

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

In the matter of the petition of

The Boeing Company

for an exemption from § 25.1447(c)(1) of
Title 14, Code of Federal Regulations

Regulatory Docket No. FAA-2005-22385

GRANT OF EXEMPTION

By letters B-H340-05-3293, dated August 10, 2005, B-H340-05-3468, dated August 17, 2005, and B-H340-05-4162, dated October 12, 2005, which superseded the August 10, 2005, letter, Mr. G. D. Lehmann, Manager, Airplane Certification - Renton, The Boeing Company, PO Box 3707, Seattle, Washington, 98124, petitioned for an exemption from § 25.1447(c)(1) of Title 14, Code of Federal Regulations (14 CFR). The proposed exemption, if granted, would permit relief from the requirement for passenger oxygen masks to be automatically presented before the cabin pressure altitude exceeds 15,000 feet for the Boeing Model 737NG aircraft, which are the Boeing Model 737-600, -700, -800, -900 series airplanes.

The petitioner requests relief from the following regulations:

Section 25.1447(c)(1) states that there must be an oxygen dispensing unit connected to oxygen supply terminals immediately available to each occupant, wherever seated. If certification for operation above 30,000 feet is requested, the dispensing units providing the required oxygen flow must be automatically presented to the occupants before the cabin pressure altitude exceeds 15,000 feet and the crew must be provided with a manual means to make the dispensing units immediately available in the event of failure of the automatic system.

The petitioner's supportive information is as follows:

To provide operation at high altitude airports up to 14,500 feet, the Boeing Model 737-600, -700, -800, -900 series aircraft will be modified to install a second cabin pressure

altitude switch. This modification would prevent nuisance deployment of the passenger oxygen masks at a cabin pressure altitude below 15,650 feet.

“PUBLIC INTEREST STATEMENT

“Granting this exemption would be in the public interest by allowing airlines that operate 737 series aircraft to compete with other operators of airplanes at high altitude airports already approved by other authorities. Service could be provided to the flying public at airports with altitudes up to 14,500 feet.”

“FACTORS SUPPORTING THE PETITION”

For operations into airports between 9,500 feet and 14,500 feet, the aircraft will be equipped with a high altitude landing switch. “This switch controls when the cabin altitude warning horn will sound and also when the passenger oxygen masks will deploy.”

For operations into and out of airports below 9,500 feet, the high altitude landing switch remains in the “INOP” position with the cabin altitude warning at 10,000 feet and the oxygen mask deployment at 14,650.

“For operations into airports above 9,500 feet, the high altitude landing switch is positioned to “ON” at initial descent or approximately 20 minutes prior to landing. The cabin altitude warning changes from 10,000 feet to 15,200 feet. The oxygen mask deployment setting changes from 14,650 feet to 15,650 feet.”

When departing an airport above 9,500 feet the high altitude landing switch is positioned to the “INOP” position. The cabin altitude warning is set at 10,000 feet and the oxygen mask deployment set at 14,650 feet. “The oxygen system architecture is designed so that as long as the aircraft is on the ground the oxygen masks will not automatically deploy. The cabin altitude warning is latched and will not switch from 15,200 feet to 10,000 feet until the cabin is pressurized below 10,000 feet.”

“An indication light on the high altitude landing switch is illuminated when it is in the “ON” position so that the crew is reminded to reset the switch prior to departure from high altitude airports. The indication light turns off after the switch is reset. Even if the altitude at which the masks will automatically deploy is set at 15,650 feet instead of 14,650 feet, the flightcrew can manually deploy the masks at any time.”

“The 737 high altitude landing switch functions the same as other Boeing models. Automatic activation of the oxygen system is transparent to the flightcrew. There are no additional oxygen tasks in the Airplane Flight Manual (AFM) or Flight Crew Operations Manual (FCM) other than what exists today. This avoids the possibility of flightcrew confusion. The oxygen switch point is always 14,650 feet except for the last 20 minutes of inbound only flights to airports above 9,500 feet elevation. Should a decompression occur in the last 20 minutes of flight when the oxygen set point is 15,650 feet there will

be an automatic activation time delay of less than 5 seconds. This is the additional time necessary for cabin pressure to decrease from 14,650 feet to 15,650 feet. Of the 13,017 commercial jet transport airports, there are only 21 that are above 9,500 feet in elevation, so the probability of passengers being exposed to an altitude above 15,000 feet is quite low.”

The FAA’s public comment determination

The FAA has determined that good cause exists for waiving the requirement for Federal Register publication because the exemption, if granted, would not set a precedent, and any delay in acting on this petition would be detrimental to The Boeing Company. Two similar exemptions have been issued: (1) Boeing, Exemption # 6076, and (2) Airbus, Exemption # 6994. A summary of Boeing’s petition was published in the Federal Register on February 17, 1995 (60 FR 9422). No comments were received. The Airbus petition was granted September 6, 1999, without a public comment period, citing similarity to the Boeing exemption granted in 1995.

The FAA's analysis/summary is as follows:

The petitioner requests an exemption for the Boeing Model 737-600, -700, -800, -900 series airplanes. We agree with the petitioner and find their public interest statement acceptable.

The petitioner requests relief from the requirement of § 25.1447(c)(1), which states in part that oxygen dispensing equipment for occupants must be automatically presented before the cabin pressure altitude reaches 15,000 feet. A requirement for automatic presentation of masks for airplanes certificated to operate above 30,000 feet originated in § 4b.651(d)(3)(i) of the Civil Aviation Regulations (CAR) and was carried over as § 25.1447(c)(1) 14 CFR when part 25 was codified. The CAR requirement did not specify the maximum cabin altitude pressure allowed prior to presentation. The requirement that the oxygen equipment be automatically presented before the cabin pressure altitude reaches 15,000 feet was added at Amendment 25-41, effective September 1, 1977.

In order to operate into airports with altitudes up to 14,500 feet, the pressure switch must be changed to prevent nuisance deployment of the passenger oxygen masks. Because the existing switch is set for 14,650 +/-350 feet, the existing switch could trigger the dropping of the masks when operating at high altitude airports. A new high altitude mode pressure switch, set at 15,650 +/-350 feet, will allow the airplane to land at airports up to 14,500 feet without dropping the masks. The flightcrew retains the capability of deploying the masks using the manual control in the cockpit. In addition, the passenger oxygen masks deploy at 14,650 +/- 350 feet, except when operating in the high altitude mode.

The petitioner submitted proposed AFM procedures for high altitude airport operation. The procedures instruct the flightcrew to position the high altitude landing switch to “ON” when approaching an airport landing field above 9,500 feet and to don their oxygen masks.

The FAA has determined that the proposed system and AFM procedures provide an acceptable level of safety. In conclusion, the FAA has determined that the changes to the automatic deployment of the passenger oxygen masks and the AFM will allow the Boeing Model 737-600, -700, -800, -900 series airplanes to safely serve airports above 9,500 feet and below 14,500 feet. When operating into airports that do not require these design modifications, the oxygen system will continue to operate as airplanes that have not had the systems modified.

The FAA’s decision

In consideration of the foregoing, I find that a 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, The Boeing Company is granted an exemption from the requirement of § 25.1447(c)(1). This grant of exemption will permit passenger oxygen masks to be automatically presented at cabin pressure altitudes of 15,650 feet when operating into airports with altitudes above 9,500 feet and below 14,500 feet, for Boeing Model 737-600, -700, -800, -900 series airplanes.

This exemption will remain in effect unless superseded or rescinded.

Issued in Renton, Washington, on December 2, 2005.

/s/
Ali Bahrami
Manager
Transport Airplane Directorate
Aircraft Certification Service