



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject: **ACTION:** Equivalent Level of Safety, SIAI Marchetti S211A, 14 CFR Part 23, § 23.841, paragraphs (a), (b)(5), and (b)(6); Pressurized Cabins; Finding No. ACE-95-7

Date:

APR 06 1995

From: Manager, Standards Office, ACE-110

Reply to
Attn. of:

To: Manager, Small Airplane Directorate, ACE-100

This memo documents concurrence with an equivalent level of safety to the requirements of 14 CFR Part 23, § 23.841, paragraphs (a), (b)(5), and (b)(6).

BACKGROUND:

The SIAI Marchetti Model S211A is a two-place (tandem), all metal, mid-wing cantilevered, retractable gear, pressurized, single turbofan engine airplane with a maximum weight of 6,394 pounds intended for specialized military (public aircraft) operations as a Part 23 airplane in the Acrobatic Category. SIAI Marchetti, with the S211A, is competing for the Joint Primary Aircraft Training System (JPATS) contract. The S211A is equipped with Martin Baker MK-10 ejection seats.

APPLICABLE REGULATIONS:

Section 23.841, paragraphs (a), (b)(5), and (b)(6), contains requirements for cabin pressurization, including indication and warning requirements. The aircraft approved operating envelope will exceed 31,000 feet and the allowed maximum cabin pressure of 15,000 feet cannot be maintained in the event of any probable failure in the pressurization system, or during normal operations above 31,000 feet.

DISCUSSION:

The S211A pressurization system does not provide the necessary pressurization capability to comply with the Part 23 requirements. The aircraft approved operating envelope exceeds 31,000 feet and the allowed maximum cabin pressure of 15,000 feet cannot be maintained in the event of any probable failure in the pressurization system, or during normal operations above 31,000 feet. The normally required crew warnings for exceeding a safe pressure differential and a cabin altitude of 10,000 feet

would, therefore, provide nuisance warnings within the approved operating envelope. The S211A type design has a cabin pressure altitude warning system set for 25,000 feet pressure altitude that is realistic for this type of aircraft.

Furthermore, the cabin instruments, normally required by § 23.841(b)(5) (indicating cabin pressure altitude, pressure differential, and pressure change rate) are not considered appropriate or critical for the intended specialized military training mission where the crew will utilize continuous oxygen (helmet and mask) and have limited capability to control the pressurization schedule.

The FAA agrees that the installed design features offer compensating factors that will maintain the level of safety intended by the regulations.

FAA's Position

The FAA has determined that an Equivalent Level of Safety is approved in lieu of compliance with the requirements of § 23.841, paragraphs (a), (b)(5), and (b)(6). The Airplane Flight Manual (AFM) and Maintenance Manual must provide adequate procedures for the oxygen system to enable safe operation of the airplane with various oxygen conditions, and to allow for proper maintenance and servicing in a civil environment.

CONCURRED BY:

Original Signed By
Michael K. Dahl

APR 06 1995

Manager, Standards Office, ACE-110

Date

Original Signed By
Dwight A. Young

APR 06 1995

Manager, Small Airplane Directorate
Aircraft Certification Service, ACE-100

Date