



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-2022-03R1

Effective Date:

19 May 2023

ATA:

27

Type Certificate:

A-234

Subject:

Flight Controls – Horizontal Stabilizer Trim Switch – Unintended Horizontal Stabilizer Motion

Revision:

Supersedes AD CF-2022-03, issued 1 February 2022.

Applicability:

Bombardier Inc. model BD-100-1A10 (Challenger 300/350) aeroplanes, all serial numbers.

Compliance:

Within 30 days from the effective date of this AD, unless already accomplished.

Background:

There have been multiple in-service events, where following a STAB TRIM FAULT advisory message and an Auto-Pilot disconnect, both pilot and co-pilot commands to the horizontal stabilizer for an aeroplane nose-up trim resulted instead in an aeroplane nose-down trim movement of the horizontal stabilizer. In some events, the horizontal stabilizer reached the full aeroplane nose-down trim position before the crew recognized the nature of the problem, which resulted in increased crew workload and reduced safety margins.

If not correctly managed by the flight crew, an uncommanded horizontal stabilizer motion could result in the stabilizer reaching its full travel position, and consequently, the crew may not be able to regain control of the horizontal stabilizer, which would result in reduced controllability of the aeroplane and high control forces.

The investigation is ongoing and as a mitigating action, this AD mandates the introduction of an Expanded Pitch Trim Pre-Flight Check, the introduction of Trim Malfunction procedures, the revision of the AP STAB TRIM FAIL caution and STAB TRIM FAULT advisory procedures to address this unsafe condition.

This AD revision, CF-2022-03R1, clarifies the location of the revised Non-Normal Advisories Procedures.

Corrective Actions:

- A. Amend the applicable Transport Canada approved Airplane Flight Manual (AFM) by incorporating the procedures or inserting the Temporary Revisions (TRs), as required, in accordance with Table 1 below.

Table 1 – AFM and TR References

Aeroplane Model	AFM Procedure / TR References	AFM Revision
BD-100-1A10 CH300	<ul style="list-style-type: none"> • Normal Procedures chapter – BEFORE STARTING ENGINES checklist, Section 04-02 	CSP 100-1, Revision 66, dated 17 December 2021, or later revisions of this manual approved by Transport Canada.
	<p>TR-92 dated 20 December 2021, or later revisions of this procedure approved by Transport Canada.</p> <ul style="list-style-type: none"> • Non-Normal Cautions Procedures chapter – AP STAB TRIM FAIL (C) (found in Section 05-14), Roll Trim Malfunction (found in Section 05-23), Stabilizer Trim Malfunction (found in Section 05-23) • Non-Normal Advisories Procedures chapter – STAB TRIM FAULT (A) (found following Section 05-52) 	
BD-100-1A10 CH300	<ul style="list-style-type: none"> • Normal Procedures chapter – BEFORE STARTING ENGINES checklist, Section 04-02 	CSP 100-1 – Metric, Revision 66, dated 17 December 2021, or later revisions of this manual approved by Transport Canada.
	<p>TR-M92 dated 20 December 2021, or later revisions of this procedure approved by Transport Canada.</p> <ul style="list-style-type: none"> • Non-Normal Cautions Procedures chapter – AP STAB TRIM FAIL (C) (found in Section 05-14), Roll Trim Malfunction (found in Section 05-23), Stabilizer Trim Malfunction (found in Section 05-23) • Non-Normal Advisories Procedures chapter – STAB TRIM FAULT (A) (found following Section 05-52) 	
BD-100-1A10 CH350	<ul style="list-style-type: none"> • Normal Procedures chapter – BEFORE STARTING ENGINES checklist, Section 04-02 	CH 350 AFM, Revision 32, dated 17 December 2021, or later revisions of this manual approved by Transport Canada.
	<p>TR-23 dated 20 December 2021, or later revisions of this procedure approved by Transport Canada.</p> <ul style="list-style-type: none"> • Non-Normal Cautions Procedures chapter – AP STAB TRIM FAIL (C) (found in Section 05-14), Roll Trim Malfunction (found in Section 05-23), Stabilizer Trim Malfunction (found in Section 05-23) • Non-Normal Advisories Procedures chapter – STAB TRIM FAULT (A) (found following Section 05-52) 	

- B. Brief all flight crew such that prior to the flight crew's first flight of the day, each flight crew is required to:
- i. Familiarize themselves with the location of the Trim Malfunction procedures in the Quick Reference Handbook (QRH).
 - ii. Review the Stabilizer Trim Malfunction procedure introduced by AFM TR-92 dated 20 December 2021, or later revisions of this procedure approved by Transport Canada, TR-M92 dated 20 December 2021, or later revisions of this procedure approved by Transport Canada, or TR-23 dated 20 December 2021, or later revisions of this procedure approved by Transport Canada, as appropriate.
- C. Insert a copy of this AD in the applicable AFM, and thereafter operate the aeroplane accordingly.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Jenny Young
Chief, Continuing Airworthiness
Issued on 5 May 2023

Contact:

Philip Lynch 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.