



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-2017-04R2

Effective Date:

9 October 2018

ATA:

28

Type Certificate:

A-142

Subject:

Fuel System – Corrosion and Wear of Hydraflow Couplings and Sleeves, Fuel Tube End Ferrules, and Fuel Component End Ferrules

Revision:

Supersedes AD CF-2017-04R1, issued 26 May 2017

Applicability:

Bombardier Inc. model DHC-8-400, -401 and -402 aeroplanes, serial numbers 4001, 4003 and subsequent.

Compliance:

As indicated below, unless already accomplished.

Background:

Some operators have reported discoloration and corrosion of Hydraflow part number 14J26 fuel couplings. Removal of the couplings during scheduled maintenance inspection has also shown signs of wear on the fuel tube end ferrules, fuel component end ferrules, coupling bonding springs, and coupling sleeves. These issues could affect the integrity of the electrical bonding paths throughout the fuel lines and components, which in turn may lead to lightning strike induced fuel tank ignition.

The initial issue of this AD mandated the inspection and repair or replacement, as required, of affected fuel couplings and sleeves, fuel tubes, and fuel components, as well as the collection of wear data, to mitigate the risk of lightning strike induced fuel tank ignition.

Between the issuance of the initial issue and Revision 1 of this AD, Transport Canada became aware that the compliance timeframe of Part I of the initial issue of this AD was not suitable for new aeroplanes entering into service from the production line. Revision 1 of this AD updated Part I of the initial issue of this AD accordingly, and mandated the inspection and repair or replacement, as required, of affected fuel couplings and sleeves, fuel tubes, and fuel components, as well as the collection of wear data, to mitigate the risk of lightning strike induced fuel tank ignition.

Since the issue of Revision 1 of this AD, Bombardier has developed a modification that addresses the unsafe condition without the need for repeat inspections. Revision 2 of this AD updates the aircraft applicability of the initial and repeat inspections mandated by Part I and Part II of this AD, introduces an optional terminating action to the repeat inspections mandated by Part I and Part II of this AD, and mandates a revision to the Transport Canada approved maintenance schedule. In addition, Revision 2 of this AD requires retroactive electrical bonding checks on aeroplanes that have been modified in accordance with certain revisions of ModSum 4-113969 or ModSum 4-113970, and removes the requirement to return removed couplings and sleeves and the requirement to return inspection and rectification results to Bombardier. In addition, Revision 2 of this AD updates service bulletin references.

Corrective Actions:**Part I - Applicable to DHC-8-400, -401 and -402 Aeroplanes, Serial Numbers 4001, 4003 through 4575 That Are Pre-SB 84-28-21 - Initial Inspection:**

Within 6000 hours air time or 36 months, whichever occurs first, from the effective date of the initial issue of this AD (6 February 2017), or

For new aeroplanes with an initial Canadian Certificate of Airworthiness issued on or after the effective date of the initial issue of this AD (6 February 2017), within 6000 hours air time or 36 months, whichever occurs first, from the initial issuance date of the Canadian Certificate of Airworthiness:

- A. Inspect the existing Hydraflow fuel couplings, and associated sleeves, and replace as required with new Hydraflow fuel couplings and sleeves of the same part number, in accordance with Bombardier (BA) Service Bulletin (SB) 84-28-20 Revision C, dated 28 April 2017, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada; and
- B. Inspect the fuel tube end ferrules and fuel component end ferrules for wear or damage and rework as required, in accordance with BA SB 84-28-20 Revision C, dated 28 April 2017, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

This AD no longer requires wear data collected in BA SB 84-28-20 Tables 1 through 5 and removed couplings and sleeves to be returned to Bombardier while complying with paragraphs A. and B. above.

Operators shall still complete BA SB 84-28-20 Tables 1 through 5 while complying with paragraphs A. and B. above and shall retain this information as part of the aeroplane technical records.

Incorporation of BA SB 84-28-20 at Initial Issue (Applicable to DHC-8-402 aeroplanes, serial number 4164 only), dated 30 September 2016, at Revision A, dated 14 December 2016, or at Revision B, dated 13 February 2017, prior to the effective date of this AD, also satisfies the requirements of Part I of this AD.

Part II - Applicable to DHC-8-400, -401 and -402 Aeroplanes, Serial Numbers 4001, 4003 through 4575 That Are Pre-SB 84-28-21 - Repeat Inspections:

At intervals not to exceed 6000 hours air time or 36 months, whichever occurs first:

- A. Repeat the previous inspection and rectification of the Hydraflow couplings and associated sleeves in accordance with Part I, paragraph A. of this AD; and
- B. Repeat the previous inspection and rectification of the fuel tube end ferrules and fuel component end ferrules, in accordance with Part I, paragraph B. of this AD.

This AD no longer requires wear data collected in BA SB 84-28-20 Tables 1 through 5 and removed couplings and sleeves to be returned to Bombardier while complying with paragraphs A. and B. above.

Operators shall still complete BA SB 84-28-20 Tables 1 through 5 while complying with paragraphs A. and B. above and shall retain this information as part of the aeroplane technical records.

Part III – Reporting of Results of Initial Inspection and Rectification:

The requirements of this section have been cancelled at Revision 2 of this AD.

Part IV – Reporting of Results of Repeat Inspections and Rectifications:

The requirements of this section have been cancelled at Revision 2 of this AD.

Part V – Applicable to DHC-8-400, -401 and -402 Aeroplanes, Serial Numbers 4001, 4003 through 4575 - Optional Terminating Action to Initial and Repeat Inspections:

The inspections required by Part I and Part II of this AD are no longer required for aeroplanes that incorporate BA SB 84-28-21 Revision C, dated 13 July 2018, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Aeroplanes that have incorporated BA SB 84-28-21 at Initial Issue, dated 31 August 2017, at Revision A, dated 29 September 2017, or at Revision B, dated 8 June 2018, prior to the effective date of this AD, are no longer required to comply with the inspections required by Part I and Part II of this AD.

Part VI – Applicable to DHC-8-400, -401 and -402 Aeroplanes, Serial Numbers 4001, 4003 through 4489, and 4491 through 4575 That Are Post-SB 84-28-21 Revision A and Serial Numbers 4576 through 4581 - Rework Requirement - Electrical Bonding Checks of Inboard Vent Line Threaded Couplings:

Within 6000 hours air time or 36 months, whichever occurs first, from the effective date of this AD, accomplish electrical bonding checks of all threaded couplings on the inboard vent lines in the left and right wings, in accordance with BA SB 84-28-26 Initial Issue, dated 14 August 2018, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Serial Numbers 4001, 4003 through 4489, and 4491 through 4575 that are post-SB 84-28-21 Revision A, dated 29 September 2017, that have incorporated ModSum IS4Q2800032 Revision A, dated 1 February 2018, or that have previously complied with any of the TCCA approved Airworthiness Limitation Change Request (ACR) listed in Table 1, before the effective date of this AD, also meet the requirements of Part VI of this AD.

Incorporation of BA SB 84-28-21 Revision B, dated 8 June 2018, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, also meets the requirements of Part VI of this AD.

ACR Number	Dated
ACR 400-072	23 January 2018
ACR 400-073	23 January 2018
ACR 400-074	24 January 2018
ACR 400-077	27 February 2018
ACR 400-078	21 March 2018
ACR 400-079	18 April 2018
ACR 400-080	30 April 2018
ACR 400-081	4 May 2018
ACR 400-082	4 May 2018
ACR 400-083	4 June 2018
ACR 400-084	18 May 2018

Table 1: List of TCCA Approved ACRs Pertaining to the Required Electrical Bonding Checks

Part VII - Applicable to DHC-8-400, -401 and -402 Aeroplanes, Serial Numbers 4001, 4003 and Subsequent – Transport Canada Approved Maintenance Schedule Revision:

Within 30 days from the effective date of this AD:

- A. Amend the Transport Canada approved maintenance schedule by incorporating Fuel System Limitation (FSL) 284000-419, as introduced by Temporary Revision (TR) ALI-0192, dated 24 April 2018, of the DHC-8-400 Maintenance Requirements Manual, PSM 1-84-7, dated 21 July 2016. Compliance with superseding TR or later revisions of the above-mentioned Maintenance Requirements Manual approved by Transport Canada, also meets the requirements of Part VII, Paragraph A. of this AD; and
- B. Amend the Transport Canada approved maintenance schedule to revise the Critical Design Configuration Control Limitations (CDCCLs) by incorporating TR ALI-0193, dated 24 April 2018, of the DHC-8-400 Maintenance Requirements Manual, PSM 1-84-7, dated 21 July 2016. Compliance with superseding TR or later revisions of the above-mentioned Maintenance Requirements Manual approved by Transport Canada, also meets the requirements of Part VII, Paragraph B. of this AD.

Initial compliance with FSL 284000-419 shall be accomplished as follows:

- A. For serial numbers 4001, 4003 through 4575: Within 18,000 hours air time or 108 months, whichever occurs first, from the earliest date of incorporation of SB 84-28-21; and
- B. For serial numbers 4576 and subsequent: Within 18,000 hours air time or 108 months, whichever occurs first, from the initial issuance date of the Canadian Certificate of Airworthiness.

Thereafter, repeat the task at intervals specified in FSL 284000-419 of the DHC-8-400 Maintenance Requirements Manual, PSM 1-84-7.

The CDCCLs identified in TR ALI-0193, dated 24 April 2018, of the DHC-8-400 Maintenance Requirements Manual, PSM 1-84-7, are effective as of their date of incorporation into the Transport Canada approved maintenance schedule.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on September 25, 2018

Contact:

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