



No.	CF-2009-39	1/3
Issue Date	27 October 2009	

AIRWORTHINESS DIRECTIVE

The following airworthiness directive (AD) may be applicable to an aircraft which our records indicate is registered in your name. ADs are issued pursuant to **Canadian Aviation Regulation (CAR) 593**. Pursuant to **CAR 605.84** and the further details of **CAR Standard 625, Appendix H**, the continuing airworthiness of a Canadian registered aircraft is contingent upon compliance with all applicable ADs. Failure to comply with the requirements of an AD may invalidate the flight authorization of the aircraft. Alternative means of compliance shall be applied for in accordance with **CAR 605.84** and the above-referenced **Standard**.

This AD has been issued by the Continuing Airworthiness Division (AARDG), National Aircraft Certification Branch, Transport Canada, Ottawa, telephone 613 952-4357.

Number: CF-2009-39

Subject: Hydraulic Accumulators – Screw Cap/End Cap Failure

Effective: 10 November 2009

Applicability: Bombardier Inc. Models:

CL-600-1A11 – Serial Numbers 1004 through 1085
CL-600-2A12 – Serial Numbers 3001 through 3066
CL-600-2B16 – Serial Numbers 5001 through 5194
CL-600-2B16 – Serial Numbers 5301 through 5665
CL-600-2B16 – Serial Numbers 5701 and subsequent

Compliance: As indicated below, unless already accomplished.

Background: Seven cases of on-ground hydraulic accumulator screw cap or end cap failure have been experienced on CL-600-2B19 (CRJ) aircraft, resulting in loss of the associated hydraulic system and high-energy impact damage to adjacent systems and structure. The lowest number of flight cycles accumulated at the time of failure, to date, has been 6 991 flight cycles.

Although there have been no failures to date on any CL-600-1A11, CL-600-2A12 or CL-600-2B16 aircraft, the same accumulators as those installed on the CL-600-2B19, Part Numbers (P/N) 08-60163-001, 08-60163-002, 08-60164-001 and 08-60164-002, are installed on some of the aircraft listed in the Applicability section of this directive.

Notes:

1. Earlier accumulators, P/Ns 2770571-102, 2770571-103, 2770571-104 and 2770571-105, were installed in production on the following aircraft: CL-600-1A11 [all Serial Numbers (S/Ns)], CL-600-2A12 (all S/Ns) and CL-600-2B16 (S/Ns 5001 through 5194 and 5301 through 5524 only). These accumulators do not require inspection or replacement. However, if any of the accumulators with the above P/Ns have been replaced in-service by P/Ns 08-60163-001, 08-60163-002, 08-60164-001 and 08-60164-002, these latter accumulators require replacement.
2. The only accumulators ever installed on CL-600-2B16 aircraft, S/Ns 5525 through 5665 and 5701 and subsequent, are P/Ns 08-60163-001, 08-60163-002, 08-60164-001 and 08-60164-002; these accumulators require replacement.

A detailed analysis of the systems and structure in the potential line of trajectory of a failed screw cap/end cap for each accumulator, P/Ns 08-60163-001, 08-60163-002, 08-60164-001 and 08-60164-002, has been conducted. It has been identified that the worst case scenario would be failure of one of the brake accumulator screw caps/end caps, resulting in impact damage causing loss of both hydraulic systems No.2 and No.3, with consequent loss of both braking and nose wheel steering and the potential for a runway excursion.

Pursuant to **CAR 202.51** the registered owner of a Canadian aircraft shall, within seven days, notify the Minister in writing of any change of his or her name or address.

To request a change of address, contact the **Civil Aviation Communications Centre (AARC)** at Place de Ville, Ottawa, Ontario K1A 0N8, or 1-800-305-2059, or www.tc.gc.ca/civilaviation/communications/centre/address.asp

This directive gives instructions to perform identification and records checks, where applicable, and replace accumulators, P/Ns 08-60163-001, 08-60163-002, 08-60164-001 and 08-60164-002, within the time compliance specified.

Corrective Actions:

Part I: Identification and Records Check

Within 50 hours air time after the effective date of this directive:

A. Identification Check

Applicable to CL-600-1A11 (all S/Ns), CL-600-2A12 (all S/Ns) and CL-600-2B16 (S/Ns 5001 through 5194 and 5301 through 5524).

Determine the P/Ns of the System Accumulators Nos. 1, 2 and 3 and Brake Accumulators Nos. 2 and 3 that are installed on the aircraft.

- 1) If any of the installed accumulators has one of the following P/Ns, proceed to the Records Check in Part I, paragraph B of this directive:
 - 08-60163-001
 - 08-60163-002
 - 08-60164-001
 - 08-60164-002
- 2) If all of the installed accumulators have one of the following P/Ns, no further action is required. Compliance with this directive is complete:
 - 2770571-102
 - 2770571-103
 - 2770571-104
 - 2770571-105

B. Records Check applicable to:

- 1) **CL-600-2B16 (S/Ns 5525 through 5665, 5701 and subsequent).**
- 2) **CL-600-1A11, CL-600-2A12 or CL-600-2B16 (in the S/Ns range 5001 through 5194 and 5301 through 5524) that have one or more accumulator(s), P/Ns 08-60163-001, 08-60163-002, 08-60164-001 or 08-60164-002, installed.**

Determine and record the number of flight cycles accumulated by each of the accumulators (P/Ns 08-60163-001, 08-60163-002, 08-60164-001 and 08-60164-002) installed on the aircraft [i.e. system accumulators Nos. 1, 2 and 3 and brake accumulators Nos. 2 and 3]. Proceed to Part II of this directive.

Part II: Initial Replacement

A. Replacement Schedule

- 1) For each accumulator (P/Ns 08-60163-001, 08-60163-002, 08-60164-001 and 08-60164-002) with more than 3 650 flight cycles, replace the accumulator within 100 flight cycles after the effective date of this directive, in accordance with Part II, Paragraph B of this directive.
- 2) For each accumulator (P/Ns 08-60163-001, 08-60163-002, 08-60164-001 and 08-60164-002) with 3 650 flight cycles or less, replace the accumulator before it has accumulated 3 750 flight cycles, in accordance with Part II, Paragraph B of this directive.
- 3) If it is not possible to determine the flight cycles accumulated for any accumulator (P/Ns 08-60163-001, 08-60163-002, 08-60164-001 and 08-60164-002), replace the accumulator within 100 flight cycles after the effective date of this directive, in accordance with Part II, Paragraph B of this directive.