



# 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-2015-13R1

**Effective Date:**

10 July 2017

**ATA:**

55

**Type Certificate:**

A-142

**Subject:**

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

**Revision:**

Supersedes AD CF-2015-13, issued on 11 June 2015.

**Applicability:**

Bombardier Inc. model DHC-8-400, -401 and -402 aeroplanes, serial numbers 4001 through 4547.

**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. Further investigation confirmed that the corrosion was caused by inadequate cadmium plating on the barrel nuts. Failure of the barrel nuts could compromise the structural integrity of the joint and could lead to loss of control of the aeroplane.

The original version of this AD was issued to mandate the initial and repetitive inspections of the barrel nuts at each of the horizontal stabilizer to vertical stabilizer attachment joints.

Revision 1 of this AD is issued to terminate the repetitive inspection requirement by requiring the incorporation of a modification to install a sealing disc at the middle spar location of the horizontal stabilizer to vertical stabilizer attachment joint, and the replacement of the DSC228 series barrel nuts with B0203073 series barrel nuts that are more resistant to corrosion. The applicability has been changed to account for the introduction of the modifications in production.

**Corrective Actions:**

**Part I – Initial Inspection of Barrel Nuts at the Horizontal Stabilizer to Vertical Stabilizer Attachment Joints (Applicable to all aeroplanes identified in the applicability section of this AD):**

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 the original version of this AD, 25 June 2015: within 600 hours air time or 4 months, whichever occurs first, from the effective date of the original version of this AD, 25 June 2015.

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 the original version of this AD, 25 June 2015: 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 C, dated 3 May 2016, 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 SB 84-55-08, dated 27 January 2017 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
    - i. During the replacement of any barrel nut, inspect the bore of the fitting in accordance with the Accomplishment Instructions of SB 84-55-08, dated 27 January 2017 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, 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 SB 84-55-08, dated 27 January 2017 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
  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 SB 84-55-08, dated 27 January 2017 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, 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 SB A84-55-04, Revision C, dated 3 May 2016, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, is found on a barrel nut at the mid-spar joint, replace the barrel nut in accordance with the Accomplishment Instructions of SB 84-55-08, dated 27 January 2017 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, 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 greater than level Nil but equal to or less than level 1, as defined in SB A84-55-04, Revision C, dated 3 May 2016, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, 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 SB 84-55-08, dated 27 January 2017 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- 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 SB A84-55-04, Revision C, dated 3 May 2016, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

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.

Approved repairs issued by Bombardier prior to the effective date of this AD which make reference to the original version of this AD, effective 25 June 2015, are acceptable for use with Revision 1 of this AD.

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, Bombardier SB A84-55-04 Revision A dated 2 June 2015, Bombardier SB A84-55-04 Revision B dated 30 July 2015 or Bombardier SB A84-55-04 Revision C dated 3 May 2016, 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 (Applicable to all aeroplanes identified in the applicability section of this AD):**

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 – Modifications to Horizontal Stabilizer to Vertical Stabilizer Attachment Joint:**

- A. Complete Part III, paragraphs B and C of this AD within 8000 hours air time or 48 months, whichever occurs first, from the effective date of this AD.
- B. Installation of sealing disk: applicable to all aeroplanes identified in the applicability section of this AD.
  - 1. Install the sealing disk at the middle spar location of the vertical stabilizer in accordance with the Accomplishment Instructions of Bombardier SB 84-55-06, dated 31 January 2017, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- C. Replacement of DSC228 series barrel nuts with B0203073 series barrel nuts for Bombardier Inc. model DHC-8-400, -401 and -402 aeroplanes, serial numbers 4001 through 4524.
  - 1. Replace all DSC228 series barrel nuts at the horizontal stabilizer to vertical stabilizer attachment joints with B0203073 series barrel nuts in accordance with the Accomplishment Instructions of Bombardier SB 84-55-08, dated 27 January 2017, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- D. Accomplishment of Part III of this AD terminates the repetitive inspection requirement of Part II of this AD.

**Part IV – Spares (Applicable to all aeroplanes identified in the applicability section of this AD)**

As of the date of incorporation of Part III of this AD, no person shall permit the installation of a DSC228 series barrel nut at the horizontal stabilizer to vertical stabilizer attachment joint on Bombardier Inc. model DHC-8-400, DHC-8-401, and DHC-8-402 aeroplanes.

**Authorization:**

For the Minister of Transport,

*ORIGINAL SIGNED BY*

Remy Knoerr  
Chief, Continuing Airworthiness  
Issued on 26 June 2017

**Contact:**

Daniel Gosselin, Continuing Airworthiness, Ottawa, telephone 1-888-663-3639, facsimile 613-996-9178 or e-mail [AD-CN@tc.gc.ca](mailto:AD-CN@tc.gc.ca) or any Transport Canada Centre.