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-2017-04R3

Effective Date:

15 April 2020

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-2017-04R2, issued 25 September 2018.

Applicability:

De Havilland Aircraft of Canada Limited (formerly 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 (P/N) 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.

AD CF-2017-04 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 AD CF-2017-04 and AD CF-2017-04R1, Transport Canada became aware that the compliance timeframe of Part I of AD CF-2017-04 was not suitable for new aeroplanes entering into service from the production line. AD CF-2017-04R1 updated Part I 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.

Between the issuance of AD CF-2017-04R1 and AD CF-2017-04R2, Bombardier (BA) developed a modification that addresses the unsafe condition without the need for repeat inspections. AD CF-2017-04R2 updated the aircraft applicability of the initial and repeat inspections mandated by Part I and Part II, introduced an optional terminating action to the repeat inspections mandated by Part I and Part II, and mandated a revision to the Transport Canada approved maintenance schedule. In addition, AD CF-2017-04R2 required retroactive electrical bonding checks on aeroplanes that have been modified in accordance with certain revisions of ModSum 4-113969 or ModSum 4-113970, and removed the requirement to return removed couplings and sleeves and the requirement to return inspection and rectification results to BA. In addition, AD CF-2017-04R2 updated service bulletin (SB) references.

Since AD CF-2017-04R2 was issued, it has been determined that the introduction of BA SB 84-28-21 as mandatory terminating action, in lieu of the BA SB 84-28-20 repeat inspections, will provide a more robust

lightning ignition protection design that will better mitigate the risk of lightning strike induced fuel tank ignition through the use of high resistance isolators, a new fuel coupling design, and improved structural support. Revision 3, AD CF-2017-04R3, updates the optional terminating action to become mandatory, terminates the requirements of Part II, revises Part I and Part VII to refer to the aeroplane's date of manufacture instead of the initial issuance date of the Canadian Certificate of Airworthiness in order to be more specific, and updates the 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 AD CF-2017-04 (6 February 2017), or

For new aeroplanes with an aeroplane date of manufacture, as identified on the identification plate of the aeroplane, dated on or after the effective date of AD CF-2017-04 (6 February 2017), within 6000 hours air time or 36 months, whichever occurs first, from the aeroplane date of manufacture, as identified on the identification plate of the aeroplane:

A. Inspect the existing Hydraflow fuel couplings, and associated sleeves, and replace as required with new Hydraflow fuel couplings and sleeves of the same P/N, in accordance with BA SB 84-28-20 Revision D, dated 23 November 2018, 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 D, dated 23 November 2018, 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 De Havilland Aircraft of Canada Limited (formerly Bombardier Inc.) 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, at Revision B, dated 13 February 2017, or at Revision C, dated 28 April 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:

The requirements of this section have been cancelled at AD CF-2017-04R3.

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

The requirements of this section have been cancelled at AD CF-2017-04R2.

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

The requirements of this section have been cancelled at AD CF-2017-04R2.

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

Within the applicable compliance time indicated in Table 1, install fuel couplings, tube support structure, and high resistance isolators and remove bonding jumpers, in accordance with BA SB 84-28-21 Revision C, dated 13 July 2018, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Table 1: BA SB 84-28-21 Compliance Time

Aeroplane Age	Compliance Time
For aeroplanes with greater than 20 000 hours air time accumulated as of the effective date of AD CF-2017-04 (6 February 2017)	Within 6000 hours air time or 36 months, whichever occurs first, from the effective date of this AD
For aeroplanes with less than or equal to 20 000 hours air time accumulated as of the effective date of AD CF-2017-04 (6 February 2017)	Within 8000 hours air time or 48 months, whichever occurs first, from the effective date of this AD

The inspections required by Part I 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 AD CF-2017-04R2 (9 October 2018), also meet the requirements of Part V of this AD and are no longer required to comply with the inspections required by Part I 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 AD CF-2017-04R2 (9 October 2018), 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 Revision A, dated 29 November 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 Transport Canada Civil Aviation (TCCA) approved Airworthiness Limitation Change Request (ACR) listed in Table 2, before the effective date of AD CF-2017-04R2 (9 October 2018), also meet the requirements of Part VI of this AD.

Incorporation of BA SB 84-28-21 Revision B, dated 8 June 2018, BA SB 84-28-21 Revision C, dated 13 July 2018, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, also meets the requirements of Part VI of this AD.

Incorporation of BA SB 84-28-26 Initial Issue, dated 14 August 2018, prior to the effective date of this AD, also meets the requirements of Part VI of this AD.

Table 2: List of TCCA Approved ACRs Pertaining to the Required Electrical Bonding Checks

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

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 AD CF-2017-04R2 (9 October 2018):

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 BA 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 aeroplane date of manufacture, as identified on the identification plate of the aeroplane.

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 1 April 2020

Contact:

Hilary Ross, Continuing Airworthiness, Ottawa, telephone 888-663-3639, facsimile 613-996-9178 or e-mail AD-CN@tc.gc.ca or any Transport Canada Centre.