

**Exemption No. 9786**

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

In the matter of the petition of

**Jet Aviation Engineering Services L.P.**

for an exemption from § 25.807(d)(7), of  
Title 14, Code of Federal Regulations

**Regulatory Docket No. FAA-2008-0109**

**PARTIAL GRANT OF EXEMPTION**

By letter dated January 18, 2008, Mr. Mark W. Creager, Director of Certification, Jet Aviation Engineering Services L.P., 116 Kestrel Drive, Spring Branch, Texas, 78070, petitioned for an exemption from the requirements of § 25.807(d)(7) of Title 14, Code of Federal Regulations (14 CFR). This exemption, if granted, would permit a distance greater than sixty feet between passenger exits, on a Boeing 747-400 airplane, serial number 28343, which is in private, not-for-hire, not-for-common-carriage use. The proposed exemption is specifically for the installation of an executive interior.

**The petitioner requests additional relief from the following regulations:**

**Section 25.807(d)(7), Amendment 25-72** - Limits the distance between passenger emergency exits to sixty feet.

**The petitioner supports their request with the following information:**

The 14 CFR part 25 regulations govern design certification of transport category airplanes. Their primary intent is to protect the traveling public. The FAA, in the public interest and in the interest of safety, provides regulatory guidelines for certification. These regulations are intended to regulate certification of commercial airplanes, which are for hire to the general public.

Some of these regulations are not appropriate to private-use, head-of-state airplanes. Such airplanes are operated under 14 CFR parts 91 and/or 125 as private-use, not-for-hire, not-for-common-carriage use. We recognize these differences through a variety of exemptions that apply to private-use airplanes.

Jet Aviation Engineering Services is currently working on a head-of-state interior installation for this airplane. The seating configuration has 137 takeoff-and-landing passenger seats and 13

cabin-crew seats. It has only three pairs of Type A exits active on the main deck of the airplane (exit-door pairs 1, 4, and 5 are active). This exit configuration has a maximum passenger-seat capacity of 330.

Jet Aviation Engineering Services respectfully requests that we issue an exemption, for the subject aircraft, to 14 CFR 25.807(d) (7), Amendment 25-72, "Sixty Foot Exit-to-Exit Distance Limitation." This petition is required due to deactivation of the right- and left-hand Type A doors at FS 830 (door 2) and FS 1290 (door 3). This results in a distance between emergency exits on the aircraft of 102.25 feet between the forward Type A (door 1) exits and the Type A exits aft of the wing (door 4).

The purpose for deactivation of the exits is to accommodate an owner-specified, custom-interior installation.

The petitioner states that a grant of its petition is in the public interest for the following reasons, among others:

1. There is no degradation of safety involved with this request and therefore no detrimental impact to the public at large.
2. Given the proliferation of Executive Configured Transport Category Aircraft currently taking place, and anticipated in the near future, this type of exemption enables U.S. manufacturers of transport-category aircraft greater flexibility to compete effectively in this expanding market.
3. Additional sales of US-manufactured transport aircraft, outside the traditional airline market, serves to increase profitability of US airframe manufacturers, providing greater job stability to the workers employed by those manufacturers.
4. A large number of these types of sales can be predicted to be to international or "offshore" clients, improving the U.S. Balance of Trade Deficit significantly.

The complete petition submitted by Jet Aviation Engineering Services L.P. is available in the Federal Docket Management System on the Internet at <http://regulations.gov>. The docket number is FAA-2008-0109.

### **Federal Register publication**

We have determined that good cause exists for waiving the requirement for Federal Register publication and comment because the exemption, if granted, would not set a precedent and any delay in acting on this petition would be detrimental to Jet Aviation Engineering Services L.P.

### **The FAA's analysis**

We have determined that partially granting this exemption is in the public interest, based upon and with some exceptions to the reasons given by the petitioner, and in keeping with previous FAA actions on this issue. However, several issues require elaboration, as discussed below, and affect the specific interior arrangement proposed by the petitioner.

The differences between commercial and private-use operation (whether by an individual or a corporation) of transport-category airplanes warrant consideration of the appropriate level of safety. We give great attention to the issues raised when these airplanes are operated in private, not-for-hire use. In recognizing the differences between commercial and private-use operations, we have identified several regulatory requirements, including those in this petition, which may need to be revised to address the safety issues revealed by these differences.

We are considering the issue of distance between exits as part of our overall review of private-use airplanes. We recently published a notice of proposed rulemaking (NPRM), Notice No. 07-13, Special Requirements for Private Use Transport Category Airplanes (72 FR 38732, July 13, 2007), which, if issued, would significantly reduce the need for case-by-case review of individual petitions for exemption for private-use airplanes. One of the requirements being addressed is distance between exits. The NPRM proposes requirements for distances between exits for private-use airplanes.

Amendment 25-67 was adopted in 1989 to establish quantitative limits on the distance allowed between passenger exits, and to address what appeared to be a trend of increasing distance between exits. While the issue of distance between exits is less prominent on low-density seating arrangements, safety ramifications for those arrangements are of concern if the distance to an exit is excessive.

As stated in the preamble to the regulation, a simple evacuation demonstration does not address the potential concerns arising from excessive distance between exits. Issues such as disruption of interior features, debris in the aisle, or failure of other exits are not addressed in evacuation demonstrations. These issues are magnified the greater the distance between exits, and are not necessarily only related to high-density seating arrangements. Therefore, the outcome of the 90-second evacuation demonstration in accordance with § 25.803 of part 25 is not relevant to the disposition of the petition. Similarly, the provisions cited by the petitioner, relating to exit deactivation and alternate exit configurations, are limited to those particular aspects of the requirements, but do not, in any way, relieve the requirement for adjacent exits to be within sixty feet of each other.

The further the exits are apart, the higher the probability that an individual would not be able to effectively move from one exit area to another in an actual accident. In an evacuation demonstration, the time required for an individual to move from one part of the cabin to another is primarily related to the number of passengers between that person and the area he or she is trying to reach. When the cabin is relatively empty, these exit-access times are very short; this may not be the case in an actual accident, where the scenario is much less predictable. Therefore, contrary to the argument put forth by the petitioner, the fact that the seating arrangement for this airplane is of low density is not, in and of itself, sufficient justification for granting an exemption.

As the petitioner notes, two main differences separate this airplane from a typical 747-400 for commercial operation. First, the airplane in question is not to be operated in commercial service. It is intended for private use, and is not operated for hire, or offered

for common carriage. Second, the passenger capacity permitted by the available exits exceeds the actual number of seats on the airplane.

For the first consideration, we acknowledge that the persons flying on the airplane are not fare-paying passengers, and therefore might not expect an equivalent level of safety to that afforded in commercial operation. The petitioner notes that the arrangement is specified by the aircraft owner, so in that sense, the owner is effectively requesting the level of safety provided by the arrangement. However, the seating capacity of the airplane is 135 persons, so it is doubtful that all passengers are fully aware of the regulatory ramifications of the interior. Such passengers must also be afforded an adequate level of safety, so the owner's request is not sufficient to determine whether an exemption should be granted.

Regarding the second point, as noted above, the number of passengers is not the paramount concern when addressing the distance between exits, although it is relevant in determining the type and number of exits required. We have considered this point further in making our determination. For this airplane, three of the original six exit pairs are active on the main and upper decks. However, for exit-door pairs 1 and 4, the interior configuration is such that the exits on the right-hand side of the fuselage no longer qualify as Type A exits. These exits have passenger flow from only one direction. Therefore, these exit pairs qualify as type C exits, which provide 55 passenger credit for each exit pair. With the remaining pair of type A exits at the number 5 position, the resulting exit capacity is 220.

In developing the criteria used for previous exemptions on this subject, as well as the proposal put forward in NPRM 07-13 discussed above, we considered several factors, including seating density. As proposed in NPRM 07-13, the limitations required to exceed 60 feet between exits include restrictions on the total number of passengers relative to the number of exits remaining, and the distance of any passenger seat to an exit. The NPRM is consistent with the limitations previously imposed in exemptions. However, the arrangement proposed by the petitioner does not satisfy several of the limitations historically considered necessary to permit more than 60 feet between exits. In particular, we have typically required that the passenger capacity be no more than 33 percent of the maximum capacity permitted based on the total exit complement. If the remaining exits were fully rated Type A exits, the total passenger capacity would be 330, allowing 110 passengers. However, as mentioned above, the arrangement results in exits that must be de-rated to type C, so the total capacity is only 220. Even if the exits can be restored to full Type A rating, the number of passengers in the proposed design is 135, while the number that would be allowed using the historical criteria is 72 passengers.

The FAA has also established configuration limits to locate the passenger seats near exits. Passengers must occupy passenger seats during takeoff and landing. Where pairs of exits are deactivated, as is the case here, the historically applied criteria require each passenger seat to be within 30 feet of an exit. Because the proposed design has more than 100 feet between exits, this results in approximately 40 feet of cabin length where no seats could be located for takeoff and landing. The proposed interior arrangement does not satisfy this limitation, either.

Rather than deny the exemption outright on the basis of the proposed arrangement, the FAA can grant a partial exemption to the petitioner, provided certain limitations are met, recognizing that the existing proposed interior arrangement does not meet several of those limitations.

### **The FAA's decision**

In consideration of the foregoing, I find that a partial grant of exemption is in the public interest and will not adversely 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, Boeing Commercial Airplane Group is granted an exemption from the requirements of 14 CFR 25.807(d)(7), permitting exit-to-exit distances of greater than 60 feet, on the Boeing Model 747-400 airplane, is hereby granted, with the following provisions:

1. The airplane is not operated for hire, or offered for common carriage. This provision does not preclude the operator from receiving remuneration to the extent consistent with 14 CFR part 125 and 14 CFR part 91, subpart F, as applicable.
2. No passenger emergency exit may be more than 60 feet from any adjacent passenger emergency exit on the same side of the same deck of the fuselage, as measured parallel to the airplane's longitudinal axis between the nearest exit edges, unless the following conditions are met:
  - a. Each passenger seat must be located within 30 feet from the nearest exit on each side of the fuselage, as measured parallel to the airplane's longitudinal axis, between the nearest exit edge and the front of the seat bottom cushion.
  - b. The number of passenger seats located between two adjacent pairs of emergency exits (commonly referred to as a passenger zone) or between a pair of exits and a bulkhead or a compartment door (commonly referred to as a "dead-end zone"), may not exceed the following:
    - (1) For zones between two pairs of exits, 50 percent of the combined rated capacity of the two pairs of emergency exits.
    - (2) For zones between one pair of exits and a bulkhead, 40 percent of the rated capacity of the pair of emergency exits.
  - c. The total number of passenger seats in the airplane may not exceed 33 percent of the maximum seating capacity for the airplane model using the exit ratings listed in § 25.807(g) for the original certified exits, or the maximum allowable after modification when exits are deactivated, whichever is less.
  - d. A distance of more than 60 feet between adjacent passenger emergency exits on the same side of the same deck of the fuselage, as measured parallel to the airplane's longitudinal axis between the nearest exit edges, is allowed only once on each side of the fuselage.

Issued in Renton, Washington, on November 20, 2008

/s/

Stephen P. Boyd  
Acting Manager  
Transport Airplane Directorate  
Aircraft Certification Service