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-2016-11R3

Effective Date:

13 September 2021

ATA:

27

Type Certificate:

H-107

Subject:

Flight Controls – Corrosion of Bellcrank Pivot Bearings

Revision:

Supersedes AD CF-2016-11R2, issued 18 October 2017.

Applicability:

Bell Textron Canada Limited (Bell) model 429 helicopters, all serial numbers.

Compliance:

As indicated below, unless already accomplished.

Background:

In-service reports showed that bearings in the roof-mounted flight control bellcranks are adversely affected by precipitation. Pooling can occur at the forward portion of the roof structure providing a source of contamination for bearings in the roof-mounted flight controls. Precipitations may reduce the effectiveness of the grease in the bearings, allowing corrosion to occur and resulting in intermittent restrictions such as binding and roughness in the flight controls.

An undetected corroded bearing could lead to restrictions in the collective, directional or pitch control systems resulting in difficulty controlling the helicopter.

Revision 1, AD CF-2016-11R1, limited the applicability to specific part numbers, and provided compliance time instructions for helicopters that had previously been inspected in accordance with the original issue of Bell Alert Service Bulletin (ASB) 429-15-21. No retroactive action was required for helicopters inspected in accordance with AD CF-2016-11.

Revision 2, AD CF-2016-11R2, mandated compliance with Revision B of Bell ASB 429-15-21. That revision of the ASB removed the alternate procedure of using a hydraulic test stand to perform functional checks. Field reports indicated that the hydraulic power used in the alternate procedure could reduce the chance of detecting a damaged bearing. AD CF-2016-11R2 was considered an interim action.

Since AD CF-2016-11R2 was issued, new collective and cyclic bellcrank assemblies have been upgraded with corrosion resistant steel (CRES) bearings. This AD revision, CF-2016-11R3, mandates incorporation of the upgraded collective and cyclic bellcrank assemblies in accordance with Revision C of Bell ASB 429-15-21 as terminating action to the requirements of AD CF-2016-11R2, prohibits installation of affected collective and cyclic bellcrank assemblies, and limits the applicability of the corrective action to helicopters that have not incorporated this upgrade in production. AD CF-2016-11R3 also mandates the replacement of both collective and cyclic bellcrank assemblies with the upgraded collective and cyclic bellcrank assemblies if any discrepant bearing is found as a result of the recurring functional check of this AD.

Corrective Actions:

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

The ASB: Bell ASB 429-15-21 Revision C, dated 23 August 2021, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Affected bellcrank assembly: Collective and cyclic bellcrank assemblies part numbers (P/Ns) 429-001-523-101, 429-001-523-103, 429-001-532-101 or 429-001-532-103.

Serviceable bellcrank assembly: Upgraded collective and cyclic bellcrank assemblies P/Ns 429-001-523-101FM and 429-001-532-101FM, or 429-001-523-107FM and 429-001-532-107FM. Upgraded collective and cyclic bellcrank assemblies P/Ns 429-001-523-107 and/or 429-001-532-107 are also considered serviceable bellcrank assemblies.

Group 1 helicopters: Bell model 429 helicopters, serial numbers 57001 through 57296, equipped with an affected bellcrank assembly.

Part I – Initial Functional Check - Applicable to Group 1 Helicopters

1. Within 12 months from the helicopter manufacture date, perform a functional check of the flight controls in accordance with the Accomplishment Instructions Part I of the ASB to detect roughness in the pivot bearings and binding of the collective, lateral or longitudinal arm end bearings of the collective and cyclic bellcrank assemblies. If any roughness or binding is detected, before further flight, replace both affected bellcrank assemblies with serviceable bellcrank assemblies in accordance with the ASB.
2. For helicopters that have exceeded the age threshold specified above, this action must be completed within 30 days from the effective date of this AD.
3. Accomplishment of Part I – Initial Inspection of AD CF-2016-11R2 prior to the effective date of this AD meets the intent of Part I Corrective Action 1 of this AD.

Part II – Recurring Functional Check - Applicable to Group 1 Helicopters

1. Subsequent to the initial functional check required by this AD or the most recent inspection carried out in accordance with AD CF-2016-11R2, at intervals not exceeding 6 months, repeat the actions specified in Part I Corrective Action 1 of this AD.
2. If the most recent functional check of the helicopter was performed with the alternate procedure of using a hydraulic test stand, or if it is not known what method was used to perform the functional check, within 30 days from the effective date of this AD, perform the actions specified in Part I Corrective Action 1 of this AD.

Part III – Terminating Action - Applicable to Group 1 Helicopters

Within 24 months from the effective date of this AD, install serviceable bellcrank assemblies in accordance with the Accomplishment Instructions Part III of the ASB.

Accomplishment of Part III of this AD constitutes terminating action to the initial and recurring functional check requirements of Part I and Part II of this AD.

Part IV – Parts Installation Prohibition - Applicable to Model 429 Helicopters, all Serial Numbers

As of 24 months from the effective date of this AD, an affected bellcrank assembly is not eligible for installation as a replacement part.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 30 August 2021

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