



# 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.*

<b>Number:</b>	<b>Effective Date:</b>
CF-2015-22	3 August 2015
<b>ATA:</b>	<b>Type Certificate:</b>
53	A-142

**Subject:**  
Fuselage – Missing Shims Between Longerons and Longeron Joint Fittings

**Applicability:**  
Bombardier Inc. model DHC-8-400, -401 and -402 aeroplanes, serial numbers 4156 through 4453, 4456 and 4457.

**Compliance:**  
As indicated below, unless already accomplished.

**Background:**  
The aeroplane manufacturer has determined that shims may not have been installed between the longerons and longeron joint fittings at fuselage station X373-380, stringers 7 on the left and right hand side, on certain aeroplanes. The missing shims could result in a gapping condition and could lead to stress corrosion cracking of the longeron joint fittings.

Failure of the longeron joint fitting could compromise the structural integrity of the wing-to-fuselage attachment joint.

This AD mandates inspections in the area of the longeron joint fittings.

**Corrective Actions:**

**Part I – External Detailed Visual Inspections (DVI)**

Part I of this AD is not required if Part II of this AD has been accomplished.

- A. Complete Part I, paragraph B of this AD in accordance with the following schedule:
  - 1. For aeroplanes that have accumulated less than 10 000 total hours air time, or less than 5 years in service since new, as of the effective date of this AD, prior to reaching 12 000 total hours air time or 6 years in service since new, whichever occurs first;
  - 2. For aeroplanes that have accumulated 10 000 total hours air time or more, or 5 years or more in service since new, as of the effective date of this AD, within 2000 hours air time or 12 months, whichever occurs first, from the effective date of this AD.
- B. Perform a DVI of the external surface of the fuselage skin panel for signs of loose or working fasteners and/or structural damage in accordance with the Accomplishment Instructions in section 3.B of the Bombardier Service Bulletin (SB) 84-53-65, Initial Issue, dated 27 February 2015, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
  - 1. If there are signs of loose or working fasteners or structural damage, 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. Proceed to Part I, paragraph C of this AD after incorporation of the approved repair.

2. If there are no signs of loose or working fasteners or damage, proceed to Part I, paragraph C of this AD.

C. Repetitive Detailed Visual Inspections:

Subsequently, at intervals not to exceed 2000 hours air time or 12 months, whichever occurs first, from the last DVI, repeat the DVI specified in Part I, paragraph B of this AD until Part II of this AD is accomplished.

New limitation or inspection requirements specified in approved repairs obtained from Bombardier will supersede the inspection requirements introduced in Part I, paragraph C of this AD for the area affected by the repair only.

**Part II – Inspection for Missing Shims and High Frequency Eddy Current (HFEC) Inspection if Shims are Missing**

A. Complete Part II, paragraph B of this AD in accordance with the following schedule:

1. For aeroplanes that have accumulated less than 10 000 total hours air time, or less than 5 years in service since new, as of the effective date of this AD, prior to reaching 18 000 total hours air time or 9 years in service since new, whichever occurs first;
2. For aeroplanes that have accumulated 10 000 total hours air time or more, or 5 years or more in service since new, as of the effective date of this AD, within 8000 hours air time or 4 years, whichever occurs first, from the effective date of this AD, but not to exceed 24 000 total hours air time or 12 years in service since new.

B. Perform a DVI of the longeron joint fittings for the existence of shims in accordance with the Accomplishment Instructions in section 3.C of the above-mentioned SB.

1. If shims are found installed, no further action is required. Compliance with this AD is complete.
2. If no shims are found installed, perform an HFEC inspection of the longeron and the longeron joint fittings in accordance with the Accomplishment Instructions in section 3.D of the above-mentioned SB.
3. If cracks and/or other indications are found with an amplitude of 50% or more of the calibration signal, perform the following:
  - i. Before further flight, replace the longeron joint fittings in accordance with the Accomplishment Instructions in section 3.E of the above-mentioned SB.
  - ii. Within 30 days, report the inspection results to Bombardier Aerospace via the Q-Series Technical Help Desk.
4. If cracks or other indications with an amplitude of 50% or more of the calibration signal are not found, proceed to Part III of this AD.

**Part III – Repetitive HFEC Inspections for Aeroplanes with Missing Shims**

At intervals not to exceed 12 000 hours air time or 6 years, whichever occurs first, from the last HFEC inspection, repeat the HFEC inspection in accordance with Part II, paragraphs B.2, B.3 and B.4 of this AD.

**Part IV – Terminating Action to the Repetitive HFEC Inspections**

Replacement of the longeron joint fittings, in accordance with the Accomplishment Instructions in section 3.E of the above-mentioned SB, constitutes terminating action for the above-mentioned HFEC inspections.

**Authorization:**

For the Minister of Transport,

*ORIGINAL SIGNED BY*

Robin Lau  
Acting Chief, Continuing Airworthiness  
Issued on 21 July 2015

**Contact:**

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