



No.	CF-2009-42R1	1/3
Issue Date	14 May 2010	

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) 521 Division X**. 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-2009-42R1

Subject: Hydraulic Accumulators – Screw Cap/End Cap Failure

Effective: 3 June 2010

Revision: Supersedes Airworthiness Directive (AD) CF-2009-42, dated 16 November 2009.

Applicability: Bombardier Inc. Models:
CL-215-1A10 (CL-215) – Serial Numbers 1001 through 1990
CL-215-6B11 (CL-215T)– Serial Numbers 1056 through 1125
CL-215-6B11 (CL-415) – Serial Numbers 2001 through 2990

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. 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 CL-215-1A10 (CL-215) or CL-215-6B11 (CL-215T and CL-415) aircraft, similar accumulators, Part Number (P/N) 08-8423-010 (MS28700-3), to those installed on the CL-600-2B19, are installed on the aircraft listed in the Applicability section of this directive.

A detailed analysis of the systems and structure in the potential line of trajectory of a failed screw cap/end cap for each accumulator has been conducted. It has identified that the worst-case scenarios would be impact damage to various components, potentially resulting in fuel spillage, uncommanded flap movement, or loss of aileron control.

This directive mandates repetitive inspections of the accumulators for cracks and replacement of any accumulator in which a crack is detected.

This revision clarifies the text of the directive, including the P/N of the affected accumulators.

Corrective Actions: **Part I: Records Check**

Within 50 hours air time after the effective date of the original issue of this directive (26 November 2009):

Determine and record the number of flight cycles accumulated by each of the accumulators, P/N 08-8423-010 (MS28700-3), installed on the aircraft [i.e. accumulators for the brake (CL-215-1A10 and CL-215-6B11), aileron (CL215-6B11), elevator (CL215-6B11) and rudder (CL215-6B11)]. Proceed to Part II of this directive.

Part II: Initial Ultrasonic Inspection

A. Inspection Schedule: CL-215-1A10 (CL-215) and CL-215-6B11 (CL-215T)

- 1) For each accumulator, P/N 08-8423-010 (MS28700-3), with more than 875 flight cycles, inspect the accumulator within 125 flight cycles after the effective date of the original issue of this directive (26 November 2009), in accordance with Part II, Paragraph C of this

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

Canada

directive.

- 2) For each accumulator, P/N 08-8423-010 (MS28700-3), with 875 or less flight cycles, inspect the accumulator before it has accumulated 1000 flight cycles, in accordance with Part II, Paragraph C of this directive.
- 3) If it is not possible to determine the flight cycles accumulated for an accumulator, P/N 08-8423-010 (MS28700-3), inspect the accumulator within 125 flight cycles after the effective of the original issue of this directive (26 November 2009), in accordance with Part II, Paragraph C of this directive.

B. Inspection Schedule: CL-215-6B11 (CL-415)

- 1) For each accumulator, P/N 08-8423-010 (MS28700-3), with more than 750 flight cycles, inspect the accumulator within 250 flight cycles after the effective date of the original issue of this directive (26 November 2009), in accordance with Part II, Paragraph C of this directive.
- 2) For each accumulator, P/N 08-8423-010 (MS28700-3), with 750 or less flight cycles, inspect the accumulator before it has accumulated 1000 flight cycles, in accordance with Part II, Paragraph C of this directive.
- 3) If it is not possible to determine the flight cycles accumulated for an accumulator, P/N 08-8423-010 (MS28700-3), inspect the accumulator within 250 flight cycles after the effective date of the original issue of this directive (26 November 2009), in accordance with Part II, Paragraph C of this directive.

C. Inspection Procedure

Inspect each accumulator, P/N 08-8423-010 (MS28700-3), in accordance with Part B of the Accomplishment Instructions in the applicable SB listed below, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Model	Service Bulletin	Date
CL-215-1A10 (CL-215)	SB 215-541, Revision 1	12 March 2010
CL-215-6B11 (CL-215T)	SB 215-3155, Revision 1	12 March 2010
CL-215-6B11 (CL-415)	SB 215-4414, Revision 1	12 March 2010

Note: Inspection in accordance with Part B of the Accomplishment Instructions in the original issue of SB 215-541, SB 215-3155 or SB 215- 4414 (all dated 9 July 2009), as applicable, also meets the intent of Part II of this directive.

- 1) If there is no indication of a crack, proceed to Part III of this directive for subsequent repeat ultrasonic inspection requirements.
- 2) If there is an indication of a crack, replace the accumulator before further flight. Inspect the replacement accumulator in accordance with Part II and Part III of this directive, as applicable.

Part III: Repeat Ultrasonic Inspections

For each accumulator, P/N 08-8423-010 (MS28700-3), in which no crack has been previously detected, ultrasonically re-inspect the accumulator within 750 flight cycles after each previous ultrasonic inspection, in accordance with Part B of the Accomplishment Instructions in the applicable SB listed below, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Model	Service Bulletin	Date
CL-215-1A10 (CL-215)	SB 215-541, Revision 1	12 March 2010
CL-215-6B11 (CL-215T)	SB 215-3155, Revision 1	12 March 2010
CL-215-6B11 (CL-415)	SB 215-4414, Revision 1	12 March 2010

Note: Inspection in accordance with Part B of the Accomplishment Instructions in the original issue of SB 215-541, SB 215-3155 or SB 215- 4414 (all dated 9 July 2009), as applicable, also

meets the intent of Part III of this directive.

- 1) If there is no indication of a crack, proceed to Part III of this directive for subsequent repeat ultrasonic inspection requirements.
- 2) If there is an indication of a crack, replace the accumulator before further flight. Inspect the replacement accumulator in accordance with Part II and Part III of this directive, as applicable.

Authorization: For Minister of Transport, Infrastructure and Communities

ORIGINAL SIGNED BY

Derek Ferguson
Chief, Continuing Airworthiness

Contact: Mr. Richard Topham, Continuing Airworthiness, Ottawa, telephone 613-952-4357, facsimile 613-996-9178 or e-mail CAWWEBFeedback@tc.gc.ca or any Transport Canada Centre.