



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-2024-42

Effective Date:

27 December 2024

ATA:

63

Type Certificate:

H-103

Subject:

Main Rotor Drive System – Cracking of Transmission Oil Check Valve

Applicability:

Bell Textron Canada Limited (Bell) model 427 helicopters, serial numbers 56001 through 56084, 58001 and 58002.

Compliance:

As indicated below, unless already accomplished.

Background:

There has been a report of a cracked transmission oil check valve part number (P/N) 209-062-520-001 manufactured in 2009 by Circor Aerospace (Circle Seal). The crack was caused by applying an incorrect torque value to the threaded fitting at the inlet end of the check valve during assembly. This condition may be indicated by an enlarged outside diameter measurement at the inlet end of the check valve housing, where the threaded fitting is installed, or by the presence of a leak.

This check valve is used in the transmission lubrication system of the Bell model 427 helicopter. Degradation or loss of lubrication, if not detected, could lead to failure of the transmission, and subsequent loss of control of the helicopter.

Transport Canada previously issued AD CF-2015-29 which applies to Bell model 427 and 429 helicopters with the same transmission oil check valve manufactured by Circor Aerospace, except it is only for check valves marked "Circle Seal" and with a manufacturing date code of "10/11" (October 2011) through "03/15" (March 2015).

To address this issue, Bell has published Alert Service Bulletin (ASB) 427-21-44 Revision A to perform an initial inspection and measurements of the transmission oil check valve housing, to perform repetitive inspections for cracks and leaks and to replace the affected transmission oil check valves. This AD mandates the corrective actions of the Bell ASB. This AD also prohibits the installation of an affected part on any Bell model 427 helicopter.

The replacement of an affected part with a new transmission oil check valve constitutes a terminating action to the repetitive inspection of this AD.

Corrective Actions:

For the purpose of this AD, the following definitions apply:

Affected Part: Transmission oil check valve P/N 209-062-520-001 manufactured by Circor Aerospace (Circle Seal) that:

- a. Is marked "CORONA CA", except not a check valve marked with "TQL", and
- b. Has a manufacturing date code of, or prior to, "9/11" (September 2011), or does not have a manufacturing date code.

Bell ASB: Bell Alert Service Bulletin 427-21-44 Revision A, dated 6 April 2021, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Part I – Measurement of the Transmission Oil Check Valve Housing

- A. Within 25 hours air time or 30 days, whichever occurs first, from the effective date of this AD, measure the outside diameter of the affected part housing at the center and at the inlet end where the threaded fitting is installed in accordance with Part I of the Accomplishment Instructions of the Bell ASB.
- B. If the dimension measured at the inlet end is greater than 0.003 inch (0.0762 mm) compared to the measurement at the center, Part II and Part III of this AD must be complied with within the compliance time specified. Otherwise, Part II and Part III of this AD are not applicable.

Part II – Repetitive Inspection

Thereafter, at intervals not to exceed 25 hours air time or 30 days, whichever occurs first, perform a general visual inspection of the transmission oil check valve in accordance with Part II of the Accomplishment Instructions of the Bell ASB. If a crack or leak is found, replace the affected part with a new transmission check valve before further flight.

Part III – Replacement of the Transmission Oil Check Valve

Within 600 hours air time or 12 months, whichever occurs first, from the effective date of this AD, replace the affected part with a new transmission check valve.

Accomplishment of Part III of this AD constitutes a terminating action to the repetitive requirements of Part II of this AD.

Part IV – Parts Installation Prohibition

As of the effective date of this AD, it is prohibited to install an affected part on Bell model 427 helicopters.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Jenny Young
Chief, Continuing Airworthiness
Issued on 13 December 2024

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