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-2009-42R2

Effective Date:

13 June 2016

ATA:

29

Type Certificate:

A-86

Subject:

Hydraulic Power – Hydraulic Accumulators Screw Cap/End Cap Failure

Revision:

Supersedes AD CF-2009-42R1, dated 14 May 2010.

Applicability:

Bombardier Inc. Models:

CL-215-1A10 (CL-215) – serial numbers 1001 through 1125
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) aeroplane, 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) aeroplane, similar accumulators, Part Number (P/N) 08-8423-010 (MS28700-3), to those installed on the CL-600-2B19, are installed on the aeroplane models listed in the Applicability section of this AD.

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

Revision 1 of this AD clarified the text of the AD, including the P/N of the affected accumulators.

This revision provides the terminating action to this AD. It also modifies the applicability range for the CL-215-1A10 (CL-215); the CL-215 is out of production and the last aeroplane produced was serial number 1125.

Corrective Actions:

Part I: Records Check

Within 50 hours air time from the effective date of the original issue of this AD (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 aeroplane [i.e. accumulators for the brake (CL-215-1A10 and CL-215-6B11), aileron (CL-215-6B11), elevator (CL-215-6B11) and rudder (CL-215-6B11)]. Proceed to Part II of this AD.

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 AD (26 November 2009), in accordance with Part II, Paragraph C of this AD.
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 AD.
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 date of the original issue of this AD (26 November 2009), in accordance with Part II, Paragraph C of this AD.

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 AD (26 November 2009), in accordance with Part II, Paragraph C of this AD.
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 AD.
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 AD (26 November 2009), in accordance with Part II, Paragraph C of this AD.

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 AD.

1) If there is no indication of a crack, proceed to Part III of this AD 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 AD, 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 carried out prior to the effective date of this AD 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 AD.

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 AD, as applicable.

Part IV: Relocation of the Affected Accumulators

Within 12 months from the effective date of this AD, relocate each affected accumulator in accordance with the Accomplishment Instructions in the applicable Bombardier SB listed below, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada:

Model	Affected Accumulators	Service Bulletin	Date
CL-215-1A10 (CL-215)	Aileron, if installed	SB 215-552, Revision 2	18 June 2015
CL-215-6B11 (CL-215T)	Aileron, Rudder and Elevator	SB 215-3158, Revision 2	15 April 2014
CL-215-6B11 (CL-415)	Aileron, Rudder and Elevator	SB 215-4423, Revision 3	16 December 2013

Relocation of the affected accumulators prior to the effective date of this AD in accordance with the Accomplishment Instructions of previous revisions of the above-mentioned SBs also meets the requirements of Part IV of this AD.

Part V: Establishment of Accumulator Number of Air Time Hours

Within 12 months from the effective date of this AD, establish the number of air time hours for each accumulator in accordance with the Accomplishment Instructions in the applicable Bombardier SB listed below, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada. If an accumulator found installed on a Bombardier/Canadair 215, 215T, or 415, according to component history records, has been in service on another type of aeroplane (other than a Bombardier/Canadair 215, 215T, or 415) it must be replaced within 50 air time hours.

Model	Service Bulletin	Date
CL-215-1A10 (CL-215)	SB 215-557, Revision 1 (Applicable to MS28700-3 accumulator)	27 June 2014
CL-215-6B11 (CL-215T)	SB 215-3182, Revision 1	13 December 2013
CL-215-6B11 (CL-415)	SB 215-4470, Revision 1	13 December 2013

Establishment of accumulator number of air time hours in accordance with the Original Issue of the above-mentioned SBs also meet the requirements of Part V of this AD.

Part VI: New Airworthiness Limitations

As of the effective date of this AD, it is prohibited to conduct a take-off if the 10 000 hour accumulator life limitation as detailed in the TLMC manual revisions listed in the table below has been exceeded.

Model	TLMC Manual	Temporary Revision Number	Date
CL-215-1A10 (CL-215)	PSP 295	295-7	13 December 2013
CL-215-6B11 (CL-	PSP 395	LLC-3	13 December 2013

Model	TLMC Manual	Temporary Revision Number	Date
215T)			
CL-215-6B11 (CL-215T)	PSP 395-1	LLC-1	13 December 2013
CL-215-6B11 (CL-415)	PSP 495	5-56	13 December 2013

Compliance with superseding Temporary Revision (TR) or later revisions of the above-mentioned Time Limits/Maintenance Checks Manual approved by Transport Canada also meets the requirements of Part VI of this AD.

Part VII: Terminating Action

Completion of Parts IV, V and VI of this AD constitutes terminating action to this AD.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 30 May 2016

Contact:

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