



No.	CF-2009-16	1/2
Issue Date	20 April 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-2009-16

Subject: Elevator Power Control Unit – Shaft (Tailstock) Failure

Effective: 14 May 2009

Applicability: Bombardier Inc. DHC-8 Models 400, 401 and 402, Serial Numbers 4135 through 4149.

Compliance: As indicted below.

Background: There has been one case reported of failure of a shaft (tailstock) on an elevator Power Control Unit (PCU), Part Number (P/N) 390600-1007. Continued actuation of the affected PCU caused damage to the surrounding structure. Subsequent investigation determined that the failure was the result of a material defect and that the shafts installed on a total of 88 suspect PCUs (serial numbers specified in PART I, Paragraph A. of the Corrective Actions below) may contain a similar defect.

Each elevator surface has three PCUs, powered by separate independent hydraulic systems, and a single elevator PCU shaft failure may remain dormant. Such a dormant loss of redundancy, coupled with the potential for a failed shaft to produce collateral damage, including damage to hydraulic lines, could possibly affect the controllability of the aircraft.

This directive mandates an identification check for elevator PCU serial numbers, a daily check for correct operation of all suspect PCUs and, finally, replacement of all suspect PCUs.

Corrective Actions: **PART I. Identification Check**

Within 30 days after the effective date of this directive:

Inspect the serial number of each of the six installed elevator PCUs, P/N 390600-1007.

A. Compliance with this directive is complete, and no further action is required, if all six of the installed PCUs have suffix "A" after the serial number and/or have a serial number that is not in the following range:

- PCU Serial Numbers 238, 698, 783 through 788, 790, 793, 795, 802, 806, 807, 810, 820 through 823, 826 through 828, 831, 835, 838, 840, 886 through 889 or 898 through 955.

B. If one or more of the installed PCUs has a serial number in the above range without a suffix "A", proceed to Part II of this directive.

Note: Suffix "A" after the serial number indicates that the PCU has already passed a magnetic particle inspection and is cleared for continued use.

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

PART II. Daily Check of Elevator PCU Operation

Commencing no later than 30 days after the effective date of this directive:

Perform a daily check for the correct operation of all installed elevator PCUs.

Notes: 1. Part II of this directive is only applicable if required by Part I, Paragraph B of this directive.

2. Part II of this directive is no longer required following accomplishment of Part III of this directive.

3. Part II of this directive can be achieved by accomplishment of the procedures detailed in Appendix A, B or C of Bombardier Q400 All Operator Message No. 217B, dated 26 April 2007.

PART III. Elevator PCU Replacement

Within 2000 hours air time or within 12 months after the effective date of this directive, whichever comes first, unless already accomplished:

A. Remove all elevator PCUs that have serial numbers listed in Part I, Paragraph A of this directive and do not have suffix "A" after the serial number.

B. Replace each removed PCU with a PCU, P/N 390600-1007, which has a serial number outside the range listed in Part I, Paragraph A of this directive or has suffix "A" after the serial number.

Bombardier Service Bulletin (SB) 84-27-32, Revision A, dated 18 January 2008, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, provides approved instructions for the removal and replacement of the PCUs and for subsequent rigging of the elevators.

Note: Previous accomplishment of Bombardier SB 84-27-32, original issue, dated 1 May 2007, meets the requirements of PART III of this directive.

Authorization: For Minister of Transport, Infrastructure and Communities

D. Ferguson
Acting Chief, Continuing Airworthiness

Contact: Mr. Richard Topham, Continuing Airworthiness, Ottawa, telephone 613-952-4428, facsimile 613-996-9178 or e-mail richard.topham@tc.gc.ca or any Transport Canada Centre.