



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

Transport Airplane Directorate
1601 Lind Ave, SW.
Renton, Washington 98057-3356

June 17, 2015

Exemption No. 10175A
Regulatory Docket No. FAA-2010-0287

Mr. John Kotnjek
Airworthiness Manager
Bombardier Commercial Aircraft
13100 Henri-Fabre Blvd.
Mirabel, Québec Canada J7N 3C6

Dear Mr. Kotnjek:

This letter is to inform you that we have denied your request for an extension to exemption no. 10175. It transmits our decision and explains its basis.

By letter no. AW-CRJ/12/746 dated November 19, 2012, and letter no. AW-CRJ/14/752 dated November 10, 2014, Mr. John Kotnjek, on behalf of Bombardier Inc., petitioned the Federal Aviation Administration (FAA) for an extension to time-limited exemption no. 10175, to December 17, 2015. That exemption, which expired December 17, 2012, allowed Bombardier Model CL-600-2E25 airplanes to receive FAA airworthiness certificates for a limited time, during which Bombardier was not required to show the airplanes to be in compliance with certain fuel-tank ignition-prevention standards of Title 14, Code of Federal Regulations (14 CFR) 25.981(a)(3), as discussed in FAA Policy Memorandum ANM-112-08-002. Exemption no. 10175 required Bombardier to complete the following activity by December 17, 2012:

1. Instead of compliance with the requirements of § 25.981(a)(3), Bombardier must show that the design includes at least two independent, effective, and reliable lightning protection features (or sets of features) such that fault tolerance to prevent lightning-related ignition sources is provided for each area of the structural design that they have shown and the FAA has determined to be impractical for full compliance.

- a. Bombardier must identify all features that meet this two-layer protection provision and all features that do not include two layers.
 - b. If there are features that do not meet this two-layer protection provision, Bombardier must petition to expand this exemption to include the non-fault-tolerant provision described in FAA Policy Memorandum ANM-112-08-002, "Policy on Issuance of Special Conditions and Exemptions Related to Lightning Protection of Fuel Tank Structure," dated May 26, 2009.
2. Bombardier must perform an analysis to show that the design, manufacturing processes, and airworthiness limitations section of the instructions for continued airworthiness include all practical measures to prevent, and detect and correct, failures of structural lightning protection features because of manufacturing variability, aging, wear, corrosion, and likely damage.

The Basis for Our Decision

Your petition requesting an extension of the time-limited exemption states, in pertinent part, that Bombardier had completed all testing that had been agreed as part of electromagnetic compatibility (EMC) test plan TDS-698-28-BA-2028 revision A. The results of these tests were originally intended to provide the substantiation needed to demonstrate compliance for a fault tolerant design. Note that, for areas that were found to not be fault tolerant, compliance would be shown through a safety assessment where fuel-vapor ignition would be shown to be extremely improbable.

EMC testing through the above noted document, TDS-698-28-BA-2028 revision A, yielded some unforeseen results. This means that Bombardier will need to complete additional testing and analysis, which has led to Bombardier requiring more time to complete its compliance demonstration beyond the December 17, 2012, date.

Supporting the Bombardier compliance plan are the following documents:

- EMC memo CRJ900-01-66-2012-33, dated October 12, 2012, outlines the structural-aspects compliance plan for this requirement, based on the additional testing and analysis required.
- Fuel-systems memo CRJ1000/28/2010/001/EH, dated March 29, 2010, outlines the systems-related compliance plan for this requirement (no change from the original Bombardier petition).
- A Reliability, Maintainability, and Safety memo, dated March 29, 2010, outlining the safety-assessment-procedures plan for the structural aspects of this requirement (no change from original Bombardier petition).

The FAA granted the original exemption for the Model CL-600-2E25 in 2010, providing Bombardier a reasonable amount of extra time, after the FAA granted the type certificate, to complete unexpected compliance activity. That exemption permitted Bombardier time to demonstrate that the structural design provides two independent, effective, and reliable means of lightning-strike protection, in lieu of demonstrating full compliance with 14 CFR 25.981(a)(3), for the structural aspects of the fuel-tank design where Bombardier showed that full compliance was not practical. We expected that Bombardier would complete the activity shortly thereafter and established the 2012 deadline accordingly.

Since the time Bombardier petitioned for an extension to the existing exemption, the FAA has requested updated schedules from Bombardier indicating when they would complete their redesign, testing, and analysis as required by provisions 1 and 2 of the original exemption. Bombardier has not submitted a firm schedule, which is required for FAA determination and evaluation of the extension request. Additionally, Bombardier has not identified sufficient public interest in the U.S. that would support the FAA granting an extension to the exemption. Granting or denying an extension to the exemption has no effect on Bombardier's ability to schedule and complete the testing and analysis required by the original exemption. After Bombardier has completed this activity, Bombardier should have the technical data and rationale that better supports public interest for an amended exemption.

After Bombardier successfully completes the testing and analysis, they can re-petition for an amendment to exemption no. 10175 seeking relief in the specific areas of the structural design for which they show, and the FAA finds, full compliance is not practical. After Bombardier completes this activity, and petitions for and receives an amended exemption, Bombardier may be eligible to receive FAA airworthiness certificates for Model CL-600-2E25 airplanes.

In summary, the original exemption expired on December 17, 2012. Bombardier has not provided to the FAA sufficient supporting data to justify an extension to the original exemption's time limit.

Having reviewed your reasons for requesting an amended exemption, I find that granting an extension to the time limit of exemption no. 10175 would not be in the public interest.

Federal Register publication

The FAA published a summary of the petition in the *Federal Register* for public comment on January 7, 2013 (78 FR 978). No comments were received.

Our decision

Under the authority contained in 49 U.S.C. 40113 and 44701, which the FAA Administrator has delegated to me, I hereby deny your petition for an extension to exemption no. 10175.

This letter must be attached to, and is a part of, exemption no. 10175.

Sincerely,

/s/

Jeffrey E. Duven
Manager, Transport Airplane Directorate
Aircraft Certification Service