape path marking requirements rather than grant an exemption from that requirement.

The petitioner's Boeing Model 757-200 airplanes have both door 1 left and door 1 right available for evacuation. These doors will be equipped with inflatable escape slides or slide/rafts. However, the configuration does not provide an assist space next to the exit to allow a crew member 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 door 1 left and door 1 right, 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 inflatable assist means provided with the number of occupants and to the higher level of training of the occupants.

The FAA considers that the supernumeraries should have an oxygen system that is comparable to that of passengers. However, taking into account the extra knowledge and training that these persons will have, it is not necessary that an equivalent system be installed. Section 25.1447(c)(1) requires automatic presentation of the oxygen dispensing units. For seated passengers in typical passenger airplanes, the automatic presentation of masks throughout the cabin indicates the need to don an oxygen mask. Supernumeraries

on the petitioner's Boeing Model 757 airplanes will not have this indication. In order for an acceptable level of safety to be provided, an automatically activated aural and visual decompression signal must be immediately recognizable throughout the supernumerary seating area. Operation of this signal must be automatic with flightcrew manual action as a backup.

Supernumeraries must be trained on the location and use of the oxygen equipment and the signals for its use. Additionally, the supplemental oxygen equipment must be sized adequately for continuous and uninterrupted use, in accordance with § 25.1441, during worst-case flight duration.

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, ST Mobile Aerospace Engineering is hereby granted a partial exemption from 14 CFR 25.785(d), 25.813(b), 25.857(e), and 25.1447(c)(1) to the extent necessary to allow type certification of Boeing Model 757-200 series airplanes 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 three supernumeraries may occupy the area just aft of the flight deck and two supernumeraries may be on the flight deck.

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. Each supernumerary must be briefed by a flightcrew member on the use of the exits, assist means, and emergency equipment prior to each flight.

5. The operator must determine that each supernumerary is physically able and trained to accomplish the necessary emergency procedures.

6. A supplemental oxygen supply with a mask connected to it must be mounted on or immediately next to each supernumerary seat and be located so that each supernumerary can don the mask and activate oxygen flow while seated. The supernumeraries must be trained in the use of these oxygen units.

7. An automatically activated aural and visual decompression signal immediately recognizable throughout the supernumerary seating area must be provided to notify supernumeraries when to don oxygen masks. This signal and the accompanying

procedures for donning a mask and activating oxygen flow must be included in the pre-flight briefing.

8. A flightcrew operated aural or visual annunciation that would be recognized in the supernumerary seating area must be installed to indicate, during turbulence, that persons must return to their seats. Appropriate procedures/limitations must be established to ensure that the flightcrew signals the supernumeraries to return to their seats at the onset of turbulence and for landing.

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