Transport Canada **Transports Canada**

TP 7245E

No. **CF-2009-37** 1/3

Issue Date **30 September 2009**

AIRWORTHINESS DIRECTIVE

The following airworthiness directive (AD) may be applicable to an aircraft which our records indicate is registered in your name. ADs are issued pursuant to ***Canadian Aviation Regulation*** **(CAR) 593**. Pursuant to **CAR 605.84** and the further details of **CAR Standard 625, Appendix H**, the continuing airworthiness of a Canadian registered aircraft is contingent upon compliance with all applicable ADs. Failure to comply with the requirements of an AD may invalidate the flight authorization of the aircraft. Alternative means of compliance shall be applied for in accordance with **CAR 605.84** and the above-referenced **Standard**.

This AD has been issued by the Continuing Airworthiness Division (AARDG), Nationnal Aircraft Certification Branch, Transport Canada, Ottawa, telephone 613 952-4357.

Number: **CF-2009-37**

Subject: **Wing Anti-Ice System – Outboard Low-Heat Detection Switches**

Effective: 16 October 2009

Applicability: Bombardier Inc. Model CL-600-2B19, Serial Numbers 7003 through 8101

Compliance: As indicated below, unless already accomplished.

Background: At present, the Wing Anti-Ice System (WAIS) sufficient heat switches/sensors on CL-600-2B19 aircraft are located at the inboard end of each wing and require a simultaneous low-pressure signal to generate a L or R WING A/ICE amber caution. However, there have recently been several in-service occurrences that have highlighted the inability of the existing system to detect a low-heat condition in the wing leading edge at all times, with the potential consequence of unannunciated asymmetric ice build-up on the wing. These have included partial failure of several piccolo ducts [ref: Airworthiness Directive (AD) CF-2008-30] and partial (not fully closed or open) failure of a modulating and shut-off valve, the latter resulting in unannunciated asymmetric ice build-up on the wing leading edge. Such a condition, in combination with maneuvers close to stick shaker activation, could possibly result in reduced controllability of the aircraft.

This directive mandates:

a) Revision of the Airplane Flight Manual (AFM) to notify the flight crew that, following installation and activation of the low-heat detection switches, certain WAIS mode selection changes may result in a two-minute inhibition of the wing anti-ice message, if posted;

b) Revision of the approved maintenance schedule to include one revised and three new functional checks that are required following activation of the low-heat detection switches;

c) Replacement of the Data Concentrator Units (DCUs) with DCUs incorporating a software update that caters for the new outboard low-heat detection switches and generates the appropriate anti-ice message for the flight crew when a low-heat condition is detected;

Note: Although not related to this directive, the software update also corrects the sampling rate of two previously non-compliant Flight Data Recorder (FDR) parameters, normal acceleration and pitch attitude.

d) Installation of the low-heat detection switches in the wing outboard leading edges, the wing A/ICE box assembly and associated wires; and

e) Activation of the low-heat detection switches.

Note: Within the constraints of the compliance times specified below, each Part of this directive may be accomplished separately from the other Parts.

Corrective Actions:

Part I: Airplane Flight Manual (AFM) Revision: Applicable to CL-600-2B19 Aircraft, Serial Numbers 7003 through 8101

Within 30 days after the effective date of this directive:

A. Amend the AFM, CSP A-012, by inserting Temporary Revision (TR) No. RJ/164-2, dated 12 May 2009, or later approved changes to this TR; and

B. Advise all flight crews of the changes introduced in the AFM TR.

Part II: Maintenance Schedule Revision: Applicable to CL-600-2B19 Aircraft, Serial Numbers 7003 through 8101

Within 30 days after the effective date of this directive:

Revise the Transport Canada approved maintenance schedule by incorporating the inspection requirements contained in TR 2A-46, dated 24 July 2009, of the Maintenance Requirements Manual, CSP A-053, Part 2, Appendix A, Certification Maintenance Requirements.

Part III: Replacement of the Data Concentrator Units (DCUs) - Applicable to CL-600-2B19 Aircraft, Serial Numbers 7003 through 8095

Prior to accomplishment of Part V of this directive but no later than 1 November 2010:

Replace the existing DCUs (Part Numbers (P/N) 622-9820-007 and/or –008 and/or -009) with modified DCUs (P/N 622-9820-010) and also, if applicable, modify the Configuration Strapping Units (CSUs), in accordance with the Accomplishment Instructions in Bombardier Service Bulletin (SB) 601R-31-034, Revision A, dated 10 April 2008, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Notes: 1. The modified DCUs have been installed in production on CL-600-2B19 aircraft, serial numbers 8096 and subsequent.

2. Accomplishment in accordance with the original issue of Bombardier SB 601R-31-034, dated 19 November 2007, also meets the intent of Part III of this directive.

Part IV: Installation of Low-Heat Detection Switches in the Wing Outboard Leading Edges, Wing A/ICE Box Assembly and Associated Wires - Applicable to CL-600-2B19 Aircraft, Serial Numbers 7003 through 8101

Prior to accomplishment of Part V of this directive but no later than 1 November 2010:

Install the outboard low-heat detection switches, wing A/ICE box assembly and associated wires in accordance with the Accomplishment Instructions in Parts A, C, D and E of Bombardier SB 601R-30-031, Revision A, dated 8 September 2009, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Notes: 1. Accomplishment of Parts A, C, D and E of Bombardier SB 601R-30-031, Revision A, dated 8 September 2009, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, may be performed separately from each other.

2. Accomplishment in accordance with Part A of the original issue of Bombardier SB 601R-30-031, dated 15 May 2009, also meets the intent of Part IV of this directive.

3. There have been a small number of cases reported in which piccolo ducts were found to have been installed in the opposite wing, resulting in the incorrect orientation of the bleed holes. During reinstallation of the piccolo ducts and leading edge assemblies after installation of the low-heat detection switches, particular attention should be paid to the correct alignment of the piccolo ducts [Ref: Aircraft Maintenance Manual Task 30-11-41-820-801].

Part V: Activation of the Low-Heat Detection Switches in the Wing Outboard Leading Edges - Applicable to CL-600-2B19 Aircraft, Serial Numbers 7003 through 8101

Following accomplishment of Parts III and IV of this directive but no later than 1 November 2010:

Activate the outboard low-heat detection switches in accordance with the Accomplishment Instructions in Part F of Bombardier SB 601R-30-031, Revision A, dated 8 September 2009, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Note: Accomplishment in accordance with Part B of the original issue of Bombardier SB 601R-30-031, dated 15 May 2009, also meets the intent of Part V of this directive.

Authorization: For Minister of Transport, Infrastructure and Communities

Derek Ferguson,
Chief, Continuing Airworthiness

Contact: Mr. Richard Topham, Continuing Airworthiness, Ottawa, telephone 613-952-4357, facsimile 613-996-9178 or e-mail CAW_Web_Feedback@tc.gc.ca or any Transport Canada Centre.