

UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
KANSAS CITY, MISSOURI 64106

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In the matter of the petition of \*  
\*  
AERO TWIN, INC. \*  
\*  
for an exemption from § 23.3(a) \*  
and Part 135, Appendix A, \*  
of the Federal Aviation Regulations \*  
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Regulatory Docket No. 090CE

DENIAL OF PETITION FOR RECONSIDERATION

By letter dated May 7, 1991, Mr. Michael W. Lovett of Aero Twin, Inc. (Aero Twin), 2404 Merrill Field Drive, Anchorage, Alaska 99501, petitioned the Administrator, in accordance with § 11.55(a) of the Federal Aviation Regulations (FAR), for reconsideration of Denial of Exemption No. 5299 from § 23.3(a) and Part 135, Appendix A, of the FAR to permit the modification of the single-engine Cessna Model 208B from a nine passenger to a thirteen passenger airplane by the use of Cessna Modification kit No. CS8-014.

The Petitioner requests relief from the following regulations:

Section 23.3(a) of the FAR, which provides, in pertinent part, that the normal category is limited to airplanes that have a seating configuration, excluding pilot seats, of nine or less and a maximum certificated weight of 12,500 pounds or less. Part 135, Appendix A, which provides, in pertinent part, the one engine inoperative requirements for Air Taxi and Commercial Operators operating an airplane with 10 or more passenger seats.

The Petitioner supports its request with the following information:

Aero Twin states that its petition for reconsideration is based upon the existence of additional information that was not presented in the original petition. This information includes data, technical evidence, and additional arguments that the petitioner believes are both logical and qualitative and that support the assertions made in the original petition. Aero Twin asserts that this additional information was not included in the original petition because it did not understand the level of substantiation required by the FAR. Aero Twin adds that it is not an Air Taxi Operator, but is an aircraft maintenance and modification facility (FAA Repair Station No. FE4R177M). Aero Twin further states its intention to make the exemption available to all operators of the Cessna Model 208B.

Regarding the issue of the public interest and safety, Aero Twin restates the following assertions and adds further comments.

1. Assertion: Increased passenger capacity decreases the number of flights required to service a given number of passengers.

Comment: This assertion is self evident.

2. Assertion: Increased passenger capacity decreases air traffic controller workload.

Comment: Given that increased passenger capacity decreases the number of flights required to service a given number of passengers, and assuming that air traffic controller workload is directly proportional to the number of flights worked, it follows that increased passenger capacity will decrease air traffic controller workload for a given number of passengers.

3. Assertion: Increased passenger capacity decreases the quantity of fuel used per passenger.

Comment: The percent of increase in takeoff weight will be less than the percent increase in number of passengers when additional passengers are loaded. The fuel used to fly a given route is roughly proportional to takeoff weight. It follows that the percentage increase in fuel used will be less than the percentage increase in number of passengers carried, which means less fuel is burned per passenger as more passengers are carried.

4. Assertion: Increased passenger capacity permits the airplane to be operated at a lower cost per passenger.

Comment: Given that fuel used per passenger decreases as a result of increased passenger capacity, and assuming that many other operating costs (pilot's wages, maintenance, etc.) remain fixed, it follows that increased passenger capacity results in lower operating costs per passenger.

5. Assertion: Increased passenger capacity would result in lower fares.

Comment: In consideration of the competitive nature of the air taxi industry, it is reasonable to assume that a decrease in operating costs per passenger would be reflected in lower fares.

6. Assertion: Increased passenger capacity would help to conserve the environment.

Comment: Assuming that the amount of harmful emissions generated by a given airplane are directly proportional to the amount of fuel burned, this assertion follows from the argument regarding the amount of fuel burned per passenger.

Aero Twin provides the following additional arguments.

The original petition, as submitted, supported the assertion that safety would be unaffected by stressing the fact that the airplane would be virtually unchanged. The net effect of carrying four additional passengers would be that four additional passengers would be subject to the same levels of risk that are acceptable to the FAA when nine passengers are on board. This argument addresses the question of how many passengers are permitted to be exposed to the risk of flight in a normal category, single-engine airplane.

The modification of the Cessna 208B would include a restriction on flight into instrument meteorological conditions (IMC). This restriction was included specifically to provide a margin of safety over and above the requirements of Parts 23 and 135 and greatly reduce the risk of a serious accident occurring as a result of an engine failure.

The accident record of small multiengine airplanes that experience engine failure in flight shows that having a second engine on board does not guarantee continued safe flight and landing. National Transportation Safety Board (NTSB) report (NTSB-AAS-79-2) has shown that statistics favor the survivability of an engine failure crash in a single-engine airplane.

The Pratt and Whitney PT6 series engines are among the most reliable powerplants on record. The PT6A-114A is one of the recent additions to this series. Although statistical data have not been provided to support or quantify this statement, the fact that the modern PT6 is more reliable than its older, lower-powered reciprocating counterparts is beyond dispute. The Cessna 208B is a new airplane that typically does not have the problems associated with the existing aging airplane fleet, including both single-engine and twin-engine airplanes.

The denial of petition for Exemption No. 5299 cited the higher levels of safety required by Part 23 for airplanes certificated to carry more than nine passengers. It is assumed that this refers to Special Federal Aviation Regulations (SFAR) 23 because § 23.561 does not impose higher standards of safety on commuter category airplanes. Regarding doors and exits specifically, the Cessna 208B meets the requirements of Part 23, SFAR 23.32, except for paragraph (e), which addresses exit markings. This requirement could be met as an added condition of exemption.

The FAR are structured such that there exists a stepwise increase in the permitted number of passengers corresponding to increased standards of certification. Yet the specific regulations from which exemption is being sought in this petition fail to differentiate between the new 675 hp Cessna 208B and the old 300 hp reciprocating Cessna 207. A large margin of safety does exist, and this margin is greatly increased by a restriction on flight into IMC.

Aero Twin summarizes its statements, comments, and arguments by stating that carrying four additional passengers does not compromise the existing level of safety and that the restriction on flight into IMC greatly enhances the existing level of safety. Furthermore, the existing level of safety met by the Cessna 208B is significantly higher than the minimum required by Part 23 for certification in the normal category.

On July 29, 1991, Aero Twin requested to amend its Petition for Reconsideration by including the proposed condition that the subject airplane, when equipped with 3 additional passenger seats and operated under Part 135, will have a second-in-command on board; therefore, maximum passenger occupancy would be 12. This condition would bring the proposed operation into compliance with § 135.99(b) and provide a greater margin of safety. In addition to this, on September 23, 1991, Aero Twin submitted a copy of Cessna's 14-place seating supplement to the Cessna 208B pilot operating handbook, to be placed into the file containing the petition for reconsideration.

The FAA's analysis/summary is as follows:

Section 11.55 of the FAR states that a petition for reconsideration must be based on one or more of the following factors: (1) a finding of material fact that is erroneous; (2) a necessary legal conclusion that is without governing precedent or is a departure from or contrary to law, FAA rules, or precedent; or (3) an additional fact relevant to the decision that was not presented in the initial petition for exemption and the reason for the failure to include that fact in the original petition.

Aero Twin has based this petition for reconsideration on additional information that it did not include originally because it did not understand the level of substantiation required to support the petition. The FAA has re-analyzed Aero Twin's original petition and the additional information presented in its petition for reconsideration. In addition, the FAA has reviewed an amendment to the petition for reconsideration made by the petitioner by letter dated July 29, 1991, and additional information provided by the petitioner on September 23, 1991.

Although additional information has been submitted with this petition for reconsideration, Aero Twin has not established how it would provide a level of safety equivalent to that provided by the

applicable regulations from which the exemption is sought. Further, Aero Twin has failed to offer any reason why it is unique from the general class of similarly situated operators who are subject to the same regulations.

For many years, the FAA has required the increased level of safety that is associated with two pilots and two or more engines for commercial flights in airplanes capable of carrying more than nine passengers. This rule existed before the Cessna 208B was type certificated. The Federal Aviation Act of 1958, as amended, charges the FAA with the duty of promoting safety of flight of civil aircraft and empowers the FAA to prescribe minimum standards in the interest of safety. In prescribing these standards, the FAA must make classifications in order to maintain an appropriate level of safety for operations with varying levels of complexity and varying degrees of risk to the public. The nine-passenger limit was established by the FAA for normal category airplanes. This limit was the result of a considered decision to provide a higher level of safety for airplanes carrying more than nine people in air taxi or commercial service.

Aero Twin states that by restricting flight into IMC a greater margin of safety will be achieved. The FAA disagrees. Whether the Cessna 208B is flying under IFR or VFR, continued safe flight after the loss of an engine is not possible. Since continued safe flight after loss of an engine is possible for the larger multiengine airplanes that meet the one engine inoperative requirement of Part 135, Appendix A, Aero Twin has not shown that its proposed action would provide a level of safety equal to that provided by the rule from which it seeks exemption.

Aero Twin raises the argument that NTSB report NTSB-AAS-79-2 favors the survivability of an engine-failure crash in a single-engine rather than a multiengine airplane; therefore, having a second engine on board does not guarantee continued safe flight and landing. These statements are independent of one another and do not support a conclusion that single-engine airplanes are safer than multiengine airplanes. Survivability following a crash is a function of many variables, some of which are structural crashworthiness, pilot skill, impact speed, weather, terrain, occupant seat restraint systems, surface conditions at impact site, etc. To deduce that having a second engine on board decreases the chance of survival on a commuter category airplane after an engine failure is incorrect. As stated in the previous denial of exemption, the commuter category airplane performance requirements were developed, in part, to provide continued airworthiness ability after the failure of an engine.

Aero Twin argues that the Pratt and Whitney PT6 series engines are among the most reliable powerplants on record, and that they have a much greater reliability than reciprocating engines; therefore, the single-engine turbopropeller powered Cessna 208B should be allowed to carry more than nine passengers. The FAA does not question the

reliability of the PT6 series engines. A question similar to this regarding the reliability of single-engine turbopropeller airplanes was presented to the FAA prior to the adoption of Amendment 23-34, which adopted the commuter category airplane regulations into Part 23. In the event of an in-flight engine failure, a single-engine airplane does not provide the level of safety expected from a commuter category airplane, which must have the capability for continued safe flight and landing after probable failures, including the failure of an engine.

Aero Twin assumes that the FAA was referring to SFAR 23 in the denial of Exemption No. 5299 when it cited the higher levels of safety required of Part 23, airplanes certificated to carry more than nine passengers. In support of its assumption, Aero Twin states that § 23.561 does not impose higher standards of safety on commuter category airplanes. While this latter statement is true, Aero Twin's assumption is incorrect. Amendment 23-34, which added the commuter category to Part 23 adopted over 50 different regulations, all of which were and are unique for that category of airplane. These regulations were established to provide a higher level of safety for the larger (maximum of 19 passenger seats) commuter category airplanes than was previously required for the smaller Part 23 airplanes used in air transportation.

Aero Twin adds that the Cessna 208B meets the door and exit requirements of SFAR 23.32, except for those set forth in paragraph (e), which addresses exit markings. Aero Twin further states that exit markings could be added as a condition of exemption if required. SFAR 23, however, does not apply to Aero Twin's situation. SFAR 23 was originally developed to certificate normal category, multiengine reciprocating and turbopropeller-powered airplanes that could carry more than 10 occupants and that were intended for use in operations under Part 135. Furthermore, under the additional airworthiness requirements of § 135.169(b)(3), type certification under SFAR 23 is not available to airplanes type certificated after July 19, 1970.

Aero Twin next argues that the specific regulations from which it seeks exemption fail to differentiate between the new 675 hp Cessna 208B and the old 300 hp reciprocating Cessna 207. The FAA agrees that a margin of safety exists between the Cessna 207 and the Cessna 208B. This difference is due in part to the respective dates on which they applied for type certification. In this case, 22 amendments were added to Part 23 during the 14 years that elapsed between the two different certification dates.

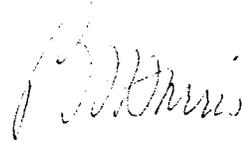
Aero Twin had asserted in its July 29, 1991, amendment to its petition for reconsideration that a greater margin of safety would be provided by its newly-proposed condition to require a second-in-command on board the airplane whenever it is equipped with three additional passenger seats and operated under Part 135, in compliance with § 135.99(b). This statement is partially true in that a greater margin of safety would be achieved than would otherwise be achieved

by a single-pilot Cessna 208B certificated in the normal category. However, the provisions of this regulation must currently be met by all air taxi and commercial operators with respect to any of their aircraft that has a passenger seating configuration, excluding any pilot seat, of ten seats or more.

In addition, while Part 135, Appendix A. does not set forth additional airworthiness requirements applicable to ten or more-passenger airplanes, its provisions are applicable only to Part 135 operators, and no exemption from these standards could be granted to a non-operator, such as Aero Twin.

In consideration of the foregoing, and based on the findings in the denial of the petition in Exemption No. 5299 and analysis of the material submitted with the petition for reconsideration, I find that a grant of the petition for exemption would not provide an equivalent level of safety to that provided by the applicable Federal Aviation Regulations and would not be in the public interest. Therefore, pursuant to the authority contained in Sections 313(a) and 601(c) of the Federal Aviation Act of 1958, as amended, the petition for reconsideration and the petition for exemption from § 23.3(a) and the one-engine inoperative requirements of Part 135, Appendix A, of the Federal Aviation Regulations are hereby denied.

Issued in Washington, on      MAY    8 1992



Barry Lambert Harris  
Acting Administrator