



Federal Aviation Administration

Memorandum

Date: April 7, 2015

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

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: Stephen Kowalski, ANE-171

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for GA-A-04 on a Model BD-700-2A12 & BD-700-2A13 airplane, FAA Project # AT7180NY-T & AT7285NY-T

ELOS Memo #: AT7180NY-T-GA-A-04

Regulatory Ref: §§ 25.721, 25.963 and 25.994

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 Model BD-700-2A12 & BD-700-2A13 airplane.

Background

Section §25.721 requires that: A landing gear failure mode is not likely to cause the spillage of enough fuel from any part of the fuel system to constitute a fire hazard. Further, the design must be such that, under a controlled landing on a paved runway with one or more landing gear legs not extended, the airplane would not sustain a structural component failure that is likely to cause the spillage of enough fuel to constitute a fire hazard. Compliance would normally be shown by analysis or tests, or both.

Section §25.963(d) requires that: Fuel tanks within the fuselage contour must be able to resist rupture and to retain fuel, under the inertia forces prescribed for the emergency landing conditions in §25.561. In addition those tanks must be in a protected position so that exposure of the tanks to scraping action with the ground is unlikely.

Section §25.994 requires that: Fuel system components in an engine nacelle or in the fuselage must be protected from damage which could result in spillage of enough fuel to constitute a fire hazard as a result of a wheels up landing on a paved runway.

In lieu of these rules, the applicant is requesting to substitute EASA rules in CS 25 at amendment 3 per the following reasoning.

The Federal Aviation Authority 's (FAA) Aviation Rulemaking Advisory Committee (ARAC), comprised of regulatory authorities and industry representatives, had tasked the Loads and Dynamics Harmonization Working Group (LDHWG) to review the associated loads and dynamics regulations for transport category airplanes. The LDHWG recommended changes to 14 CFR Parts §25.721, §25.963(d) and the associated AC 25.963, as well as to §25.994. These recommendations are found in the ARAC LDHWG Task 15 report. The ARAC LDHWG recommendations material has not been codified in 14 CFR Part 25; however, it has been promulgated by EASA in CS 25 at Amendment 3. It is expected that final rulemaking by FAA will occur.

Applicable regulation(s)

§§ 25.721, 25.963 & 25.994

Regulation(s) requiring an ELOS finding

§§ 25.721, 25.963(d) & 25.994

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

The compensating factors that provide an equivalent level of safety for the regulations not complied with are as follows:

Bombardier Aerospace (BA) proposes the use of the European Aviation Safety Agency (EASA) Certification Specification (CS) 25.721 , 25.963(d), and 25.994 at Amendment 3, for showing compliance with the emergency landing conditions requirements of §§ 25.721, 25.963(d) and 25.994.

Explanation of how design features or alternative standards provide an ELOS to that intended by the regulation.

The ARAC proposal, now codified in CS-25, provides a more objective performance standard and a crash condition potentially more severe than that required by the current regulations.

FAA approval and documentation of the ELOS finding

The FAA has approved the aforementioned ELOS finding in project Issue Paper GA-A-04 titled Emergency Landing Conditions 14 CFR 25.963(d) and 25.994. 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 finding. This ELOS memorandum number should be listed in the type certificate data sheet under the Certification Basis section in accordance with the statement below:

Equivalent Level of Safety Findings have been made for the following regulation(s):

- § 25.721 Landing Gear
 - § 25.963(d) Fuel tanks: general
 - § 25.994 Fuel system components
- (documented in TAD ELOS Memorandum AT7180NY-T-GA-A-04)]

Original signed by Suzanne Masterson

4/7/2015

Transport Airplane Directorate,
Aircraft Certification Service

Date

ELOS Originated by ACO:	ACO Manager (or Project Engineer for ANM-116):	Routing Symbol:
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