



Federal Aviation Administration

Memorandum

Date: May 19, 2015

To: Manager, New York ACO, ANE170

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: James Lee, ANE-173

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Flight
Critical Thrust Reverser on BD-700-2A12 and 2A13,
FAA Project *ATC7180NY-T*

ELOS Memo#: AT7180NY-T-GA-P-01

Regulatory Ref: §§ 21.21(b)(1), 25.933(a)(1), 25.1309(b)(1)

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 BD-700-2A12 and 2A13.

Background

Bombardier Aerospace (BA) is proposing an Equivalent Level of Safety Finding (ELOS) using the established rules of EASA Certification Specifications (CS) 25.933(a)(1), in lieu of applying the Title 14, Code of Federal Regulations (14 CFR) 25.933(a)(1) regulation.

CS 25.933(a)(1) allows certification of a Thrust Reverser (TR) system based on reliability methods.

CS 25.933(a)(1) and associated guidance material in acceptable means of compliance (AMC) 25.933(a)(1) were adopted in CS 25 at Amendment 1 (NPA13/2004) following the recommendations of the Powerplant Installation Harmonization Working Group (PPIHWG) convened by the Federal Aviation Administration (FAA) Aviation Rulemaking Advisory Committee (ARAC). 14 CFR Part 25 has not been harmonized with EASA CS 25 at this time.

Applicable regulation(s)

§§ 21.21(b)(1), 25.933(a)(1), 25.1309(b)(1)

Regulation(s) requiring an ELOS finding

§ 25.933(a)(1)

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

Bombardier accepts the use of requirement CS 25.933(a)(1) in lieu of 14 CFR 25.933(a)(1). Bombardier also accepts the guidance provided in CS 25 AMC 25.933(a)(1) as a suitable means to demonstrate compliance to the requirement. Relevant details on how Bombardier will demonstrate compliance will be recorded in the Powerplant Certification Plan (RAP-BA700-024).

Furthermore, the Thrust Reverser Design Compliance report (RAP-GE700-170) will describe the various features of the thrust reverser, which will show inadvertent deployment to be extremely improbable. The Thrust Reverser System Safety Analysis report (RBR-GE700-124) will show that the in-flight inadvertent deployment of the thrust reverser is extremely improbable and meets the reliability criteria per the AMC.

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

The compensating design features described above, and approach being taken by BA, meet the level of safety intended by the regulation.

FAA approval and documentation of the ELOS finding

The FAA has approved the aforementioned ELOS finding in project Issue Paper GA-P-01. 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 type certificate data sheet under the certification basis section (TC's & ATC's).

Equivalent Level of Safety Findings have been made for the following regulation(s):
§ 25.933(a)(1) Reversing Systems(documented in TAD ELOS Memo AT7180NY-T-GA-P-01)

Original signed by Victor Wicklund

5/19/15

Transport Airplane Directorate,
Aircraft Certification Service

Date

ELOS Originated by NYACO:	James Lee, 516 228-7368	ANE-173
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