



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) with ADs.

Number:

CF-2025-19

Effective Date:

7 April 2025

ATA:

55

Type Certificate:

A-142

Subject:

Stabilizers – Elevator Power Control Unit (PCU) Bracket and Elevator Front Spar Cracks

Applicability:

De Havilland Aircraft of Canada Limited (formerly Bombardier Inc.) model DHC-8-401 and DHC-8-402 aeroplanes, serial numbers 4001 and 4003 through 4633.

Compliance:

Within 8000 hours air time or 48 months, whichever occurs first, from the effective date of this AD, unless already accomplished.

Background:

There have been multiple in-service reports of cracked elevator PCU brackets on the horizontal stabilizer rear spar, and four reports of cracking on the elevator front spar. In one case, the PCU bracket cracking led to the detachment of the bracket. An investigation found that the force-fight loads during elevator motion induced by elevator PCUs is the common factor in cracking of both the elevator PCU bracket and of the elevator front spar. The potential root causes for the cracking include mis-rigging, the clamp up of the PCU brackets without adequate shimming, and horizontal stabilizer and elevator hinge misalignment following assembly. Failure of an elevator PCU bracket or elevator front spar cracking may cause the affected elevator to jam. Failures on both elevators could cause a loss of aeroplane pitch control.

A new design solution for this potential failure was made available. This solution consists of:

- replacement of existing PCU fittings with redesigned PCU fittings if not already performed;
- additional inspection instructions for the elevator leading edge front spar and horizontal stabilizer rear spar in the areas adjacent to PCU brackets if the existing bracket is found cracked;
- installation of new bushings in the elevator PCU brackets to prevent chafing and galling and additional corrosion protection;
- installation of doublers between ribs 12 and 13 and between ribs 13 and 14 at the front spar of the elevator structure assembly.

This AD supplements the requirements of AD CF-2024-10 and also requires implementation of a new design solution.

Corrective Actions:**Part I – Applicable to Model DHC-8-401 and DHC-8-402 Aeroplanes, Serial Numbers 4001, 4003 through 4058**

- A. Perform all applicable actions in accordance with Section 3.B. Procedure of the Accomplishment Instructions of De Havilland Aircraft of Canada Service Bulletin (SB) 84-55-14, initial revision, dated 24 July 2024, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada. For aeroplane, serial number 4047, implementation of De Havilland Aircraft of Canada Modification Summary (MODSUM) IS4Q5550004, prior to the effective date of this AD, also meets the requirements of this part.
- B. Perform all applicable actions in accordance with, the Section 3.B. Procedure of the Accomplishment Instructions of SB 84-55-17, initial revision, dated 2 May 2024, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- C. Performing Part I B. of this AD constitutes terminating action of the inspections required by TCCA AD CF-2024-10 for aeroplanes already inspected in accordance with Section 3.B. of the Accomplishment Instructions of SB 84-55-09 Basic Issue, dated 7 June 2018, or SB 84-55-09, Revision A, dated 10 January 2020, or SB 84-55-09 Revision B, dated 17 February 2023, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Part II – Applicable to Model DHC-8-401 and DHC-8-402 Aeroplanes, Serial Numbers 4059 through 4580

- A. Perform all applicable actions in accordance with, the Section 3.B. Procedure of the Accomplishment Instructions of SB 84-55-14, initial revision, dated 24 July 2024, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- B. Perform all applicable actions in accordance with, the Section 3.B. Procedure of the Accomplishment Instructions of SB 84-55-15, Revision A, dated 7 January 2025 , or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- C. Perform all applicable actions in accordance with, the Section 3.B. Procedure of the Accomplishment Instructions of SB 84-55-17, initial revision, dated 2 May 2024, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- D. Performing Part II B. and Part II C. of this AD constitutes terminating action of the inspections required by TCCA AD CF-2024-10 for aeroplanes already inspected in accordance with Section 3.B. of the Accomplishment Instructions of SB 84-55-09 Basic Issue, dated 7 June 2018, or SB 84-55-09, Revision A, dated 10 January 2020, or SB 84-55-09 Revision B, dated 17 February 2023, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Part III – Applicable to Model DHC-8-401 and DHC-8-402 Aeroplanes, Serial Numbers 4581 through 4633

- A. Perform all applicable actions in accordance with, the Section 3.B. Procedure of the Accomplishment Instructions of SB 84-55-14, initial revision, dated 24 July 2024, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- B. Perform all applicable actions in accordance with, the Section 3.B. Procedure of the Accomplishment Instructions of SB 84-55-15, Revision A, dated 7 January 2025, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Jenny Young
Chief, Continuing Airworthiness
Issued on 24 March 2025

Contact:

Mihaela Kramer, Continuing Airworthiness, Ottawa, telephone 888-663-3639, facsimile 613-996-9178 or e-mail TC.AirworthinessDirectives-Consignesdenavigabilite.TC@tc.gc.ca or any Transport Canada Centre.