Federal Aviation Administration

Memorandum

Date: January 27, 2016

To: Manager, New York Aircraft Certification Office, ANE-170

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: Mike Muratore, ANE-173

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Checked Pitch Maneuver for 14 CFR 25.331(c)(2) amdt. 25-137 on Bombardier GX7000/8000 Series Aircraft, FAA Project # AT7180NY-T\ AT7285NY-T

ELOS Memo#: AT7180NY-T\ AT7285NY-T-GA-F-06

Regulatory Ref: § 25.331 (c)(2)

This memorandum informs the certificate management aircraft certification office of an evaluation made by the Transport Airplane Directorate (TAD) on the establishment of an equivalent level of safety (ELOS) finding for the Bombardier Inc. BD-700-2A12 and BD-700-2A13 Series Aircraft.

Background

Bombardier Aerospace (BA) proposed the use of certain pitch maneuver criteria that were developed by the Aviation Rulemaking Advisory Committee (ARAC) Loads and Dynamics Harmonization Working Group (LDHWG) for showing an equivalent level of safety to the pitch maneuver requirement 14 CFR 25.331(c)(2) at amendment 25-91.

The ARAC LDHWG, comprised of regulatory authorities and industry, proposed revisions to the pitch maneuver requirements of 14 CFR 25.331(c)(2). These recommendations have been incorporated by European Aviation Safety Agency (EASA) in Certification Specification (CS) 25, and were incorporated into 14 CFR part 25 at amendment 25-141 which harmonizes the FAA and EASA rules for section 25.331(c)(2). The certification basis of the Bombardier Inc. BD-700-2A12 and BD-700-2A13 Series Aircraft was established prior to the FAA's issuance of amendment 25-141. Therefore, this equivalent safety finding is necessary for § 25.331(c)(2) at amendment 25-91, the amendment level of this rule included in the certification basis of the Bombardier Inc. BD-700-2A12 and BD-700-2A13 Series Aircraft.

Applicable regulation(s)

§§ 25.331

Regulation(s) requiring an ELOS finding

§ 25.331(c)(2) at amendment 25-91

Description of compensating design features or alternative standards which allow the granting of the ELOS (including design changes, limitations or equipment need for equivalency)

The applicant will use EASA CS 25.331(c)(2) in lieu of 14 CFR 25.331(c)(2) at amendment 25-91.

Explanation of how design features or alternative standards provide an equivalent level of safety to the level of safety intended by the regulation

Section 25.331(c)(2) at amendment 25-91 specifies pitching accelerations without regard to the size, configuration or characteristics of the airplane. The ARAC proposed condition relates the frequency of the control motion to the frequency of the short-period rigid body mode of the airplane, thereby accounting for the characteristics of the particular airplane. The ARAC condition also provides adequate criteria to account for the characteristics of advanced electronic flight control systems in which the achievable maneuvering load factors are governed by control laws implemented in flight control computers.

FAA approval and documentation of the ELOS finding

The FAA has approved the aforementioned ELOS finding in project Issue Paper GA-F-06. This memorandum provides standardized documentation of the ELOS finding that is non-proprietary and can be made available to the public. The TAD has assigned a unique ELOS memorandum number (see front page) to facilitate archiving and retrieval of this ELOS. This ELOS memorandum number should be listed in the limitations and conditions section of the amended type certificate (TC). An example of an appropriate statement is provided below.

Equivalent Level of Safety Findings have been made for the following regulation(s):
§ 25.331 (c)(2), Symmetric and Maneuvering Conditions.

Original signed by Suzanne Masterson — *1/27/16*

Transport Airplane Directorate, Aircraft Certification Service — Date

ELOS Originated by New York ACO:	ACO Manager Gaetano Sciortino	Routing Symbol ANE-170