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-2020-43

Effective Date:

4 November 2020

ATA:

32

Type Certificate:

A-142

Subject:

Landing Gear – Main Landing Gear (MLG) Drag Strut – Longitudinal Cracking

Applicability:

De Havilland Aircraft of Canada Limited (formerly Bombardier Inc.) model DHC-8-400, DHC-8-401 and DHC-8-402 aeroplanes, serial numbers 4001, 4003 and subsequent.

Compliance:

As indicated below, unless already accomplished.

Background:

During a routine walk-around check, a 24" longitudinal crack was found on a MLG drag strut assembly part number (P/N) 46301-13. The MLG drag strut had accumulated a total of 26 968 flight cycles (FC) and 12 392 Flight Hours (FH) since new, of which 2830 FC and 1420 FH were accumulated since the last overhaul. This last overhaul had been conducted one year prior to finding the crack. It is suspected that the cracking was caused by the clamping method used by the repair facility during the most recent overhaul and was missed during subsequent non-destructive testing (NDT) inspections required as part of the refurbishment process. The crack would have increased to the reported size during operations following this last overhaul. Table 1 of this AD lists the affected MLG drag strut assemblies overhauled by the same repair facility. An affected MLG drag strut assembly could fail under compression loads during landing or ground operations leading to an asymmetric MLG configuration and potential runway excursion.

This AD requires the following:

- a verification to determine if an affected MLG drag strut assembly is installed on the aeroplane;
- an initial and repetitive detailed visual inspection (DVI) if an affected MLG drag strut assembly is installed on the aeroplane;
- a one-time magnetic particle inspection (MPI) of the tubular section of the MLG drag strut assembly if an affected MLG drag strut assembly is installed on the aeroplane.

This AD also requires reporting the MPI results to De Havilland Aircraft of Canada Limited's technical help desk.

Corrective Actions:

Part I – Verification of Aeroplane and/or Aeroplane Technical Records

Within 30 days from the effective date of this AD, verify the aeroplane and/or the aeroplane technical records to determine if an affected MLG drag strut assembly is installed on the aeroplane. If this verification determines that an affected MLG drag strut assembly is installed on the aeroplane, perform Part II, Part III and Part IV of this AD.

If this verification determines that an affected MLG drag strut assembly is not installed on the aeroplane,

completion of Part II, Part III and Part IV of this AD is not required.

Part II – Initial and Repetitive DVI

Within 80 FH after performing Part I of this AD, and thereafter at intervals not to exceed 80 FH, perform the initial and repetitive DVIs of the affected MLG drag strut assembly, in accordance with De Havilland Aircraft of Canada Limited Aircraft Maintenance Manual (AMM) task 32-11-11-280-801. If a crack is found during any of the inspections required by Part II of this AD, remove the drag strut in accordance with AMM 32-11-11-000-801 and replace it with a new or serviceable part in accordance with AMM 32-11-11-400-801, before further flight.

Part III – Terminating Action - MPI

Within 1600 FH or no later than 12 months, whichever occurs first, from the effective date of this AD, perform a MPI of the entire tubular section of the affected MLG drag strut assembly. Remove the MLG drag strut assembly from the aeroplane in accordance with AMM 32-11-11-000-801. Make sure that you retain for reinstallation all the components and their attaching parts (includes airframe attachment parts) that were removed from the MLG that are not required to be inspected. The inspection must be carried out by an approved facility or the drag strut manufacturer. Perform the MPI in accordance with American Society for Testing and Materials (ASTM) E 1444. Use a Horizontal wet type machine with three phase full wave direct current (FWDC). Magnetize using both circumferential and longitudinal magnetizations. Magnetization currents must be verified using quantitative quality indicators (QQI) and Hall meter equipment. Defects not to exceed military standard MIL-STD-1907 Grade A limits. If a crack is found, before further flight, replace the MLG drag strut assembly with a new or serviceable part in accordance with AMM 32-11-11-400-801.

If no crack is found, identify the drag strut with this AD number CF-2020-43 next to the drag strut serial number (S/N) in accordance with AMM 20-00-01 except **do not use the Vibropeen method**. Install the MLG drag strut in accordance with AMM 32-11-11-400-801. Make the following entry in the appropriate logbooks: “Airworthiness Directive (AD) CF-2020-43, Landing Gear – Main Landing Gear (MLG) Drag Strut – Longitudinal Cracking – MPI accomplished”.

Part IV – Reporting Findings on MLG Drag Strut Assembly

Within seven (7) days after completing the Corrective Action in Part III of this AD, report the MPI results to De Havilland Aircraft of Canada Limited’s technical help desk using Table 2.

Part V – Installation of Replacement MLG Drag Strut Assembly

As of the effective date of this AD, the installation of an affected MLG drag strut assembly, on De Havilland Aircraft of Canada Limited model DHC-8-400, DHC-8-401 and DHC-8-402 aeroplanes as a replacement part, is prohibited without incorporating Part II, Part III and Part IV of this AD.

Table 1: Affected MLG Drag Strut Assembly

Part Number	Serial Number
46301-13	MBM0056
46301-13	MBM0073
46301-13	MBM0076
46301-13	MBM0130
46301-13	MBM0136
46301-13	MBM0145
46301-13	MBM0179
46301-13	MBM0204
46301-13	MBM0208
46301-13	MBM0302
46301-13	MBM0303
46301-13	MBM0324
46301-13	MBM0405
46301-13	MBM0408
46301-13	MBM0412
46301-13	MBM0417
46301-13	MBM0423

Table 2: Reporting Required for Affected MLG Drag Strut Assembly

Part Number	Serial Number	Operator	Aircraft Manufacturer Serial Number (MSN)	Time Since Overhauled/ Cycles Since Overhauled	MPI Results
46301-13	MBM0056				
46301-13	MBM0073				
46301-13	MBM0076				
46301-13	MBM0130				
46301-13	MBM0136				
46301-13	MBM0145				
46301-13	MBM0179				
46301-13	MBM0204				
46301-13	MBM0208				
46301-13	MBM0302				
46301-13	MBM0303				
46301-13	MBM0324				
46301-13	MBM0405				
46301-13	MBM0408				
46301-13	MBM0412				
46301-13	MBM0417				
46301-13	MBM0423				

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 21 October 2020

Contact:

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