



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) with ADs.

Number:

CF-2023-33

Effective Date:

24 May 2023

ATA:

30

Type Certificate:

A-234

Subject:

Ice and Rain Protection – Air Data Probes and Sensors – Heater Current Monitor Unit Failure Detection

Applicability:

Bombardier Inc. model BD-100-1A10 aeroplanes, serial numbers 20003 through 20936.

Compliance:

Within 60 months from the effective date of this AD, unless already accomplished.

Background:

During a review of the air data system (ADS), Bombardier discovered that a single point failure exists within the left-hand and right-hand heater current monitor (HCM) units, since the same programmable logic device (PLD) is responsible for both the control and monitoring functions of each unit. The PLD could fail in a way that it would erroneously energize the heater control relay (HCR) and switch the heaters off. This failure could lead to unannounced loss of ice protection on the air data probes, resulting in the potential display of misleading airspeed and other indications to the crew.

This AD requires the installation of a monitoring circuit comprising relays, external to the HCM units, that will detect the loss of the affected probe heating function and will result in appropriate Crew Alerting System (CAS) messages. This AD also requires a revision of the Normal and Non-Normal Procedure section of the Airplane Flight Manual (AFM).

Corrective Actions:

A. Modification and Testing

1. Perform the modifications and relay installation, in accordance with section 2.B. of the Accomplishment Instructions of the applicable Bombardier Inc. Service Bulletin (SB) listed in Table 1 below, as applicable to the aeroplane model.
2. Perform the operational tests, in accordance with section 2.C. of the Accomplishment Instructions of the applicable Bombardier Inc. SB listed in Table 1 below, as applicable to the aeroplane model.

B. Following completion of Paragraph A of this AD, amend the Transport Canada approved AFM, in accordance with Table 2 below, as applicable to the aeroplane model.

Advise all flight crews of the changes introduced by the Transport Canada approved AFM Revisions listed below and thereafter operate the affected aircraft accordingly.

Table 1 – Applicable SBs

Aeroplane Model	Applicable SB
BD-100-1A10 Challenger (CH) 300	SB 100-30-06, Basic Issue, dated 29 December 2022, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
BD-100-1A10 CH350	SB 350-30-001, Basic Issue, dated 29 December 2022, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Table 2 – AFM References

Aeroplane Model	AFM Procedure	AFM Revision
BD-100-1A10 CH300	<ul style="list-style-type: none"> Chapter 4 - Normal Procedures add new step in section BEFORE STARTING ENGINES, page 04-02-7. 	AFM CSP 100-1, Revision 70, issued 27 September 2022, or later revisions of this procedure approved by Transport Canada
	<ul style="list-style-type: none"> Chapter 5 - Non-Normal Procedures: Addition of new procedures: LEFT AIR DATA HEAT FAIL and RIGHT AIR DATA HEAT FAIL to the NON-NORMAL PROCEDURE section, under Ice & Rain Protection (05-27) subsection. – Addition of note to: L (R) AOA VANE HEAT FAIL (C), L (R) PITOT HEAT FAIL (C), STBY PITOT HEAT FAIL (C) and L (R) STBY HEAT FAIL (C) 	
BD-100-1A10 CH350	<ul style="list-style-type: none"> Chapter 4 - Normal Procedures add new step in section BEFORE STARTING ENGINES, page 04-02-7. 	AFM CH 350, Revision 36, issued 27 September 2022, or later revisions of this procedure approved by Transport Canada
	<ul style="list-style-type: none"> Chapter 5 - Non-Normal Procedures: Addition of new procedures: LEFT AIR DATA HEAT FAIL and RIGHT AIR DATA HEAT FAIL to the NON-NORMAL PROCEDURE section, under Ice & Rain Protection (05-27) subsection. – Addition of note to: L (R) AOA VANE HEAT FAIL (C), L (R) PITOT HEAT FAIL (C), STBY PITOT HEAT FAIL (C) and L (R) STBY HEAT FAIL (C). 	

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Jenny Young
Chief, Continuing Airworthiness
Issued on 10 May 2023

Contact:

Mihaela Kramer, Continuing Airworthiness, Ottawa, telephone 888-663-3639, facsimile 613-996-9178 or e-mail TC.AirworthinessDirectives-Consignesdenavigabilite.TC@tc.gc.ca or any Transport Canada Centre.