



**SUBJ:** Equipment/Furnishings: In-flight access to Class E cargo compartments

**SAIB:** NM-09-27  
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*This is information only. Recommendations aren't mandatory.*

## **Introduction**

This Special Airworthiness Information Bulletin (SAIB) alerts you, owners and operators of **Boeing 747 series airplanes with a Class E cargo compartment on the main deck of the airplane that carry non-crewmembers (known as “supernumeraries”)**, of the equipment and conditions that are generally required on airplanes when supernumerary access into the Class E cargo compartment is desired during flight.

Class E cargo compartments may be installed on, but not limited to, the following aircraft, either as originally delivered from the manufacturers, or on airplanes converted from passenger operations to freight operations after delivery that use Exemption 1870 as a basis for the approval to carry supernumeraries:

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| Boeing | 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C,<br>747-200F, 747-400, 747-400F |
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## **Background**

Title 14, Code of Federal Regulations (14 CFR) 25.857(e)), limits airplanes that have Class E cargo compartments to the carriage of cargo only. This limits the airplane to flight crewmembers only. The major reason that these airplanes are limited to flight crew only is because of the fire fighting method used to fight an in-flight fire. The industry standard fire fighting procedure for Class E cargo compartments is to shut off airflow to the cargo compartment, depressurize the airplane, and operate the airplane at an altitude of at least 20,000 feet. This reduces the available oxygen to a level that will not support the fire (oxygen starvation). Under these flight conditions the flight crewmembers will don oxygen until the airplane lands or the airplane altitude is below 10,000 feet.

The FAA has granted exemptions to permit carriage of supernumeraries on these cargo airplanes, when specific equipment is installed and specific conditions are met. One of the typical conditions is that the supernumeraries do not access the Class E cargo compartment during taxi, takeoff, flight, and landing, as noted by placards and/or airplane flight manual (AFM) limitations. The FAA, however, has also granted exemptions that do allow supernumerary access to the Class E cargo compartment during flight, again when specific additional requirements are met. There is at least one exemption, which affects numerous operators and airplanes that does not specifically prohibit or permit in-flight access to the Class E cargo compartment by supernumeraries. Exemption 1870, which is for Boeing 747 series airplanes, is that exemption. It does not specifically permit, but does not specifically prohibit, access to the Class E cargo compartment in-flight by supernumeraries. The petition for exemption did not specifically address access to the Class E cargo compartment in flight, and therefore this issue was not addressed. Therefore, the exemption does not include the specific additional requirements that have been included in later exemptions for other airplane models where access was requested and granted, but with additional requirements.

We have become aware that there may be some confusion on the part of owners and operators concerning what type of equipment and approval they should have for allowing supernumerary access into the Class E cargo compartment during flight on 747 series airplanes.

Class E cargo compartments are usually remote from the flight deck and encompass the entire interior of the airplane. These Class E cargo compartments do not have the systems and equipment typically found in passenger compartments, e.g., automatically presented oxygen masks.

As noted above, the industry standard fire fighting procedure for Class E cargo compartments is to shut off airflow to the cargo compartment, depressurize the airplane, and operate the airplane at an altitude of at least 20,000 feet. This will reduce the available oxygen to a level that will not support the fire (oxygen starvation). The flight crew dons oxygen masks and continues to use them until the airplane lands or the airplane altitude is below 10,000 feet.

There are additional hazards associated with entering the cargo compartment—including cargo shifting, occupant injury due to contacting the cargo that does not meet the requirements for injurious objects in a passenger cabin, protection from decompression, and protection from smoke/fire conditions.

Nonetheless, the FAA understands that some operators on some flights desire to have access to the Class E cargo compartment. Carriage of live animals is a frequent type of operation that requires access to the Class E cargo compartment in flight. However, other types of cargo (e.g., perishable or hazardous) also may require in-flight monitoring and may present different potential hazards.

With the installation of, or requirement for, proper equipment, alerts, training, briefings, and procedures, an acceptable level of safety can be provided for the supernumeraries entering the Class E cargo compartment.

The following are areas of concern that have been addressed when exemptions have allowed supernumeraries' access to the Class E cargo compartment in-flight.

- Cargo compartments do not and should not have oxygen systems installed in them for the supernumeraries to use when in the cargo compartment because this would provide a source of oxygen in the cargo compartment. Since the method used to control fires in Class E cargo compartments is oxygen starvation, an installed oxygen system would provide a potential oxygen source to feed the fire. However, the supernumeraries, under some conditions such as decompression, need to have a supply of oxygen immediately available to them when they are in the cargo compartment. This can be accomplished by requiring the supernumeraries to carry portable oxygen units with them when entering the cargo compartment. Operators should also ensure that the supernumeraries are properly trained in the use of the portable equipment.
- Cargo compartments do not have automatically presented oxygen masks which would serve to alert the supernumeraries that they need to don oxygen. Therefore, an alternate method of signaling the supernumeraries when to don the oxygen equipment should be provided. The signal needs to be automatic because in the event of a decompression the flight crew workload will be high (donning their own oxygen masks and flying the airplane). An appropriate signal and pre-flight briefing as to what the signal is and what the supernumeraries should do in response to the signal provides an acceptable level of protection.
- Cargo compartments do not have fasten seat belt signs to alert supernumeraries to return to their seats and fasten their seat belt when there is turbulence. Furthermore, the cargo compartment

does not comply with the requirements to protect occupants from injurious objects when they are moving about the compartment as is required for the passenger compartment. To provide an acceptable level of safety for the supernumeraries when they are in the cargo compartment, a signal needs to be provided to warn the supernumeraries of turbulence and the need for them to return to their seats. An appropriate signal and pre-flight briefing would provide an acceptable level of safety.

- Cargo compartments are required to have automatic smoke/fire detectors installed to alert the flight crew of smoke/fire in the cargo compartment. After the flight crew is alerted to smoke/fire in the cargo compartment they should take actions associated with controlling the fire. These actions include shutting off airflow to the cargo compartment, depressurizing the airplane, and operating the airplane at an altitude of at least 20,000 feet. Cargo compartments do not have a way to signal the supernumeraries that there is smoke/fire in the cargo compartment and that they need to return to their seats. An appropriate signal and pre-flight briefing would provide an acceptable level of safety.

A placard located in the supernumerary area, in a conspicuous location either on or adjacent to the smoke barrier, should indicate the following for access to the Class E cargo compartment. The pre-flight briefing should inform supernumeraries of these requirements:

- Access is limited to the care and handling of animals and cargo only.
- Access is limited to a maximum of three supernumeraries when carrying cargo only.
- When operation includes the carriage of large live animals that require in-flight care more than three supernumeraries may be carried. This type of operation includes a cargo of only live animal that require in-flight care, or mixed cargo including live animals that require in-flight care.
- The smoke barrier should be secured (i.e., the door or curtain should be closed) except when entering or leaving the cargo compartment.
- A portable oxygen bottle (with mask attached) should be carried at all times by each supernumerary when accessing the cargo compartment.
- Smoking is not allowed within the cargo compartment.
- The compartment should not be entered in case of fire/smoke being detected inside the Class E cargo compartment.

## **Recommendations**

We recommend that owners and operators ensure that the systems, equipment, training, pre-flight briefings and procedures discussed in the areas of concern above are provided to the supernumeraries for all operations during which supernumeraries will be entering the Class E cargo compartment in flight.

## **For Further Information Contact**

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