Exemption No. 10044

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

In the matter of the petition of **Gulfstream Aerospace Corporation** for an exemption from § 25.1447(c)(1) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA-2009-0898**

GRANT OF EXEMPTION

By letter A&C-09-490, dated December 8, 2009, Mr. Anthony Beck, Manager Airworthiness/ Certification, Gulfstream Aerospace Corporation, PO Box 2206, Savannah, Georgia, 31402, 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 Gulfstream Model GIV-X and GV-SP series airplanes.

The petitioner requests relief from the following regulations:

> **Section 25.1447(c)(1)** states that an oxygen-dispensing unit must be 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 supports its request with the following:

The following material is quoted from Gulfstream's petition.

> A new airport is under construction in Ali, China in the northwest portion of the Qinghai-Tibet Plateau. This airport is scheduled to be completed in 2010 and has a landing field elevation (LFE) of 14,690 feet above sea level (excluding barometric pressure variations). This airport will help improve the transportation conditions in the region. The

GV-SP and GIV-X are currently certified for a maximum LFE of 14,500 feet. To provide the additional capability for landing at airports up to 15,000 feet, the current GIV-X and GV-SP Cabin Pressure Control System (CPCS) and passenger oxygen control panel will require modification. These software/hardware modifications would allow the cabin internal pressure altitude to reach 15,500 feet during normal operation.

14 CFR 25.1447(c)(1) was designed to provide passenger safety during flight conditions. Gulfstream contends that passenger safety is maintained during all flight conditions and is further enhanced with simple and logical flight crew procedures to allow operation at high altitude airports. The changes proposed are designed to maintain an equivalent level of safety during flight while minimizing the possibility of nuisance Crew Alerting System (CAS) messages or passenger oxygen mask deployment during takeoff or descent at high altitude airports.

The proposed GIV-X and GV-SP passenger oxygen system will be modified to provide operations into high LFE airports. The modification will prevent nuisance deployment of the passenger oxygen masks when operating into and out of airports up to 15,000 feet LFE. 14 CFR 25.1447(c)(1) states that oxygen dispensing units must be presented to the occupants before the cabin pressure exceeds 15,000 feet and that the crew must have a manual means of making the dispensing units available in the event of a failure of the automatic system. An exemption is requested to allow presentation of the oxygen masks to the occupants at cabin pressure altitudes above 15,000 feet for operations at $14{,}000 < LFE \leq 15{,}000$ feet.

Public Interest Statement

Gulfstream Aerospace Corporation's leadership position in the global business jet market is due to the efforts of its nearly eight thousand employees in the manufacturing plants, completion centers, and service centers across North America. The corporation utilizes numerous products, such as avionics and environmental control systems, from scores of suppliers located through out the United States. Gulfstream competes for new business all over the world. Although the current world economy has slowed in comparison to previous years, the corporate aircraft market is expected to grow. This exemption will directly impact the high-altitude utility of the GV-SP and GIV-X aircraft thereby having a direct effect GIV-X and GV-SP sales. The manufacture, completion, and support of Gulfstream aircraft would aid in the stabilization of the job market as well as the growth of the American economy, which is in the interest of the public.

Factors Supporting the Petition

The passenger oxygen control system currently has one pressure altitude setpoint of 14,750 feet ±250 feet to deploy the passenger oxygen masks before the cabin pressure altitude exceeds 15,000 feet. In the proposed design, a new electronic Passenger Oxygen Control Panel with a high altitude airfield switch is installed that has two positions:

- Normal operations (switch extended, unlit): automatic passenger oxygen mask activation at 14,750 ±250 feet.
- High altitude operations (switch depressed, lit, "HI ALT" legend): automatic passenger oxygen mask activation at 15,750 ±250 feet.

During descent to an airport landing field elevation above 14,000 feet, the high altitude switch must be selected in order to deactivate the normal setting of 14,750 feet. The switch remains in the "HI ALT" (depressed) position during ground operations. An indication light on the switch is illuminated when it is in the "HI ALT" (depressed) position so the crew is reminded to reset the switch after departure from high altitude airports, consistent with non-normal operations per airplane flight manual (AFM) procedures. The indication light turns off after the switch is reset. The manual mask deployment feature is available regardless of the switch position.

Gulfstream Aerospace Corporation proposed for this new design to add AFM procedures to supplement existing AFM procedures for operations up to 15,000 feet. These proposed procedures will instruct the crew to depress the "HI ALT" switch on the passenger oxygen control panel during descent and to reset the switch to the normal operation position after takeoff when the cabin altitude has decreased below 6,000 feet or the airplane altitude is above 34,000 feet in accordance with the current logic in the CPCS.

Federal Register publication

A summary of this petition was not published in the *Federal Register*. The FAA determined that this exemption does not set a precedent as it is effectively identical to previously granted exemptions to § 25.1447(c)(1).

The FAA's analysis

The FAA considers that granting this petition is in the public interest for the reasons stated by the petitioner, and because this exemption is effectively identical to previously granted exemptions.

The petitioner requests an exemption for the Gulfstream Model GIV-X and GV-SP series airplanes and seeks relief from the requirement of § 25.1447(c)(1), which states 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) when part 25 was codified. The

CAR requirement did not specify the maximum cabin pressure altitude allowed prior to presentation. The requirement that the oxygen equipment be automatically presented before the cabin pressure altitude exceeds 15,000 feet was added at Amendment 25-41, effective September 1, 1977.

For operation of the Gulfstream Model GIV-X and GV-SP series airplanes into and out of an airport with a landing field above 14,000 feet, the flight crew must select the "HI ALT" position on the airport-elevation selection switch. This results in automatic deployment of the passenger oxygen masks when the cabin pressure altitude is 15,750 ±250 feet. This feature is necessary to reduce the occurrence of inadvertent deployment of oxygen masks.

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 Gulfstream Aerospace Corporation is granted an exemption from the requirement of § 25.1447(c)(1) that the passenger oxygen equipment be automatically presented before the cabin pressure altitude exceeds 15,000 feet. For Gulfstream Model GIV-X and GV-SP series airplanes, this grant of exemption will permit passenger oxygen masks to be automatically presented at cabin pressure altitudes of 15,750 ±250 feet when operating into and out of airports with landing-field elevations between 14,000 and 15,000 feet.

This exemption will remain in effect unless superseded or rescinded.

Issued in Renton, Washington, on April 1, 2010.

/s/

Ali Bahrami
Manager, Transport Airplane Directorate
Aircraft Certification Service