

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 § 25.813(e) of
Title 14, Code of Federal Regulations

Regulatory Docket No. FAA-2013-0804

DENIAL OF EXEMPTION

By Gulfstream letter G-ODA-13-656, dated September 5, 2013, Mr. Mitchell Cannon, ODA Site Program Administrator, Gulfstream Aerospace Corporation (GAC), Hanger A/B, Level 2, 7440 Aviation Place, Dallas, TX, 75235, petitioned the Federal Aviation Administration (FAA) for an exemption from Title 14, Code of Federal Regulations (14 CFR) 25.813 (e). By e-mail dated September 20, 2013, Mr. Cannon submitted an additional compensating feature (listed as item “k” in the “Proposed Additional Compensating Features for Part 135 Operations” section of this document) to be included in the petition for exemption. This exemption is requested for Gulfstream Model G280 airplanes used for air transportation under 14 CFR parts 91 and 135. This exemption would allow the installation of an interior door between the passenger seating area and the forward left-hand entry door in G280 airplanes operating under parts 91 and 135.

The petitioner requests relief from the following regulation:

Section 25.813(e), Amendment 25-116 - No door may be installed in any partition between passenger compartments.

The petitioner supports their request with the following information:

This section quotes the relevant information from the petitioner’s request. Their 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-2013-0804.

Relief from Title 14 CFR Part 25.813(e) Amdt. 25- 116

Gulfstream Aerospace Corporation (GAC) and Gulfstream Aerospace LP (GALP) have developed and type certified a new derivative model Gulfstream G280 airplane. The model Gulfstream G280 is FAA approved under Type Certificate A61NM. This new

airplane model was certified to 14 CFR Part 25, Amendments 25-1 through 25-120, and 122 in its entirety, which includes certification to the requirements of §25.813(e) at Amendment 25-116. A partial grant of exemption was granted by the FAA (reference exemption No. 10274 identified on TCDS) which allows installation of doors between passenger seats and emergency exits. This exemption is limited for use on private, not-for-hire, not-for-common-carriage operations. The exemption requires a lock-out procedure (via maintenance action) if the aircraft is to be operated under 14 CFR Part 135 regulations. GAC is submitting a new petition for exemption under the G280 Cabin Multiple STC ST04266AT-D. Gulfstream ODA STC Amendment project number SA-02-2013-0051 has been assigned to this effort. This petition will present newly proposed cabin and door compensating features, which GAC believes will address FAA concerns regarding applicability of the original partial exemption to aircraft operated under 14 CFR part 135. GAC petitions the exemption be applicable to aircraft operated under 14 CFR part 135 and not be limited to private use operation.

Background

The model Gulfstream G280 airplane is equipped with multiple-passenger interior arrangements that include an interior door between passenger seats and emergency exits (see Figures 1 – 3 for floorplans and exit/egress arrangement). All cabin interior configurations are less than 26 feet in length and a width of approximately 7 feet. The G280 is most often used for executive air transportation under Parts 91 and 135 of the Federal Aviation Regulations. Due to the nature of the transportation involved many operators request the installation of privacy cabin doors when outfitting of the aircraft is accomplished.

Title 14 Code of Federal Regulations (14 CFR) section 25.813(e), at Amendment 25-116, states:

No door may be installed between any passenger seat that is occupiable for takeoff and landing and any passenger emergency exit, such that the door crosses any egress path (including aisles, cross aisles and passageways).

According to the FAA, section 25.813(e) exists to ensure that passengers do not become isolated in a passenger compartment during an emergency. The intended means of ensuring this is the prohibition against doors between passenger seats and emergency exits. However, an exemption to this rule has been granted by the FAA for the G280. The exemption was based on the fact that the G280 cabin interiors provide sufficient compensating features which ensured an acceptable level of safety as required by the rule. This exemption is limited to airplanes operated for private use not for hire not for common carriage, and requires that the door remains latched open during taxi, takeoff and landing. In addition, the door must be “frangible” in nature in order to allow for passenger egress during an emergency. The compensating features included in the G280 cabin interiors, which supported the original grant of exemption by the FAA, mainly are:

1. The door is of a sliding type and retracts laterally into a pocket compartment located aft of the Fwd RH galley assembly. The door does not divide the

passenger compartment and, the occupants will always have direct access to the RH Aft overwing emergency exit (Type III).

2. The door is frangible in both directions and has been tested to demonstrate a 5th percentile female can easily swing the door open in case of an emergency, and the resulting aperture is large enough to allow for a 95th percentile male to escape.
3. The door is placarded to be latched open during taxi, take-off, and landing.
4. The door design includes dual internal latching mechanisms, which is capable of withstanding the inertia loads specified in 14 CFR § 25.561.
5. The door features a “quarter turn” positive manual latch which virtually prevents the door from deploying into the aisle when the lock is engaged. This lock is in addition to the dual internal latch noted in Item 4 above, and can react static loads per 14 CFR § 25.561.
6. Bulkhead divider type emergency exit sign(s) are installed to ensure that the level of passenger guidance required to find an exit is provided.

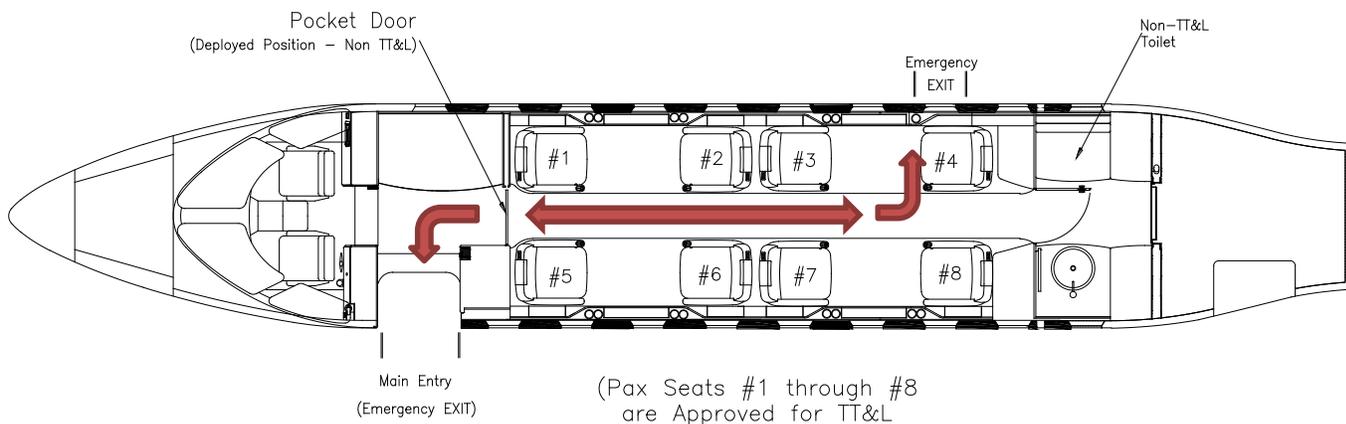


Figure 1 – Model G280 – 8 Passenger Cabin Interior Configuration

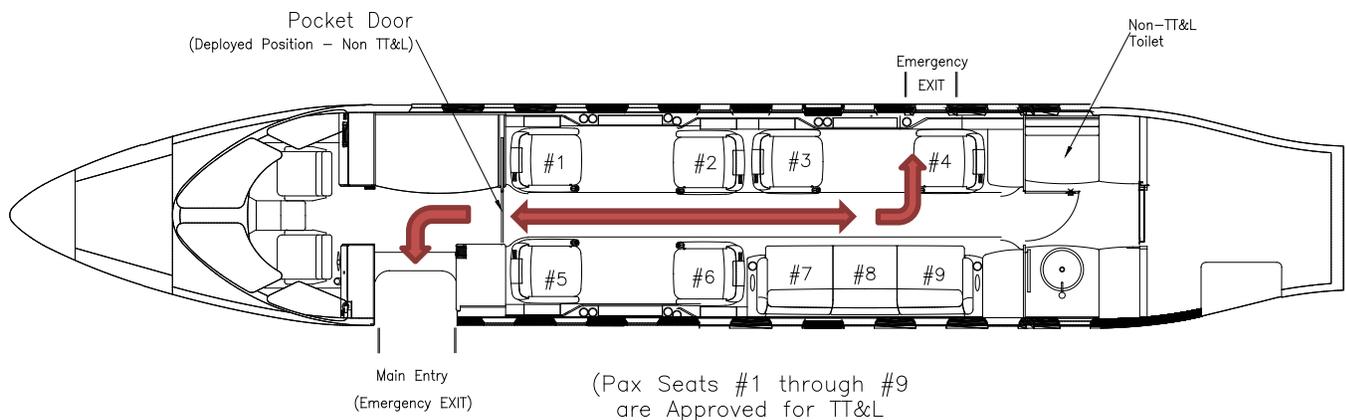


Figure 2 – Model G280 – 9 Passenger Cabin Interior Configuration

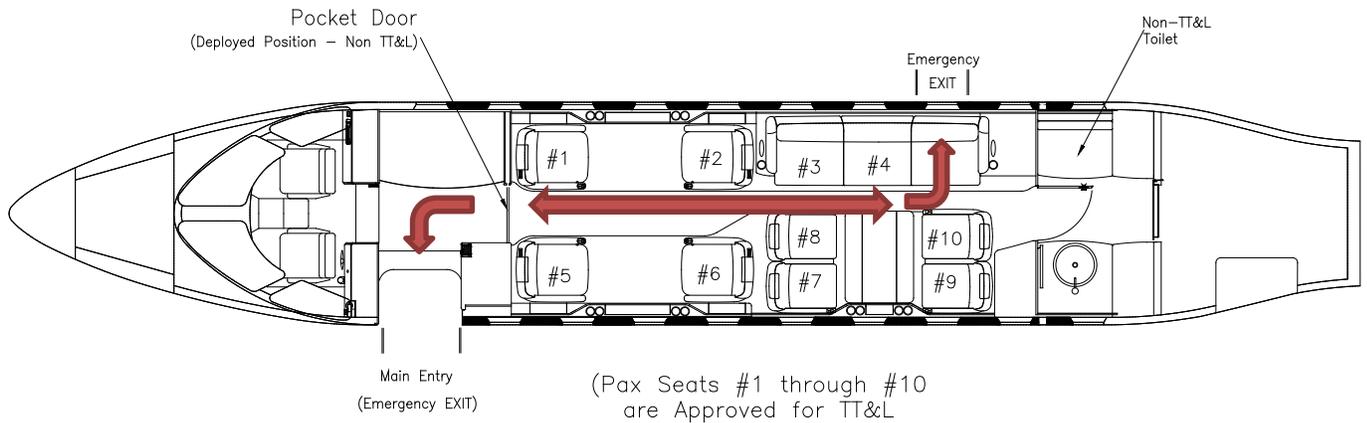


Figure 3 – Model G280 – 10 Passenger Cabin Interior Configuration

Proposed Additional Compensating Features for Part 135 Operations

FAA’s position regarding doors that cross an egress path has been that the operation of the aircraft be limited to private use not for hire not for common carriage. However, there is precedence that the FAA has found acceptable to install doors between TT&L approved passenger seats and emergency exits in aircraft operated under Part 135 regulations (reference FAA Exemption No. 10188). Therefore, GAC is requesting a new exemption for the Model Gulfstream G280 pocket door installation, which would allow the use of the pocket door under 14 CFR Part 135 regulations. GAC is of the opinion that in addition to the door design features listed above, other provisions can be made to the pocket door and cabin interior to address FAA’s concerns regarding applicability of the exemption to aircraft operated under Part 135. The proposed additional provisions would be the basis for the new request and will include the following:

- a. The pocket door will be fitted with an electric actuator which automatically stows and locks the door in the TT&L position. In addition, there will be a switch in the cockpit which will allow the crew to retract the pocket door to the TT&L at their discretion
- b. The pocket door will always automatically stow and lock in the TT&L position any time the landing gear is deployed or the flaps are not fully retracted. The door will always remain open until the landing gear and flaps are both fully retracted. The pocket door deployment mechanism and actuator will be highly reliable and GAC will substantiate that the probability of failure to egress through the MED, including the probability of failure on the pocket door, will be less than 10⁻⁵ per flight hours. This hazard criticality is based on 14CFR Part 25.783(b)(2).
- c. The electric actuator will normally be operated via power from the main cabin electric bus, and will use battery power as back-up during a main cabin power loss
- d. The door will be designed so that for any failure of the deploying mechanism, the door will default to the stowed/locked position.

- e. Manual operation will be the primary means by which the door is open and stowed in the TTL position. The automatic opening feature will ensure clear egress path in the event that manual stowing of the door has not occurred.
- f. A warning light/chime in the cockpit will alert the crew if the pocket door is not in the properly stowed position for TT&L.
- g. GAC would propose developing a step-by-step procedure to educate passengers on the pocket door emergency operation in the improbable event where the door has deployed during an emergency landing. Passenger instruction on the pocket door emergency operation will be achieved by requesting the crew (via the Aircraft Flight Manual Supplement, AFMS) to perform a pre-flight de-briefing regarding the Model G280 pocket door emergency procedures. These procedures would be coordinated and approved by the FAA.
- h. Close proximity of the G280 pocket door installation to the cockpit area easily allows the crew to visually verify position of the pocket door prior to taxiing, take-off and landing (reference Figure 4).
- i. The Model G280 cabin interior STC ST04266AT-D is certified to a maximum passenger occupancy of 10, which is very small as compared to most transport airplanes operated under Part 135 rules. As a result passenger awareness of both exits and the ability to quickly egress is greatly enhanced as compared to larger Part 135 aircraft.
- j. Passengers are inherently aware of the main entry door/exit location relative to the cabin area because they entered the aircraft via the main entry door/exit.
- k. Revise the AFMS Limitations section to add:
"For 14 CFR Part 135 Operations (or registered country equivalent operations) where the forward pocket door has not been deactivated by maintenance action: The addition of a third crew member or flight attendant with specific training on the operation of the pocket door is required. A demonstration, by simulation or direct action, of the frangibility aspects of the forward pocket door, and the quarter turn latching mechanism prior to flight is required. A statement that the door must be latched opened must be provided to the passengers prior to taxi/takeoff and prior to approach for landing."

The existing "part 135" limitations statement will be revised to allow for the use of the maintenance action lock out procedure or the use of a flight attendant/third crew member.

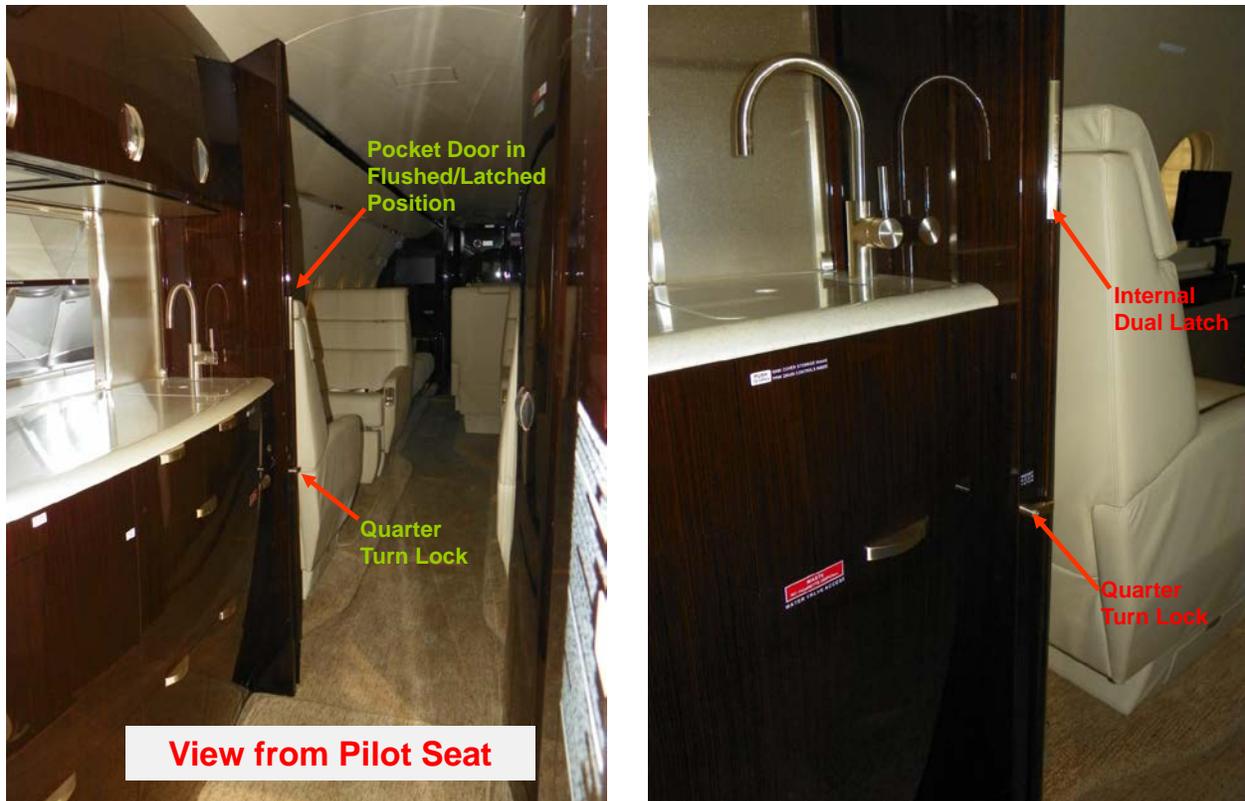


Figure 4 – Pocket Door Latched/Stowed Condition

Effect of the Exemption on Safety

Acceptance of the proposed Gulfstream G280 design will ensure that a level of safety consistent with the intent of the regulation has been provided. The design and reliability of the proposed interior door and door mechanisms will ensure the same level of safety for cabin egress as is required for any emergency exit and will provide a clear egress path. Generally, passengers of chartered executive jet are likely to be more familiar with the exits, exit/egress operations and exit locations compared to passengers of larger scheduled aircraft. Additionally, the RH overwing Type III emergency exit opening is larger than required by the regulations. The emergency exit opening is 21.2 inches wide, 38.75 inches high with 4 inch corner radii; providing an exit opening area of 807.7 square inches. For the 10 passenger configuration, the emergency exit opening area is over 19% larger than the Type III exit size requirement per 14 CFR § 25.807(a)(3). For the more common 8 and 9 passenger configurations, the exit opening area is 74% larger than the Type IV exit opening size per 14 CFR § 25.807(a)(4). The emergency exit opening is taller, wider and is substantially larger than the requirements. The 8 and 9 passenger configurations are selected at a much higher rate than the 10 passenger configuration. And, if selected, the 10 passenger configuration is not likely to be filled with passengers for long durations. As the subject Cabin Interior STC (ST04266AT-D) has a maximum passenger configuration of 10 passengers, the 10 passenger configuration is at the very bottom of the scale for Type III exit door requirements as defined by 14 CFR § 25.807(g), which is 10 to 19 passenger seats, providing margin as compared to the potentially higher passenger seat counts. This, combined with other characteristics of the

G280 completed interior configurations, such as lower passenger seat counts (8, 9 and 10 passenger configurations), close proximity of passenger seat position to the emergency exit, no center row seating configurations, and the overwing emergency exit opening size (Type III) will provide a level of safety equal to or exceeding that currently prescribed under 14 CFR part 25.

Although the current operational requirements under Parts 91 and 135 for this type of aircraft have not been amended to correspond to the Part 25 restriction, Gulfstream acknowledges that the Part 25 change is an important enhancement to the level of safety offered by newly manufactured aircraft. The design criteria proposed by Gulfstream for the G280 raises the current level of safety to that envisioned by Amendment 25-116 to part 25.

Issue of Public Interest:

Collectively, GAC and GALP designs, develops, manufactures, markets and services the world's most technologically advanced business jet aircraft to an international market. Gulfstream's leadership position in the global business jet market is due to the efforts of its nearly ten thousand employees in the manufacturing plants, completion centers, and service centers across North America and worldwide. GAC installs the executive interiors for the Model G280 airplanes that are operated worldwide. The owners of business jet aircraft very often prefer a configuration that includes compartment doors, which reduce cabin ambient noise and provide for privacy or a comfortable rest area when needed. The ability to provide additional acoustic barrier from external noise for the flight deck and cabin are being requested by prospective aircraft operators who compare the G280 with products of European manufacturer and other foreign aircraft completion centers. The inability to provide such features will ultimately cause a reduction in perspective sales. The 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.

The importance of business aviation to the well-being of the United States economy cannot be overstated. Business aviation enables a company to maximize its two most important assets, time, and people. A business aircraft reduces not only flight time but total business travel time, allowing a higher degree of productivity through greater point-to-point service and the ability to better utilize the existing national airport network, in essence bringing the business closer to its intended customer. The office-like environment that exists on board the business aircraft allows the travel time of busy executives to be a more productive time.

Although the current world economy has slowed in comparison to previous years, the corporate aircraft market has shown some positive growth and is expected to continue to grow. Therefore, the demand for these corporate aircraft and the benefits they present to business makes it essential that the petitioner be granted the regulatory relief requested. Failure to achieve this goal will result in a significant loss of income, both in domestic and foreign trade for the United States, the petitioner, and the intended business operators

of these aircraft. The stabilizing effect that manufacture and support of corporate aircraft has on the job market is significant and definitely in the public interest.

Since customers desire to have these interior doors, they may opt for aircraft designed to an earlier certification basis, in lieu of the model Gulfstream G280 airplane. This will restrict advancements in safety introduced by Gulfstream with the G280, not only in the areas of cabin safety, but throughout the airplane. This is counterproductive to both Gulfstream and the FAA's goal of continuous improvement in overall aircraft safety. The advancement of aircraft safety is in the interest of the public.

Waiver of Notice and Public Procedure

Gulfstream respectfully requests that action on this petition should not be delayed by publication of a summary of our petition and associated comment period. We believe that the nature of this exemption does not set a precedent. The relief requested herein is effectively identical to exemptions previously granted on the Gulfstream model GVI, and delay of granting this exemption will unnecessarily delay final certification of the Amendment on the model Gulfstream G280 Cabin Interior STC.

Operations Outside of the United States:

The European Aviation Safety Administration (EASA) Certification Specification (CS) 25.813 is not currently harmonized with § 25.813 and does not restrict these types of door installations.

Regardless of EASA requirements, in accordance with 14 CFR § 11.81(h), GAC petitions consideration be given to extending this exemption for operation outside of the United States. GAC/GALP aircraft are routinely registered and operated outside of the United States and projections are the same for the model Gulfstream G280 airplane. Granting this extension of privileges will allow for operations based within foreign countries, including European Union member countries, having bilateral agreements with the United States accepting FAA 14 CFR Part 25 as equivalent to their airworthiness standards for transport category aircraft. GAC believes that limiting this exemption to use within the U.S. would put unfair restrictions on the marketability of the model Gulfstream G280 airplane.

Conclusion:

GAC believes the additional pocket door features, cabin/fuselage features and the aforementioned arguments support extending a new 14 CFR § 25.813(e) pocket door exemption to G280 aircraft for operations under Part 91 or Part 135. GAC further believes that the proposed exemption is in the public interest, and provides a level of occupant safety consistent with the current Federal Aviation Regulations.

***Federal Register* publication**

The FAA did not submit the petition for exemption for publication in the *Federal Register*, for public comment, because the request is similar in most material respects to previous petitions for which the FAA received no comments, and for which exemption was denied.

The FAA's analysis

The petitioner contends that the Gulfstream Model G280 airplane will most often be used for executive air transportation under 14 CFR parts 91 and 135. The term “executive air transportation” has no regulatory basis. However, the FAA understands that the airplane might be operated under parts 91 or 135.

With regard to operation under part 91, we consider the petitioner's proposal to be in the public interest for the reasons stated previously by the petitioner. However considering GALP previously applied for, and was granted, a partial exemption (exemption no. 10274) from § 25.813(e) for the Model G280 airplane, the FAA sees no reason to issue another exemption that is identical to the previously issued partial grant of exemption. That partial grant of exemption is limited to “private, not for hire, not for common carriage” operations.

With regard to operation under Part 135, the petitioner states,

The Model G280 cabin interior STC ST04266AT-D is certified to a maximum passenger occupancy of 10, which is very small as compared to most transport airplanes operated under Part 135 rules.

Additionally, the RH overwing Type III emergency exit opening is larger than required by the regulations. The emergency exit opening is 21.2 inches wide, 38.75 inches high with 4 inch corner radii; providing an exit opening area of 807.7 square inches. For the 10 passenger configuration, the emergency exit opening area is over 19% larger than the Type III exit size requirement per 14 CFR § 25.807(a)(3). For the more common 8 and 9 passenger configurations, the exit opening area is 74% larger than the Type IV exit opening size per 14 CFR § 25.807(a)(4). The emergency exit opening is taller, wider and is substantially larger than the requirements. The 8 and 9 passenger configurations are selected at a much higher rate than the 10 passenger configuration. And, if selected, the 10 passenger configuration is not likely to be filled with passengers for long durations. As the subject Cabin Interior STC (ST04266AT-D) has a maximum passenger configuration of 10 passengers, the 10 passenger configuration is at the very bottom of the scale for Type III exit door requirements as defined by 14 CFR § 25.807(g), which is 10 to 19 passenger seats, providing margin as compared to the potentially higher passenger seat counts. This, combined with other characteristics of the G280 completed interior configurations, such as lower passenger seat counts (8, 9 and 10 passenger configurations), close proximity of passenger seat position to the emergency exit, no center row seating configurations, and the overwing emergency exit opening size (Type III) will provide a level of safety equal to or exceeding that currently prescribed under 14 CFR part 25.

Although the current operational requirements under Parts 91 and 135 for this type of aircraft have not been amended to correspond to the Part 25 restriction, Gulfstream acknowledges that the Part 25 change is an important enhancement to the level of safety offered by newly manufactured aircraft. The design criteria proposed by Gulfstream for the G280 raises the current level of safety to that envisioned by Amendment 25-116 to part 25.

The referenced STC may have a passenger seating capacity of 10 and configurations with 8 and 9 passengers, but the Type Certification Data Sheet (A61NM) has a maximum passenger seating capacity of 19. Section 25.807(g), (g)(1), and (g)(2) state,

(g) *Type and number required.* The maximum number of passenger seats permitted depends on the type and number of exits installed in each side of the fuselage. Except as further restricted in paragraphs (g)(1) through (g)(9) of this section, the maximum number of passenger seats permitted for each exit of a specific type installed in each side of the fuselage is as follows:

Exit Type	Max. Passenger Seats per Exit
Type A	110
Type B	75
Type C	55
Type I	45
Type II	40
Type III	35
Type IV	9

(1) For a passenger seating configuration of 1 to 9 seats, there must be at least one Type IV or larger overwing exit in each side of the fuselage or, if overwing exits are not provided, at least one exit in each side that meets the minimum dimensions of a Type III exit.

(g)(2) For a passenger seating configuration of more than 9 seats, each exit must be a Type III or larger exit.

As noted in this paragraph, the Model G280 airplane is required to have, at a minimum, a Type III exit installed in each side of the fuselage, regardless of the number of passenger seats installed via a particular STC. The requirements for numbers of doors do not change based on the number of passenger seats installed.

Furthermore, with limited exception, interior-door installations between both passenger seats occupiable during takeoff and landing, and passenger emergency exits, have not been eligible for exemption under part 135 operation. In the rare case where interior doors have been allowed, the petitioner provided sufficient compensating features to ensure airplane passengers had access to the minimum required exits without having to egress past the interior door. The petitioner proposes a variety of additional compensating features but does not achieve a comparable level

of safety. In all other cases, an explicit limitation has required that the airplanes are only to be operated in “private use,” that is, not for hire, not for common carriage.

The FAA’s decision

In consideration of the foregoing, I find that a grant of exemption is not in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator, I deny the petition of Gulfstream Aerospace Corporation for an exemption from § 25.813(e) to the extent necessary to allow installation of an interior door on Gulfstream Model G280 airplanes operating under part 135.

Issued in Renton, Washington, on January 10, 2014.

/s/ Jeffrey E. Duven

Jeffrey E. Duven
Manager, Transport Airplane Directorate
Aircraft Certification Service