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.

Number:

CF-2016-31

Effective Date:

12 October 2016

ATA:

32

Type Certificate:

A-142

Subject:

Landing Gear – Dynamic Response of Main Landing Gear System to External Loads

Applicability:

Bombardier Inc. model DHC-8-400, -401 and -402 aeroplanes, serial numbers 4001, 4003 through 4534.

Compliance:

As indicated, unless already accomplished.

Background:

There have been cases where the Main Landing Gear (MLG) has retracted after striking an obstacle or as a result of a severe wheel imbalance following a tire failure. The vibrations experienced during these events have resulted in the loss of the MLG downlock signal resulting in the de-energizing of the MLG solenoid sequence valve (SSV) with the subsequent removal of hydraulic pressure from the MLG downlock actuator. The loss of hydraulic pressure in the downlock actuator in combination with the vibrations allowed the stabilizer brace to unlock causing the gear to retract.

This AD mandates changes to the downlock sensor rigging and a reduction in the lock link over-centre stop pin height as mitigating actions. It also mandates the installation of Proximity Sensor Electronic Unit (PSEU) 30145-0601, which incorporates new software to ensure hydraulic pressure is retained in the MLG downlock actuator whenever the landing gear is down and locked.

Corrective Actions:

Part I – Downlock Sensor Rigging and Reduced Lock Link Over-Centre.

A. Within 9 months from the effective date of this AD, accomplish the following:

1. Verify the height of the lock link over-centre stop pin and, replace the shim as necessary, in accordance with Bombardier Service Bulletin (SB) 84-32-140, Initial Issue, dated 5 August 2016, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

2. Verify, and adjust if necessary, the gap of the left-hand (LH) and right-hand (RH) MLG downlock proximity sensors in accordance with Bombardier SB 84-32-140, Initial Issue, dated 5 August 2016, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Part II – Installation of PSEU 30145-0601.

A. Within 18 months from the effective date of this AD, install PSEU 30145-0601. Bombardier SB 84-32-143, Revision A, dated 5 August 2016, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, provides approved instructions for the installation of PSEU 30145-0601.

Aeroplanes incorporating PSEU 30145-0601 in accordance with the Initial Issue of SB 84-32-143, dated 30 June 2016, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada, do not need to accomplish Part I of this AD.

Aeroplanes incorporating PSEU 30145-0601 in accordance with the Initial Issue of SB 84-32-143, dated 30 June 2016 also meet the intent of Part II A. of this AD.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 28 September 2016

Contact:

Craig McAllister, Continuing Airworthiness, Ottawa, telephone 1-888-663-3639, facsimile 613-996-9178 or e-mail AD-CN@tc.gc.ca or any Transport Canada Centre.