

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

In the matter of the petition of

INTERMAP TECHNOLOGIES, INC.

for an exemption from §§ 25.173(c) and
25.175(c) of Title 14, Code of Federal
Regulations

Regulatory Docket No. FAA-2007-28894

GRANT OF EXEMPTION

By letter dated July 9, 2007, Mr. Jerry Love, High Altitude Aircraft Solutions, 18401 East Highway 24, Suite 118, Woodland Park, Colorado 80863, petitioned the Federal Aviation Administration (FAA) on behalf of Intermap Technologies for an exemption from §§ 25.173(c) and 25.175(c) of Title 14, Code of Federal Regulations (14 CFR), to allow an average stick force gradient of less than one pound in six knots in the approach configuration with the landing gear retracted for Learjet Model 36 airplanes with a radar radome installed. The proposed exemption, if granted, would allow an FAA supplemental type certificate (STC) to be issued for the installation of a radar radome on Learjet Model 36 airplanes.

The petitioner requests relief from the following regulations:

Section 25.173(c), Static longitudinal stability, prescribes that, under the conditions specified in § 25.175, the average gradient of the stable slope of the stick force versus speed curve may not be less than 1 pound for each 6 knots difference from the trim speed. A pull force is required below the trim speed, and a push force is required above the trim speed.

Section 25.175(c) requires the static longitudinal stability to be shown in the approach configuration with the airplane trimmed for level flight at $1.3 V_{SR1}$ and the landing gear retracted. This demonstration is to be performed at the maximum landing weight at speeds between V_{SW} (stall warning speed) and $1.7 V_{SR1}$.

The petitioner supports its request with the following information:

Intermap Technologies, Inc., applied for an FAA STC for the installation of a radar radome on Learjet Model 36 airplanes. The radar radome will house unique equipment used to obtain topographical data, resulting in a “special mission” airplane configuration. There will be a limited number of these airplanes to support topographical mapping, and these airplanes will be operated by flightcrews trained for the mission specific requirements to support the topographical data gathering. As special mission airplanes, they will not be used in a traditional “common carriage” role of carrying passengers or cargo for compensation or hire. The airplanes will be used domestically (in the U.S.) and internationally in support of contracts held by Intermap Technologies.

The airplane with the Intermap radome does not meet the requirements of § 25.173(c) (force gradient) for the approach flight regime of § 25.175(c) with the landing gear retracted. The airplane exhibits positive static stability with satisfactory return to trim characteristics, but fails to meet the column force gradient only for speeds below the initial trim speed (near the stall warning speed).

The airplane is compliant with the column force gradient requirement in the approach flight regime with the landing gear extended. As part of the Airplane Flight Manual (AFM) Supplement for the Intermap radome, a procedural change will be introduced to provide a specific sequence for the extension of flaps and landing gear during the approach phase of flight to provide the static longitudinal stability intended by §§ 25.173(c) and 25.175(c).

The petitioner’s public interest statement:

The use of aircraft by Intermap Technologies equipped with the radar radome STC will be in U.S. national security interests, with operations required both domestically and internationally.

The flight operations will be that of a “special mission” aircraft; therefore, the general public will not be adversely affected as the STC will not further a traditional “common carriage” role or be used by the general public. The STC will only be for a limited number of aircraft, and operated by a select, specifically trained flightcrew.

The current AFM approach regime configuration provides satisfactory static longitudinal stability. Testing indicates that approach configuration with a specific procedure for obtaining the configuration, to be specified as part of the STC Flight Manual Supplement.

Public comment

A summary of the petition was published in the Federal Register on September 21, 2007 (72 FR 54094). No comments were received.

The FAA's analysis is as follows:

Flight tests to show compliance with §§ 25.173(c) for the conditions of 25.175(c) indicates that the average gradient of the stable slope of the stick force versus speed curve is slightly less than 1 pound for each 6 knots of speed for speeds below the trim speed in the approach configuration with the landing gear retracted.

The FAA finds that although a plot of stick force versus speed curve shows that the airplane is non-compliant with §§ 25.173(c) for the conditions of 25.175(c), the impact is minimal and not readily discernable to the pilot. Combined with the procedural mitigations proposed by the petitioner, safety will not be adversely affected by granting this petition, and granting this petition is in the public interest.

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, Intermap Technologies, Inc. is granted an exemption from 14 CFR 25.173(c) for the conditions of § 25.175(c) for the installation of a radar radome on Learjet 36 airplanes to support topographical mapping, subject to the conditions and limitations listed below.

Conditions and Limitations

1. The airplanes will not be used to carry passengers or cargo for compensation or hire.
2. The Airplane Flight Manual must contain a procedure that provides a specific sequence for the extension of flaps and landing gear during the approach phase of flight to provide the static longitudinal stability intended by §§ 25.173(c) and 25.175(c).

Issued in Renton, Washington, on November 23, 2007.

/s/

Ali Bahrami
Manager, Transport Airplane Directorate
Aircraft Certification Service