

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 §§ 25.791(a) and (b);
25.807(b), (c)(1), (c)(5), and (c)(6);
25.809(f)(1); 25.813(f); 25.857(e); and
25.1447(c)(1), of Title 14, Code of Federal
Regulations

Regulatory Docket No. FAA-2012-0455

and

Regulatory Docket No. FAA-2005-21786

and

Regulatory Docket No. FAA 2005-22747

AMENDED PARTIAL GRANT OF EXEMPTION

By letters dated December 19, 2012 (RA-12-05347) and February 20, 2013 (RA-13-00759), Douglas M. Lane, ODA Deputy Lead Administrator, Puget Sound, The Boeing Company, P.O. Box 3707, Seattle, Washington, petitioned the Federal Aviation Administration (FAA) for an exemption from the requirements of the following sections of Title 14, Code of Federal Regulations (14 CFR): 25.791(a) and (b); 25.807(b), (c)(1), (c)(5), and (c)(6); 25.809(f)(1); 25.813(f); 25.857(e); and 25.1447(c)(1). The requested exemption, if granted, would permit relief from these regulations to allow carriage of two non-crewmembers (commonly referred to as supernumeraries) on Boeing Model 747-400 Large Cargo Freighter (LCF) airplanes.

The FAA has determined that these requests for exemption for the Boeing Model 747-400 LCF airplanes can be addressed by amending Amended Partial Grant of Exemption No. 8769B. We are issuing this amendment to Exemption No. 8769B to include carriage of two non-crewmembers (commonly referred to as supernumeraries) on Boeing Model 747-400 Large Cargo Freighter (LCF) airplanes.

Exemption No. 8769, issued August 18, 2006, granted The Boeing Company exemption from the requirements of 14 CFR 25.855(b), 25.855(h)(2), 25.857(e)(2), 25.857(e)(3), and 14 CFR 121.221(f)(1), 121.221(f)(2), 121.221(f)(3) and 121.223 to the extent necessary to exclude the need to provide a complete cargo-compartment liner, conduct flight tests to show compliance to smoke-penetration requirements, provide a smoke-detection system within the main-deck cargo compartment, and provide a means to shut off the ventilating airflow to, or within, the main-deck cargo compartment on Boeing Model 747-400 LCF airplanes.

The FAA later determined that an exemption from the part 121 operational rules cited in Exemption No. 8769 was not required. On January 29, 2007 the FAA removed the specified part 121 rules from the exemption by issuing Amended Partial Grant of Exemption No. 8769A.

On September 14, 2012, the FAA issued Amended Partial Grant of Exemption No. 8769B, amending Exemption No. 8769A, to provide relief from the requirements of §§ 25.855(b), 25.855 (h)(2), 25.857(e)(2), and 25.857(e)(3) to the extent necessary to allow carriage of specified cargo in the lower-lobe cargo compartments.

The petitioner requests relief from the following regulations:

Section 25.791(a) and (b), Amendment 25-32, effective May 1, 1972, requires, in part, that when installed, signs notifying when smoking is prohibited and when safety belts should be fastened must be legible to each seated occupant in the passenger cabin and be operable by the crew.

Section 25.807(b), Amendment 25-55, effective April 28, 1982, requires, in part, that each required passenger emergency exit must be accessible to the passengers and must be located where it will afford the most effective means of passenger evacuation.

Section 25.807(c)(1) and (c)(5), Amendment 25-55, effective April 28, 1982, requires, in part, that for passenger seating configuration one through nine (1-9) there must be one Type IV over-wing emergency exit in each side of the fuselage; otherwise the exit in each side of the fuselage must be a Type III size or greater.

Section 25.807(c)(6), Amendment 25-55, effective April 28, 1982, requires, in part, that excess emergency exits in the passenger compartment must be readily accessible and meet the requirements of §§ 25.809 thru 25.812.

Section 25.809(f)(1), Amendment 25-34, effective December 31, 1972, requires, in part, that each passenger emergency exit greater than six (6) feet from the ground must have an automatically deployed slide or equivalent to assist the occupants in reaching the ground with landing gear leg(s) collapsed.

Section 25.813(f), Amendment 25-46, effective December 1, 1978, requires, in part, that doors used to reach any required emergency exit from any seat in the passenger cabin must be latched open.

Section 25.857(e), Amendment 25-93, effective March 19, 1998, requires, in part, 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), Amendment 25-41, effective Sept. 1, 1977, requires, in part, for operations above 25, 000 feet, the oxygen dispensing system must be immediately available to each seated occupant and automatically presented. The number of dispensing units must be greater than 10 percent of the number of seats and uniformly distributed throughout the cabin.

The petitioner supports its request with the following information:

This section quotes the relevant information from the petitioner's request. The complete petition is available at the Department of Transportation's Federal Docket Management System, on the Internet at <http://regulations.gov>, in Docket No. FAA-2012-0455.

Introduction:

The 747-400 Large Cargo Freighter (LCF) is a 747-400 series passenger airplane that has been modified in accordance with FAA-approved Boeing Service Bulletin 747-00-2084 to operate in a freighter configuration. As identified in Exemption 8769/8769A/8769B, the primary purpose of these airplanes is carrying non-flammable components that support Boeing Model 787 airplane production and other non-787 large/outsized cargo that directly supports Boeing corporate business activities. There are currently four (4) LCF airplanes in operation.

Although Boeing owns these airplanes, they are operated on behalf of Boeing by a Part121 operator, and the aircraft are N-registered. As a condition of the previous exemption, these aircraft transport only the cargo allowed per the exemption and are not used by Boeing or the aircraft operator to conduct commercial freight hauling operations.

The flight deck of the LCF retained the four (4) approved flight deck seats from the original 747-400 series passenger model which are currently restricted to flight crew use only: pilot, co-pilot and two (2) observer seats.

There are no provisions on the aircraft for the carriage of passengers. The purpose of this exemption would be to allow for carriage of two (2) persons other than flight crew (supernumeraries) utilizing the existing observer seats located in the flight deck. No access to the Class E cargo compartment is possible.

The upper deck interior arrangement consists of a flight deck crew rest, lavatory, closet, galley and 747-400F style ladder to the main deck. Emergency equipment, galley oxygen drop, exit signs, and emergency lighting are also installed to support the interior configuration (CP D926U013-17). The flight deck overhead hatch remains unchanged and is equipped with inertial reels same as the 747-400 series passenger model.

The main deck area located forward of the Class E cargo compartment is not allowed to be occupied during taxi, takeoff, flight and landing. The ladder from the upper deck leads directly towards the RH entry door. The slide raft on the RH door has been removed and replaced by a 747-400F door liner and escape rope with a ten (10) person life raft installed nearby. The RH slide raft was removed to allow better access to the door. The LH entry door retains its passenger slide raft. These main deck doors and rafts have been preserved for the planned ditching scenario. Exit signs and emergency lighting are installed to illuminate the path and direct the occupants to the main deck door pair for their use as planned ditching exits. Emergency equipment including two (2) fire extinguishers, (halon and water), and a portable Emergency Locator Transmitter (ELT) are also installed on the main deck.

Boeing is proposing to allow the carriage of up to two (2) persons (supernumeraries) in the flight deck in addition to the two (2) flight crew members in lieu of four (4) crewmembers only. This will allow for the more efficient use of the LCF airplanes in support of the 787 program. Boeing is therefore requesting an exemption similar to FAA Exemptions 1870, 1870A, 1870B, 1870C, 1870D, 1870E and 9735 for 747-100(SF)/-200F/-200C/-200(SF)/-400F, FAA exemptions 8590, 8590A, and 8590B for 747-400SF (747-400BCF), and FAA exemptions 9793, 9793A and 9793B for 747-8 which allows for the carriage of limited persons (supernumeraries) on cargo aircraft. The main difference between these listed 747 aircraft and the 747-400 LCF is that the upper deck area has a single emergency exit which is the overhead crew hatch and that the planned ditching scenario exits are located on the main deck.

(a) Name and Address of the Petitioner

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(b) Sections of 14 CFR from which an Exemption is Requested

Boeing is seeking exemption from the following sections of 14 CFR for the Model 747-400 LCF: *[see list on page 2 of this exemption]*

Related Sections of 14 CFR and 747-400 LCF G-1 issue paper:

14 CFR 25.805, Amendment 25-0 effective November 3, 1964 requires, in part, that except for aircraft with less than 20 passengers that have convenient and readily accessible passenger exits for flight crew evacuation, there must be either one exit on each side of the airplane or a top hatch, in the flight crew area.

14 CFR 25.807(b)(1),(b)(2), Amendment 25-55 effective April 28, 1982 requires, in part, that exit openings larger than specified may be used if the specified opening can be inscribed within the opening and the base of the inscribed opening meets the specified step-up and step-down heights.

14 CFR 25.809(f)(2), Amendment 25-34 effective December 31, 1972, requires, in part, that each flight crew emergency exit greater than six (6) feet from the ground that the assisting means may be a rope or any other means demonstrated to be suitable for the purpose.

14 CFR 121.583(a), Amendment 121-298 effective July 10, 2003 provides, in part, for categories of persons that may be carried aboard an airplane in part 121 service without complying with all passenger-carrying airplane requirements of part 121.

Exception to 14 CFR 25.365:

The 747-400 LCF G-1 issue paper utilizes, in part, as a mitigating feature (in order to retain the certification basis for 14 CFR 25.365 at the 747-400 certification basis) the fact that there is a reduced exposure to the threat of explosive devices as there are no passengers.

Special Conditions 25-61-NW-1, 25-71-NW-3:

The 747-400 LCF G-1 issue paper states that the above listed special conditions are not part of the aircraft certification basis since there are no passengers and no passenger accommodations.

Equivalent Safety Findings to 14 CFR 25.815:

The 747-400 LCF G-1 issue paper states that the 14 CFR 25.815 Equivalent Safety Finding (ESF) does not apply to the LCF since there are no passenger and no passenger seats.

(c) Extent of Relief and Reason

Extent of Relief Sought

As provided in 14 CFR 11.61(b), Boeing hereby petitions for exemption from 14 CFR sections 25.791(a),(b); 25.807(b),(c)(1),(c)(5),(c)(6); 25.809(f)(1); 25.813(f); 25.857(e) and 25.1447(c)(1) as noted above to allow the carriage of two (2) persons (supernumeraries) other than flight crew to occupy the observer seats located within the flight deck of the 747-400 LCF.

Information to Support Grant of Exemption

1. Occupancy of the LCF is a maximum of four (4) persons, two (2) of whom are requested to be non-crewmembers. In support of this request, the Airplane Flight Manual (AFM) will be revised to limit the carriage of supernumeraries to persons as defined in 14 CFR 121.583(a)(1), (2), (3), (4)(vii), (4)(viii) and (5). This limitation shall include the requirement for the operator to ensure that the occupants are properly trained and briefed on the evacuation system and that the occupant is physically able to utilize the escape means as determined by the operator { 14 CFR 121.583(b) through (d)}.
2. Evacuation harnesses for each occupant which are suitable for egress through the overhead hatch will be installed in the crew accommodation area.
3. Supernumeraries are located in the flight deck and as such, they are located within visual and aural range of the flight crew. Through verbal instruction, and observation of the crew, the supernumeraries would clearly understand what actions are acceptable and required. The low ratio (1:1) of crew to supernumeraries provides adequate leadership and control during an emergency evacuation.

4. Boeing proposes that supernumerary training coupled with the close proximity to flight crew members provides a level of safety equivalent to 14 CFR 25.791(a),(b).

5. The upper deck flight crew overhead emergency exit hatch meeting the requirements of 25.805 and 25.809(f)(2) provides a readily accessible and effective means of evacuation for two (2) flight crew and two (2) supernumeraries within the flight deck. This is based on granted exemptions on other 747 freighter (ref. section g) which has previously designated the overhead exit as an emergency exit for the use of persons other than crew members. In addition, evacuation of eight (8) occupants through the 747-400F overhead exit was demonstrated as described in test report D6U10195. The demonstration showed two (2) crew and six (6) supernumeraries were able to evacuate through the overhead exit of the upper deck using evacuation harnesses and inertia reels in 71.4 seconds. By comparison, the LCF will have a maximum occupancy of four (4) persons. Boeing proposes that the flight crew emergency exit provides a level of safety equivalent to 14 CFR 25.807(b),(c)(1),(c)(5), 25.809(f)(1).

6. The current LCF is equipped with the flight deck overhead hatch as the means of egress using inertial reels. The main deck exits are utilized as required planned ditching exits. The main deck Door 1L has retained the passenger slide/raft meeting the requirements of 25.809(f)(1) and Door 1R is equipped with an escape rope with an additional portable life raft stored nearby. The slide/raft at Door 1R was removed to provide adequate space at the foot of the ladder to enable unrestricted descent/ascent. Boeing proposes that this emergency exit combination provides adequate escape means for the four (4) occupants (2 flight crew, 2 supernumeraries) and requests an exemption from 14 CFR 25.807(c)(6) and 14 CFR 25.809(f)(1) at Door 1R.

7. The current LCF is equipped with a ladder enclosure door to preclude occupants from accidentally falling down the ladder while moving about the confined crew accommodation area. In addition, the closed door aids in smoke evacuation and reduces the probability of smoke penetration. The ladder door is required to be latched when not in use and must remain closed during taxi, takeoff, flight and landing. The ladder door is expected to be used for normal airplane entry/exit and for a planned ditching scenario. A planned ditching event has not been recorded in the history of aviation and hence, is highly unlikely. In addition, it is unlikely during a planned ditching with water displacement that the fuselage would deform to such an extent that the ladder door would become jammed and be rendered unusable. The ladder door is located on the upper deck with a large amount of structure beneath which must deform prior to the door jamb structure deforming. In the remote chance that the door becomes jammed, as a back-up, the ax required by 14 CFR 121.309(e) can be used to break the latch and/or hinge to get the door open. If the door was latched open, the likelihood of occupants falling down the ladder would greatly increase. This is contrasted with the unlikelihood of the door jamming during a planned ditching scenario. Boeing proposes that the ladder door in the closed position provides more protection for the limited number of deck occupants than would be provided with the ladder door in the open position and requests an exemption from 14 CFR 25.813(f).

8. The LCF has Class E cargo compartments as granted in Exemptions 8769/8769A/8769B. The compartments can only be accessed through the cargo doors while on the ground. The cargo compartments are physically separated from the occupiable area by a pressure bulkhead. In the event of a fire in a cargo compartment, there is no procedure to depressurize the occupied compartments. The flight deck area complies with the smoke penetration requirements and crew type oxygen is provided for each seat. Supernumeraries are provided the same level of protection as the flight crew members during a fire. Boeing proposes that an exemption be granted to 14 CFR 25.857(e) to allow the carriage of supernumeraries. This would be consistent with other exemptions granted for cargo aircraft with Class E compartments (ref. section g).

9. The LCF has crew type oxygen provisions for all seats in the flight deck for ground/flight operations (taxi, takeoff, cruise, descent and landing). The masks are installed in a readily accessible location that is visible to the occupants, and are of the quick-donning variety. A single motion removes the mask from its stowage, which is directly comparable to passenger oxygen dispensing units. Notification that oxygen is necessary is by aural signal and visual of flight crew actions, as opposed to automatic presentation of the masks. Additional passenger type oxygen drops with automatic presentation are provided inside the crew rest, lavatory and galley area. Boeing proposes that the crew type oxygen with flight crew indication of when oxygen is needed provides a level of safety equivalent to 14 CFR 25.1447(c)(1) for automatic presentation.

10. A ten percent excess of the required oxygen provisions is also required by 14 CFR 25.1447(c)(1). Extra oxygen within the passenger cabin is typically required enable cabin attendants to move freely about while aiding passengers with donning of their oxygen masks. The LCF supernumeraries are trained and will not require assistance with donning their masks. Boeing proposes that excess oxygen masks are not required and that an exemption to 14 CFR 25.1447(c)(1) for the required ten percent excess oxygen provisions be granted.

11. The 747-400 LCF G-1 issue paper utilizes, in part, as a mitigating feature (in order to retain the certification basis for 14 CFR 25.365 at the 747-400 certification basis) the fact that there is a reduced exposure to the threat of explosive devices as there are no passengers. If this exemption is granted, there still will not be any passengers aboard the aircraft. Boeing proposes that the carriage of two (2) supernumeraries who are a special class of persons limited to those persons listed in section (c)1 above will not materially change the argument presented in the G-1 issue paper and that 14 CFR 25.365 will remain at amendment 25-53.

12. The 747-400 LCF G-1 issue paper states that Special Conditions 25-61-NW-1 and 25-71-NW-3 are not part of the aircraft certification basis since there are no passengers and no passenger accommodations. If this exemption is granted, there still will not be any passengers aboard the aircraft. Boeing proposes that the carriage of two (2) supernumeraries who are a special class of persons limited to those persons listed in section (c)1 above will not materially change the argument presented in the G-1 issue paper and that these special conditions are not applicable to the LCF.

13. The 747-400LCF G-1 issue paper states that the 14 CFR 25.815 Equivalent Safety Finding (ESF) does not apply to the LCF since there are no passenger and no passenger seats. If this exemption is granted, there still will not be any passengers or standard passenger seats aboard the aircraft. Boeing proposes that the carriage of two (2) supernumeraries who are a special class of persons limited to those persons listed in section (c)1 above will not materially change the argument presented in the G-1 issue paper and that the 14 CFR 25.815 ESF does not apply.

(d) Statement of Public Interest

The public interest would be advanced by the grant of this petition since flexibility in the LCF aircraft missions would increase its efficiency and in turn, maintain or lower the costs associated with the aggressive manufacturing and delivery schedule for the Boeing Model 787 airplane. More efficient use of the LCF will reduce the cost associated with manufacturing and minimize delays associated with transporting mission-critical parts and 787 and or LCF support personnel. This is most efficiently accomplished by carrying support personnel aboard the LCF rather than taking separate commercial flights that may not have the same schedule while incurring additional transportation expenses.

The 787 is more fuel efficient as compared to other airplanes currently in service. The sale of 787s contributes to a healthier environment through the replacement of less fuel efficient airplanes. The 787 relies on the 747-400 LCF to maintain this tight schedule and disruption in the LCF operations can cause delays to the 787 production delivery schedule. Given the large volume of international sales of the 787, this would impact commerce worldwide. Maintaining the 787 delivery schedule could result in increased sales thus helping to supply the public need for increased air travel for passenger carrying capacity. The availability of reliable, cost efficient, and timely transportation of 787 part assemblies will contribute to the competitive position of air transport manufactures in the United States and to the balance of trade, gross domestic product and economic health of the United States. In addition to creation of jobs and promotion of United States commerce, the 747-400 LCF global transportation system contributes to the competitiveness of US state of design airplanes in the global market through the use of lean manufacturing on a global level. More efficient manufacturing and transportation reduces reliance on fossil fuel sources and promotes a cleaner and healthier environment. These are all in the public interest, and the design proposed in combination with these petitions maintains the current level of safety.

(e) Reasons why Granting the Exemption Would Not Adversely Affect Safety

Boeing maintains that the carriage of supernumeraries would not adversely affect the safety of the aircraft. Supernumeraries are provided an equivalent or better level of safety afforded the flight crew through the usage of the existing required flight crew safety systems on the 747-400 LCF and the usage of additional emergency evacuation harnesses provided for all LCF occupants.

This includes the following considerations:

The fleet of 747-400 LCF aircraft is small due to their special use. They are designed to carry non-flammable aircraft components per Exemptions 8769/8769A/8769B. Due to their special use, the aircraft are not used to conduct commercial freight hauling operations by its 14 CFR Part 121 operator. The supernumeraries will be limited to those persons who meet the requirements of section (c)1. In addition, the AFM will include the requirement that supernumeraries are physically fit as determined by the operator, and briefed on the usage of their emergency equipment and means of egress prior to each flight {14 CFR 121.583(b) through (d)}. These AFM limitations restrict the aircraft's usage such that the LCF cannot carry passengers for hire.

(h) Application of Exemptions Outside of the United States

This exemption applies to the type design for a transport airplane designed to transport major assemblies built outside of the United States. The privileges for this exemption for this aircraft are necessary to be made available outside of the United States in order to recognize the economic benefit of this means of air transport.

***Federal Register* publication**

A summary of this petition was published in the *Federal Register* on March 13, 2013 (78 FR 16031-16032). No comments were received.

The FAA's Analysis

The FAA considers the petitioner's proposal for the exemption 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 747-400 LCF airplanes are very specialized airplanes that are owned by the petitioner and operated by a separate company. These airplanes are subject to limitations of Exemption No. 8769B, which limits the type of cargo that is allowed to be carried. Exemption No. 8769B also permitted relief from some of the associated requirements for the Class E cargo compartments. This proposed amendment to Exemption No. 8769B, if granted, would allow the carriage of two non-crewmembers (commonly referred to as supernumeraries) on the airplane. With regard to the regulations from which the petitioner has requested relief, exemptions have commonly been granted from these regulations to freighter airplanes with supernumeraries. However, due to the specific configuration of the airplane, the classification of persons proposed to be considered as supernumeraries is significantly reduced.

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. For the subject airplanes, the cargo compartments are not pressurized. The flight deck, which is pressurized, is separated from the cargo compartment by a bulkhead that is designed to carry the pressurization loads.

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 for passengers and crewmembers differ. 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 cargo 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 flight deck is configured with two flight crew seats and two observer seats located directly behind the flight crew seats. The two supernumeraries would occupy the two observer seats. In this location the flight crew can give the supernumeraries direct verbal commands, and the supernumeraries have direct visual observation of the flight crew actions. The petitioner has requested relief from the requirements to provide no smoking signs and fasten safety belts signs for these two supernumerary seats based on pre-flight briefings, the proximity of the flight crew seats, and the ability of the flight crew to directly communicate with the supernumeraries. The FAA agrees with this proposal.

The FAA’s Decision

In consideration of the foregoing, I find that an amendment to Exemption No. 8769B 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, The Boeing Company is hereby granted an amendment to Exemption No. 8769B from the requirements of §§ 25.791(a) and (b); 25.807(b), (c)(1), (c)(5), and (c)(6); 25.809(f)(1); 25.813(f); 25.857(e); and 25.1447(c)(1) to the extent necessary to allow certification. This amended partial grant of exemption permits Boeing Model 747-400 LCF carriage of all material that supports Boeing’s corporate business line and meets the flammability-related cargo-acceptance criteria contained in FAA-approved Boeing Document D926U013-44. All of the limitations and conditions specified in Exemption No. 8769B apply to this amended exemption and are listed below for completeness.

This amended partial grant of exemption is subject to the following limitations and conditions, and limitation numbers 6-10 must be documented in the limitations section of the airplane flight manual:

1. The Boeing Model 747-400 LCF Airplane Flight Manual (AFM) must include, in the certificate limitations section, a limitation for cargo carriage on the main deck and in the

lower-lobe cargo compartment, and identify the FAA-approved Boeing Model 747-400 LCF Weight and Balance Manual (WBM) for the list of allowable cargo. The WBM will refer to the “Allowable Cargo” document that will identify the subassemblies acceptable for shipment and the acceptable shipment configurations.

2. The Boeing Model 747-400 LCF AFM must include, in the certificate limitations section, a limitation for cargo carriage on the main deck and in the lower-lobe cargo compartment, which states that the main-deck and lower-lobe cargo compartment camera viewing system must be operational to enable cargo to be carried. The camera viewing system must provide visual coverage of the main-deck and lower-lobe cargo compartments.
3. Any modifications to the Boeing flammability-related cargo-acceptance criteria (i.e., Boeing Document D926U013-44) must be submitted to the cognizant aircraft certification office for review and approval prior to implementation for use on the Boeing Model 747-400 LCF airplane and after any modifications to the cargo-acceptance criteria. Boeing must modify Document D926U013-44 to ensure appropriate instructions are included to enable carriage of designated cargo on the main deck and in the lower-lobe cargo compartments. Boeing must review the process for approval of revisions/modifications to this document to determine if revisions are needed to accommodate carriage of cargo on the main-deck and lower-lobe cargo compartments, and have this process in place prior to operation of the first modified (i.e., with active lower-lobe cargo compartments) Boeing Model 747-400 LCF airplane.
4. Prior to operational flights, Boeing must review and revise, if needed, the Boeing cargo control process document, which defines the method of ensuring compliance to Boeing Document D926U013-44. This Boeing process instruction document will define the process for maintaining configuration control of the Boeing Model 787 and other Boeing corporate- business shipping assemblies. The information must be provided to Boeing Model 787 suppliers and other Boeing corporate-business suppliers shipping cargo on the Boeing Model 747-400 LCF prior to operational flights. Each supplier will be required to adhere to the process.
5. Any parts (including packing materials) that fail to meet the flammability criteria in Boeing Document D926U013-44 will be suitably isolated and enclosed, and a “Safe Method of Transport” will be demonstrated per the requirements of Boeing Document D926U013-44. Each such item and its method of carriage will be reviewed and approved by the cognizant aircraft certification office prior to implementation for use on the Boeing Model 747-400 LCF airplane.
6. A maximum of two supernumeraries may occupy the flight deck. The total maximum occupancy of the airplane is limited to four persons, including the flightcrew.
7. The supernumeraries are limited to the categories specified in §§ 121.583(a)(1), (2), (3), (4)(vii), (4)(viii) and (5).

8. Supernumeraries are prohibited from being in the cargo area during taxi, takeoff, and landing. The pre-flight briefing must inform supernumeraries of this requirement.
9. 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.
10. The operator must determine that each supernumerary is physically able and trained to accomplish the necessary emergency procedures.
11. There must be four inertia reels and harnesses installed on the flight deck.

Issued in Renton, Washington, on May 29, 2013.

/s/ by Jeffrey E. Duven

Jeffrey E. Duven
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Aircraft Certification Service