



AIRWORTHINESS DIRECTIVE

This Airworthiness Directive (AD) is issued pursuant to Canadian Aviation Regulation (CAR) 521.427. No person shall conduct a take-off or permit a take-off to be conducted in an aircraft that is in their legal custody and control, unless the requirements of CAR 605.84 pertaining to ADs are met. Standard 625 - Aircraft Equipment and Maintenance Standards Appendix H provides information concerning alternative means of compliance (AMOC) to ADs.

Number:

CF-2011-41R1

Effective Date:

10 April 2017

ATA:

29

Type Certificate:

A-234

Subject:

Hydraulic Accumulators – Screw Cap/End Cap Failure

Revision:

Supersedes AD CF-2011-41, issued 17 November 2011.

Applicability:

Bombardier Inc. model BD-100-1A10 aeroplanes, serial number 20003 to 20604.

Compliance:

As indicated below, unless already accomplished.

Background:

Seven cases of on-ground hydraulic accumulator screw cap/end cap failure have been experienced on CL-600-2B19 aeroplanes, resulting in loss of the associated hydraulic system and high-energy impact damage to adjacent systems and structure. To date, the lowest number of flight cycles accumulated at the time of failure has been 6991.

Although there have been no failures to date on any BD-100-1A10 aeroplanes, accumulators similar to those installed on the CL-600-2B19 are installed on the BD-100-1A10. The affected part numbers (P/Ns) of the accumulators installed on BD-100-1A10 are 900095-1 (Auxiliary Hydraulic System accumulator), 33-155500 (Inboard Brake accumulator), and 33-147500 (Outboard Brake accumulator).

A detailed analysis of the calculated line of trajectory of a failed screw cap/end cap for the accumulators has been conducted, resulting in the identification of areas where systems and/or structural components could potentially be damaged. Although all of the failures on the CL-600-2B19 to date have occurred on the ground, an in-flight failure affecting such components could potentially have an adverse effect on the controllability of the aeroplane.

Revision 1 of this AD is issued to mandate the replacement Brake System Hydraulic accumulators that are not identified by the letter “E” or “NAE” after the serial number on the identification plate. Revision 1 also mandates the re-orientation of the brake accumulators P/N 33-147500 and P/N 33-155500 and the insertion of three discard tasks in the Challenger 300 Time Limits / Maintenance Checks (TLMC) Manual.

Corrective Actions:

Part I – Replacement of Auxiliary Hydraulic System Accumulator

For Bombardier Inc. model BD-100-1A10 aeroplanes, serial numbers 20003 to 20335.

For auxiliary hydraulic system accumulator P/N 900095-1 not identified by the letter “E” after the serial number on the identification plate, in accordance with the following schedule, replace the accumulator with an accumulator of the same part number that is identified by the letter “E” in accordance with the Accomplishment Instructions of Bombardier Service Bulletin (SB) 100-29-14 Basic Issue, dated 16 December 2010, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

As of the original effective date of this AD, 17 November 2011:

- A. For accumulator with more than 3150 flight cycles: within 350 flight cycles from the original effective date of this AD, 17 November 2011.
- B. For accumulator with 3150 flight cycles or less: before reaching 3500 flight cycles.
- C. If it is not possible to determine the flight cycles accumulated for the accumulator: within 350 flight cycles from the original effective date of this AD, 17 November 2011.

As of the original effective date of this AD, 17 November 2011, it is prohibited to install a hydraulic system accumulator P/N 900095-1 not identified by the letter "E" after the serial number of the identification plate, on any aeroplane.

Part II - Replacement of Brake System Hydraulic Accumulator:

For Bombardier Inc. model BD-100-1A10 aeroplanes, serial numbers 20003 to 20347.

For brake system accumulator P/N 33-147500 or P/N 33-155500 that are not identified by the letter "E" or "NAE" after the serial number on the identification plate, in accordance with the following schedule, replace the accumulator with an accumulator of the same part number that is identified by the letter "E" or "NAE" after the serial number in accordance with the Accomplishment Instructions of Bombardier SB 100-32-21 Basic Issue, dated 24 May 2012, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

As of the effective date of this AD:

- A. For an accumulator with more than 4700 flight cycles: within 300 flight cycles from the effective date of this AD.
- B. For an accumulator with 4700 flight cycles or less: before reaching 5000 flight cycles.
- C. If it is not possible to determine the flight cycles accumulated for the accumulator: within 300 flight cycles from the effective date of this AD.

As of the effective date of this AD, it is prohibited to install a hydraulic system accumulator P/N 33-147500 or P/N 33-155500 that is not identified by the letter "E" or "NAE", after the serial number on the identification plate, on any aeroplane.

Part III – Re-orientation of the Inboard and Outboard Brake Accumulators

For Bombardier Inc. model BD-100-1A10 aeroplanes, serial numbers 20003 to 20395:

Within 1600 hours airtime or 14 months, whichever occurs first, from the effective date of this AD, modify the installation of the inboard and outboard brake accumulators by incorporating Bombardier SB 100-32-20, Revision 02, dated 14 April 2015, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Incorporation of previous revisions of the above mentioned SB also satisfies the requirements of Part III of this AD.

Part IV – Life Limits

For Bombardier Inc. model BD-100-1A10 aeroplanes, serial numbers 20003 to 20604:

Within 30 days from the effective date of this AD, revise the Transport Canada approved maintenance schedule by incorporating the following TLMCs contained in the Challenger 300 TLMC Manual, dated 22 December 2015, as follows:

Chapter 5 Task Number	Task Title
29-21-13-101	Discard the Auxiliary Hydraulic System Accumulator, P/N 900095-1
32-43-37-101	Discard the Brake Accumulator, P/N 33-147500
32-44-05-101	Discard the Emergency/Parking Brake Accumulator, P/N 33-155500

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 27 March 2017

Contact:

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