GROUPEMENT POUR LA SECURITE
AVIATION CIVILE

BR 2005/07(B)

DGAC BULLETIN DE RECOMMANDATION

Edité par : DGAC FRANCE

Le : 02 MARS 2005

TITRE : COMMANDES DE VOL - COMPENSATEUR DE L'EMPENNAGE HORIZONTAL

MATERIELS CONCERNES :

Avions BOMBARDIER CL-600-2B19.

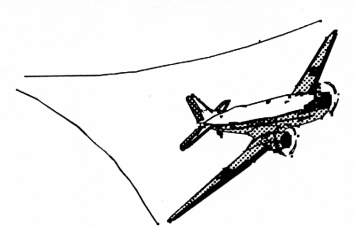
DOCUMENT D'ORIGINE :

FAA Special Airworthiness Information Bulletin NM-05-31 du 4 février 2005.

RECOMMANDATION :

Les propriétaires et utilisateurs d'avions BOMBARDIER CL-600-2B19 sont invités à suivre les recommandations du document dont le texte est joint.

SPECIAL AIRWORTHINESS INFORMATION BULLETIN



U.S. Department of Transportation

Aircraft Certification Service
Washington, DC

Federal Aviation Administration

No. NM-05-31
February 4, 2005

www.faa.gov/certification/aircraft
This is information only. Recommendations are not mandatory.

Introduction

The Special Airworthiness Information Bulletin (SAIB) advises you, owners and operators of **Bombardier model CL-600-2B19 aircraft**, that we have received reports of higher-than-expected levels of dual-channel disconnects of the horizontal stabilizer trim system. This problem posts STAB TRIM and MACH TRIM caution messages on EICAS. Bombardier is undertaking an engineering investigation to address the root causes of this issue.

Background

Bombardier has issued an All Operator Message (AOM) # 870, (copy attached) to provide advice for aircrew in order to mitigate any handling or control issues which may arise. We anticipate that a further revision to the CL-600-2B19 aircrew publications (FCOM and/or AFM) will follow to formalize some of the advice.

Recommendations

We strongly recommend that you review AOM #870, and familiarize yourselves with the associated abnormal procedures in AFM revision 56.

For Further Information Contact

FAA, Dan Parrillo, NYACO, ANE-172, 1600 Stewart Ave, Suite 410, Westbury, N.Y. 11590; Tel: (516) 228-7305; Fax: (516) 794-5531; email: daniel.parrillo@faa.gov

BOMBARDIER

AEROSPACE

Bombardier Inc.
400, Côte-Vertu West
Dorval Québec H48 1Y9
thd.crj@aero.bombardier.Com

Tel. 514-855-8500
Fax 514-855-8501

Bombardier CRJ CL-600-2B19

All Operator Message No. 870

ATTN: Director/Manager of: Maintenance
Engineering
Quality Control
Flight Operators

Date: 31 Jan 05

MODEL: CL-600-2B19

SUBJECT: Horizontal Stabilizer Trim System - Dual Channel Disconnect Events.

The following message is sent to all Bombardier CRJ Operators and Bombardier Aerospace Field Service Representatives.

This message contains information requiring attention and/or actions. Please ensure timely and appropriate distribution within maintenance and flight operations departments.

DISCUSSION:

Several CRJ200 operators have reported dual channel disconnects of the horizontal stabilizer trim system resulting in STAB TRIM and MACH TRIM caution messages being posted on EICAS. Bombardier addresses both caution message in the latest version (REV 56) of the CRJ AFM and FCOM and the associated abnormal procedures should be followed. Bombardier has begun an engineering investigation to address the root cause(s) of this issue.

The following guidance is provided to mitigate handling or control issued that may arise following this type of event. It is anticipated that a revision of the CRJ FCOM and/or AFM will follow to formalize some of the following advice.

In the event of a dual STAB TRIM disconnect event, the following functions will be unavailable:

- STAB TRIM
- MACH TRIM

It is possible to inadvertently activate the STAB DISCONNECTED which mounted on the control wheel. Therefore, in accordance with the AFM, an attempt should always be made to re-engage the STAB TRIM and MACH TRIM functions by first depressing the channel 1 and channel 2 engage switches, and then the mach trim engage, which, all located on the STAB/MATCH TRIM panel (center pedestal).

Also, preliminary investigation results indicate that following a fault detected on channel 1 of the stabilizer trim system, conditions may prevail that prevent the automatic transfer of function control to channel 2. Following an unsuccessful attempt to re-engage both channels of the stabilizer system, the pilot (or co-pilot) should make an attempt to re-engage chancel 2 only. If this is successfully completed the STAB TRIM function will be available with a STAB CH1 INOP EICAS indication, and an attempt should also be made to re-engage the MACH TRIM function.

It is also possible that the STAB DISCONNECT switch may be stuck in the depressed position, thus preventing the re-engagement of the STAB TRIM and MACH TRIM functions. If this is suspected, the pilot (or copilot) should make an attempt to free the affected switch, by pressing and then releasing it, or by pulling or rocking it.

If the STAB TRIM function cannot be re-engaged, then in the absence of trim capability it will, at some time , be necessary to hand-fly the aircraft, with possibly significant control forces required for the remainder of the flight. The following advice is provided as a guide to manage toe the aircraft, and to reduce control forces as much as practical.

- If autopilot is engaged:

  Leave the autopilot engaged.

  Minimize changes to the airspeed and the aircraft configuration. This shall minimise elevator servo motor loads.

  The autopilot performs pitch trim monitoring. a pitch mistrim condition may cause the following annunciations to appear:
  - "E" in a yellow box on the PDF
  - "AP PITCH TRIM", AP TRIM IS ND" or "AP TRIM IS NU" EICAS caution messages.

  Follow the AFM abnormal procedures if the above EICAS caution messages appear.

  NOTE: Anticipate an out-of-trim condition if the autopilot is disengaged.

Comments

it is considered that leaving the autopilot engaged is preferable (provided that non of the above EICAS messages are displayed) as disengaging it may require a reduction from normal cruise speeds as per the MACH TRIM abnormal procedure, and this speed change will induce control force requirements, which will have to be borne by the crew for the balance of the flight. Note that the autopilot must be disengaged (refer to AFM) if any of the above EICAS caution messages appear.

- If autopilot is NOT engaged:

  Assuming that the loss of the STAB TRIM function occurred while in-trim, changes to airspeed and configuration should be minimized to remain in-trim as long as possible, reducing control force requirements, subject of the restrictions on speed noted in the MACH TRIM caution procedure.

If/when the flaps are extended, the pilot should anticipate a transient pitch effect. Less nose up trim is generally required at the same airspeed with a greater flap angle, therefore, some alleviation in nose-up control forces may be obtained by extending the flaps at a constant speed. If a STAB TRIM message occurs at a flap setting greater than 20 degrees, minimize configuration and speed changes a long as practical to help maintain an "In Trim" condition.

Please direct responses and inquiries to your Bombardier Aerospace Regional Aircraft Field Service Representative or the Technical Help Desk in Montreal at telephone number (514) 855-8500 or facsimile (514) 855-8501 or thd.cri@aero.bombardier.com

Tracy Lloyd Manager and Martin Elliot, Director, In-Service Engineering, Bombardier Aerospace Regional Aircraft