



EMERGENCY 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-2021-05R2

Effective Date:

4 March 2021

ATA:

67

Type Certificate:

H-112

Subject:

Rotors Flight Control – Collective Controls – Failure of Pilot Collective Stick and Grip Assembly

Revision:

Supersedes AD CF-2021-05R1, issued 26 February 2021.

Applicability:

Bell Textron Canada Limited (Bell) model 505 helicopters, serial numbers 65011 and subsequent.

Compliance:

As indicated below, unless already accomplished.

Background:

Bell has received a report where a pilot collective stick and grip assembly (hereafter called pilot collective stick) fractured above the cabin floor at the junction with the collective jackshaft. This finding occurred prior to engine start during the pilot pre-flight check of flight controls for travel. Examination of the fractured pilot collective stick and another cracked pilot collective stick by Bell revealed fatigue cracking.

Based on Bell's findings, it was determined that the one-time visual inspection introduced in Bell Alert Service Bulletin (ASB) 505-21-20 and mandated by AD CF-2021-05 is not adequate. As a result, Bell published ASB 505-21-20, Revision A to require a repetitive fluorescent penetrant inspection (FPI) that is capable of detecting smaller cracks. The ASB also includes the requirement to repeat the FPI at intervals of 25 hours air time. AD CF-2021-05R1 was issued to mandate an initial and repetitive FPI of the pilot collective stick in accordance with ASB 505-21-20, Revision A.

Subsequent to the issuance of AD CF-2021-05R1, additional FPI findings showed that cracking of the pilot collective stick could occur at very low flight hours. As a result, Bell published ASB 505-21-20, Revision B to introduce Temporary Revisions (TRs) to the Rotorcraft Flight Manuals (RFMs) to prohibit single pilot operations from the right crew seat.

Since cracking may lead to failure of the pilot collective stick and consequent loss of control of the helicopter, Transport Canada (TC) issues AD revision CF-2021-05R2 to prohibit single pilot operations from the right crew seat, in accordance with ASB 505-21-20 Revision B, and RFM TRs BHT-505-FM-1 (TR-6) and BHT-505-FM-2 (TR-1). This AD is considered an interim action. TC may mandate further corrective actions to modify the pilot collective stick to prevent future cracking and subsequent failure.

Corrective Actions:

Part I – Operational Restrictions

- A. Before further flight, amend the applicable TC approved RFM by incorporating the flight crew limitations as detailed in the TRs listed in Table 1 below, or superseding revisions of the TRs or

revisions to the RFM approved by TC.

Table 1

Helicopter Serial Number	RFM Number	RFM TR Number
65011 through 65169, 65171 through 65300	BHT-505-FM-1	TR-6
65170, 65301 and subsequent	BHT-505-FM-2	TR-1

- B. Advise all flight crews of the changes introduced by the RFM TRs listed above and thereafter operate the helicopter accordingly.

Part II – Initial Inspection

- A. Before further flight, carry out an initial FPI of the pilot collective stick to detect cracking, in accordance with the Accomplishment Instructions of Bell ASB 505-21-20, Revision B, dated 3 March 2021.
- B. If the pilot collective stick is found to be unserviceable, replace the pilot collective stick with a serviceable part before further flight. For the purpose of this AD, a serviceable pilot collective stick is a new pilot collective stick or a pilot collective stick with no crack found during the FPI of Part II Corrective Action A. above.

Part III – Repetitive Inspection

- A. For helicopters not operated exclusively with only a single pilot in command from the left crew seat, repeat the FPI of Part II, Corrective Action A. above at intervals not exceeding 25 hours air time since the last FPI.
- B. If the pilot collective stick is found to be unserviceable, replace the pilot collective stick with a serviceable part before further flight.

Part IV – Ferry Flight Provision

Operators of helicopters equipped with dual flight controls are permitted to carry out ferry flights required to bring the helicopter to a maintenance base to carry out the FPI, provided that the helicopter is operated in accordance with the flight crew limitations of the applicable TR listed in Part I, Corrective Action A above.

Later revisions of Bell ASB 505-21-20 approved by the Chief, Continuing Airworthiness, Transport Canada, are acceptable for compliance with the requirements of this AD.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 4 March 2021

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