



No.	CF-2011-01R2	1/3
Issue Date	21 May 2013	

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-2011-01R2
- Subject:** Main Landing Gear Alternate Extension System – Cam Mechanism not in Normal Rested Position
- Effective:** 4 June 2013
- Revision:** Supersedes Airworthiness Directive CF-2011-01R1, issued on 20 May 2011.
- Applicability:** Bombardier Inc. DHC-8 model 400, 401 and 402 aeroplanes, serial numbers 4001, 4003 through 4418, 4422 and 4423, equipped with Cam Mechanism Assembly part numbers 48510-1 or 48510-3.
- Compliance:** As indicated below, unless already accomplished.

Background: Two cases of the main landing gear (MLG) alternate extension system (AES) cam mechanism failure were found during line checks. The cam mechanism operates the cable to open the MLG door and releases the MLG uplock in sequence. In the case where it is necessary to deploy the MLG using the AES, the failure of the MLG AES cam mechanism on one side will lead to an unsafe asymmetrical landing configuration.

Preliminary investigation indicates that the cam mechanism failure may have occurred and remained dormant after a previous AES operation. The cam mechanism may not have fully returned to the normal rested position. With the cam mechanism out of the normal rested position, normal powered landing gear door operation could introduce sufficient loads to fracture the cam mechanism or rupture the door release cable.

This AD mandates the initial and subsequent inspections for proper operation of the MLG AES cam mechanism, and rectify as necessary.

Since the original issue of this AD, Bombardier Inc. has determined that the existing inspection procedure is insufficient for verification of proper MLG AES cam mechanism operation, and has superseded this inspection procedure. Revision 1 of this AD mandates the use of the revised inspection procedure.

Prior to the introduction of MLG AES cam mechanism assembly part number (P/N) 48510-5 as terminating action, an interim MLG AES cam mechanism assembly P/N 48510-3 was introduced.

Revision 2 of this AD updates the applicability paragraph, updates the MLG AES cam mechanism inspection criteria and mandates the terminating action.

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



**Corrective
Actions:**

Part I- Aeroplanes installed with MLG AES Cam Mechanism Assembly P/N 48510-1

Within 50 hours air time or 10 days, whichever occurs first, from the effective date of the Original Issue of this AD (17 January 2011):

- A. Inspect for proper operation of the MLG AES cam mechanism in accordance with Part A of Bombardier Repair Drawing (RD) 8/4-32-0160, Issue 3, dated 12 February 2011, or later revision approved by the Chief, Continuing Airworthiness, Transport Canada. As of the effective date of Revision 1 of this AD (17 June 2011), inspection in accordance with RD 8/4-32-0160 Issue 1, dated 14 January 2011 or Issue 2, dated 18 January 2011, no longer complies with the requirements of this AD.
1. If the cam mechanism is found to reset to the normal rested position without any sticking or binding, it is operating properly. Proceed to Part I, B of this AD.
 2. If the cam mechanism has not reset to its normal rested position, or if any sticking or binding is observed, replace it with MLG AES cam mechanism assembly P/N 48510-5 in accordance with Part III of this AD before further flight.
 3. If the cam mechanism is found damaged or inoperative, or if the damage is beyond the allowable limits specified in the above-mentioned RD, replace it with MLG AES cam mechanism assembly P/N 48510-5 in accordance with Part III of this AD before further flight.
- B. Subsequently, at intervals not to exceed 50 hours air time or 10 days, whichever occurs first, repeat the inspection specified in Part I, A of this AD.

Part II- Aeroplanes installed with MLG AES Cam Mechanism Assembly P/N 48510-3

Within 1800 hours air time or 9 months, whichever occurs first, from the date of MLG AES cam mechanism assembly P/N 48510-3 installation on the aeroplane:

- A. Inspect for proper operation of the MLG AES cam mechanism in accordance with Part A of Bombardier RD 8/4-32-0160, Issue 5, dated 06 June 2012, or later revision approved by Transport Canada.
1. If the cam mechanism is found to reset to the normal rested position without any sticking or binding, it is operating properly. Proceed to Part II, B of this AD.
 2. If the cam mechanism has not reset to its normal rested position, or if any sticking or binding is observed, replace it with MLG AES cam mechanism assembly P/N 48510-5 in accordance with Part III of this AD before further flight.
 3. If the cam mechanism is found damaged or inoperative, or if the damage is beyond the allowable limits specified in the above-mentioned RD, replace it with MLG AES cam mechanism assembly P/N 48510-5 in accordance with Part III of this AD before further flight.
- B. Subsequently, at intervals not to exceed 600 hours air time or 3 months, whichever occurs first, repeat the inspection specified in Part II, A of this AD.

Part III- Terminating Action

Within 6000 hours air time or 36 months, whichever occurs first, from the effective date of this AD, install MLG AES cam mechanism assembly P/N 48510-5 in accordance with Bombardier Service Bulletin (SB) 84-32-100, Revision A, dated 30 August 2012 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Installation of MLG AES cam mechanism assembly P/N 48510-5 in accordance with SB 84-32-100, Initial Issue, dated 15 August 2012, also meets the requirements of Part III of this AD.

Part III of this AD constitutes terminating action to this AD. Parts I and II of this AD are no longer required after accomplishment of Part III of this AD.

Part IV- Spare Parts

As of the effective date of this AD, it is prohibited for anyone to install MLG AES cam mechanism assembly P/Ns 48510-1 or 48510-3 on any aeroplanes.

Authorization: For the Minister of Transport, Infrastructure and Communities,

ORIGINAL SIGNED BY

Derek Ferguson
Chief, Continuing Airworthiness

Contact: Helen Tsai, Continuing Airworthiness, Ottawa, telephone 613-952-4357, facsimile 613-996-9178 or e-mail AD-CN@tc.gc.ca or any Transport Canada Centre.