



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-2015-13

Effective Date:

25 June 2015

ATA:

55

Type Certificate:

A-142

Subject:

Stabilizers – Cracked Barrel Nut at the Horizontal Stabilizer to Vertical Stabilizer Attachment Joint

Applicability:

Bombardier Inc. model DHC-8-400, -401 and -402 aeroplanes, serial numbers 4001 and subsequent.

Compliance:

As indicated below, unless already accomplished.

Background:

There has been one in-service report of a cracked and corroded barrel nut, part number (P/N) DSC228-12, found at the mid-spar location of the horizontal stabilizer to vertical stabilizer attachment joint. There have also been two other reports of corroded barrel nuts found at mid-spar locations.

Preliminary investigation determined that the cracking is initiated by corrosion. The corrosion may have been caused by inadequate cadmium plating on the barrel nut. Failure of the barrel nuts could compromise the structural integrity of the joint and could lead to loss of control of the aeroplane.

This AD mandates initial and repetitive inspections of the barrel nuts at each horizontal stabilizer to vertical stabilizer attachment joints.

Corrective Actions:

Part I – Initial Inspection of Barrel Nuts at the Horizontal Stabilizer to Vertical Stabilizer Attachment Joints:

A. Complete Part I, paragraphs B and C of this AD in accordance with the following schedule:

1. For aeroplanes that have accumulated 5400 total hours air time or more, or more than 32 months in-service since new, as of the effective date of this AD: within 600 hours air time or 4 months, whichever occurs first, from the effective date of this AD.
2. For aeroplanes that have accumulated less than 5400 total hours air time, or less than 32 months in-service since new, as of the effective date of this AD: prior to accumulating 6000 total hours air time or 36 months in-service since new, whichever occurs first.

B. Perform a detailed visual inspection (DVI) of each barrel nut in accordance with the Accomplishment Instructions of Bombardier Service Bulletin (SB) A84-55-04, Revision A, dated 2 June 2015, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

1. If any barrel nut or barrel nut cradle is found cracked or broken, before further flight, replace the barrel nut and associated hardware, in accordance with the Accomplishment Instructions of the above-mentioned SB.
 - i. During the replacement of any barrel nut, inspect the bore of the fitting in accordance with the Accomplishment Instructions of the above-mentioned SB and repair any corrosion or damage in accordance with Bombardier repair drawing (RD) number RD 8/4-55-1143.

If the bore of the fitting cannot be repaired in accordance with the above-mentioned RD, contact the Q Series Technical Help Desk for an approved repair and incorporate the repair before further flight. The approved repair must specifically reference this AD.

- ii. Within 600 hours air time or 4 months, whichever occurs first, from the replacement of the cracked barrel nut, replace the remaining barrel nuts and their associated hardware at the horizontal stabilizer to vertical stabilizer attachment joints, in accordance with the Accomplishment Instructions of the above-mentioned SB.
 2. If corrosion is found on any barrel nut on the front or rear-spar joints, replace the barrel nut in accordance with the Accomplishment Instructions of the above-mentioned SB or contact the Q Series Technical Help Desk for an approved repair and incorporate the repair before further flight. The approved repair must specifically reference this AD.
 3. If corrosion above level 1, as defined in the above mentioned SB, is found on a barrel nut at the mid-spar joint, replace the barrel nut in accordance with the Accomplishment Instructions of the above-mentioned SB or contact the Q Series Technical Help Desk for an approved repair and incorporate the repair before further flight. The approved repair must specifically reference this AD.
 4. If corrosion at level 1 or below, as defined in the above mentioned SB, is found on a barrel nut at the mid-spar joint, repeat the inspection specified in Part I, paragraph B, of this AD at intervals not to exceed 600 hours air time or 4 months, whichever occurs first, from the last DVI, or replace the barrel nut in accordance with the Accomplishment Instructions of the above-mentioned SB.
- C. For aeroplanes with pre-load indicating (PLI) washers installed at the front and rear spar joints, check the bolt pre-load, and rectify as required, in accordance with the Accomplishment Instructions of the above-mentioned SB.

Replacement of the barrel nuts allows the next inspection, specified in Part II of this AD, to be performed within 6000 hours air time, or 36 months, whichever occurs first, from the barrel nut replacement.

Inspection and replacement of the barrel nuts in accordance with the Accomplishment Instructions of Bombardier SB A84-55-04, Initial Issue, dated 21 May 2015, prior to the effective date of this AD, also meets the requirements of Part I of this AD.

Part II – Repetitive Inspections of Barrel Nuts at the Horizontal Stabilizer to Vertical Stabilizer Attachment Joints:

At intervals not to exceed 3600 hours air time, or 18 months, whichever occurs first, from the last DVI and bolt pre-load check, repeat the DVI and bolt pre-load check, as required in accordance with Part I, paragraphs B and C of this AD.

Part III – Reporting of Results:

Within 30 days after each DVI and bolt pre-load check, complete and submit the Inspection Forms in Appendix A of the above-mentioned SB to the Q-Series Technical Help Desk.

Authorization:

For the Minister of Transport,

Remy Knoerr
Chief, Continuing Airworthiness
Issued on 11 June 2015

Contact:

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