



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-2023-32

Effective Date:

23 May 2023

ATA:

32

Type Certificate:

A-131

Subject:

Landing Gear – Main Landing Gear (MLG) Shock Strut Lower Pin Cracking

Replacement:

Supersedes AD CF-2020-54R1, issued 23 December 2020.

Applicability:

Bombardier Inc. model CL-600-2B16 aeroplanes, serial numbers 5301 through 5665, 5701 through 5988 and 6050 through 6188.

Compliance:

As indicated below, unless already accomplished.

Background:

There have been multiple reports of MLG shock strut lower pin part number (P/N) 19146-3 being found cracked in service. The subsequent investigation concluded that the friction torque introduced when the shock strut is under compression loading, causes the pin anti-rotation tangs to become loaded. This repeated load condition can result in a pin crack originating at the base of the pin anti-rotation tang. Inadequate lubrication aggravates the condition. If not corrected, this condition could result in gear collapse of one or both MLGs.

To mitigate the potential failure of the shock strut lower pin P/N 19146-3, AD CF-2020-54R1 required a more frequent repetitive lubrication task; an initial and repetitive detailed visual inspection (DVI) of the MLG shock strut lower pin; an initial and repetitive non-destructive test (NDT) inspection of the MLG shock strut lower pin and replacement of the shock strut lower pin before further flight if cracks or damage are found during any of the inspections.

Since AD CF-2020-54R1 was issued, a new design solution for this potential failure was made available. This solution involves the replacement of the trailing arm bushings at the attachment and the re-assembly of the MLG shock strut assembly to trailing arm assembly joint with new dynamic joint components.

This AD requires the replacement of the trailing arm bushings and installation of the new dynamic joint components for the MLG shock strut assembly to trailing arm assembly joint as terminating action to the requirements of AD CF-2020-54R1. This AD maintains all of the requirements of AD CF-2020-54R1 until the trailing arm bushings and new dynamic joint components have been installed.

Corrective Actions:

For the purpose of this AD, the following definition applies:

MLG shock strut lower pin: the MLG shock strut lower pin P/N 19146-3.

Part I – Lubrication of the Left Hand (LH)/Right Hand (RH) MLG Shock Strut Lower Pin

A. Initial Lubrication Task

Within 200 hours air time or 12 months, whichever occurs first, from the effective date of AD CF-2020-54R1 (5 January 2021), perform the initial lubrication tasks of the LH and RH MLG shock strut lower pin, in accordance with Paragraph 2.B. Part A of the Accomplishment Instructions of the applicable Service Bulletin (SB) listed in Table 1 below.

B. Repetitive Lubrication Task

Following completion of Part I.A. of this AD, repeat the lubrication tasks of the LH and RH MLG shock strut lower pin at intervals not exceeding 200 Flight Hours (FH) or 12 months, whichever occurs first, in accordance with Paragraph 2.B. Part A of the Accomplishment Instructions of the applicable SB listed in Table 1 below.

Part II – DVI of the LH/RH MLG Shock Strut Lower Pin

A. Initial DVI

- a. For aeroplanes with a MLG shock strut lower pin that has accumulated less than 600 flight cycles (FC) as of the effective date of AD CF-2020-54R1 (5 January 2021), before reaching 750 FC, perform the DVI of the LH and RH MLG shock strut lower pin, in accordance with Paragraph 2.C. Part B of the Accomplishment Instructions of the applicable SB listed in Table 1 below.
- b. For aeroplanes entering service after the effective date of AD CF-2020-54R1 (5 January 2021), before reaching 750 FC, perform the DVI of the LH and RH MLG shock strut lower pin, in accordance with Paragraph 2.C. Part B of the Accomplishment Instructions of the applicable SB listed in Table 1 below.
- c. For aeroplanes with a MLG shock strut lower pin that has accumulated 600 FC or more as of the effective date of AD CF-2020-54R1 (5 January 2021), within 150 FC, perform the DVI of the LH and RH MLG shock strut lower pin, in accordance with Paragraph 2.C. Part B of the Accomplishment Instructions of the applicable SB listed in Table 1 below.

B. Repetitive DVI

Following completion of Part II.A. of this AD, repeat the DVI of the LH and RH MLG shock strut lower pins at intervals not exceeding 400 FH or 24 months, whichever occurs first, in accordance with Paragraph 2.C. Part B of the Accomplishment Instructions of the applicable SB listed in Table 1 below.

The DVI is not required if it coincides with the NDT required in Part III of this AD. In this instance, the NDT supersedes the DVI required by this Part.

If the accumulated FC of the MLG shock strut lower pin is not known, use the related MLG assembly accumulated FC to determine when the actions required by this AD need to be accomplished.

Part III – NDT Inspection of the LH/RH MLG Shock Strut Lower Pin

A. Initial NDT

- a. For aeroplanes with a MLG shock strut lower pin that has accumulated less than 1200 FC as of the effective date of AD CF-2020-54R1 (5 January 2021), before reaching 1500 FC, perform the NDT of the LH and RH MLG shock strut lower pin, in accordance with Paragraph 2.D. Part C of the Accomplishment Instructions of the applicable SB listed in Table 1 below.
- b. For aeroplanes entering service after the effective date of AD CF-2020-54R1 (5 January 2021), before reaching 1500 FC, perform the NDT of the LH and RH MLG shock strut lower pin, in accordance with Paragraph 2.D. Part C of the Accomplishment Instructions of the applicable SB listed in Table 1 below.
- c. For aeroplanes with a MLG shock strut lower pin that has accumulated 1200 FC or more but less than 2000 FC as of the effective date of AD CF-2020-54R1 (5 January 2021), within 300 FC or prior to 2200 FC, whichever occurs first, perform the NDT of the LH and RH MLG shock strut lower pin, in accordance with Paragraph 2.D. Part C of the Accomplishment Instructions of the applicable SB listed in Table 1 below.
- d. For aeroplanes with a MLG shock strut lower pin that has accumulated 2000 FC or more as of the effective date of AD CF-2020-54R1 (5 January 2021), within 200 FC, perform the NDT of the LH and RH MLG shock strut lower pin, in accordance with Paragraph 2.D. Part C of the Accomplishment Instructions of the applicable SB listed in Table 1 below.

B. Repetitive NDT

Following completion of the Part III.A. of this AD, repeat the NDT of the LH and RH MLG shock strut lower pin at intervals not exceeding 900 FC, in accordance with Paragraph 2.D. Part C of the Accomplishment Instructions of the applicable SB listed in Table 1 below.

If the accumulated FC of the MLG shock strut lower pin is not known, use the related MLG assembly accumulated FC to determine when the actions required by this AD need to be accomplished.

Part IV – Cracks or Damage Findings on the MLG Shock Strut Lower Pin

If, during any inspection required by Part I, Part II and Part III this AD, any crack or damage of the MLG shock strut lower pin is detected, before further flight, replace the affected MLG shock strut lower pin with a new MLG shock strut lower pin, in accordance with Paragraph 2.E. Part D of the Accomplishment Instructions of the applicable SB listed in Table 1 below.

Part V – Modification and Testing of Dynamic Joint at MLG Shock Strut Assembly to Trailing Arm Assembly**A. Modification**

Within 60 months from the effective date of this AD, perform the modification of the MLG shock strut assembly to trailing arm assembly joint and all other actions, in accordance with Section 2.B. paragraph 1 through 6 of the Accomplishment Instructions of the applicable SB listed in Table 2 below.

B. Testing

Following completion of Part V.A. of this AD, perform the testing of the MLG shock strut assembly to trailing arm assembly joint, in accordance with Section 2.C. of the Accomplishment Instructions of the applicable SB listed in Table 2 below.

Accomplishment of Part V of this AD constitutes a terminating action to the initial and repeat requirements of Part I, Part II, Part III and Part IV of this AD.

Table 1 – Applicable SB

Aeroplane Model	SB Revision
CL-600-2B16 (CL-604)	SB 604-32-030, Basic Issue, dated 30 June 2020 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
CL-600-2B16 (CL-605)	SB 605-32-007, Basic Issue, dated 30 June 2020 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
CL-600-2B16 (CL-650)	SB 650-32-004, Basic Issue, dated 30 June 2020 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Table 2 – Applicable SB

Aeroplane Model	SB Revision
CL-600-2B16 (CL-604)	SB 604-32-031, Basic Issue, dated 29 December 2022 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
CL-600-2B16 (CL-605)	SB 605-32-008, Basic Issue, dated 29 December 2022 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
CL-600-2B16 (CL-650)	SB 650-32-005, Basic Issue, dated 29 December 2022 or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Jenny Young
Chief, Continuing Airworthiness
Issued on 9 May 2023

Contact:

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