



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) to ADs.

Number:

CF-2019-35

Effective Date:

16 October 2019

ATA:

53

Type Certificate:

H-112

Subject:

Fuselage Structure – Fretting or cracking of airframe truss clevis lower lug

Applicability:

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

Compliance:

As indicated below, unless already accomplished.

Background:

During quality control activity on a helicopter undergoing final assembly, BHTCL detected a gap between the transmission restraint assembly aft attachment hardware lower washer and the lower lug of the mating airframe truss assembly clevis. There are two affected locations, one on the right-hand side of the truss and another on the left-hand side of the truss.

Subsequent investigation revealed that this condition may exist on in-service helicopters. Excessive gapping at either of these locations will result in increased stress when fasteners are installed to join the affected components together. Increased stress may result in cracking on the clevis lower lug and subsequent failure of one or both lugs. This condition, if not corrected, could lead to loss of pylon pitch stiffness, excessive pylon pitch motions leading to unknown cyclic inputs to the main rotor, and consequent loss of control of the helicopter.

BHTCL issued Alert Service Bulletin (ASB) 505-19-12 on 27 June 2019 to require initial inspection of affected truss assemblies and corrective action for helicopters affected by an excessive gap. The corrective action includes reducing the torque used to install a nut on some helicopters. This corrective action is intended to reduce the stress from the fastener installation. However, as a consequence of the reduced fastener installation torque, the joint now has reduced preload and therefore reduced friction between mating parts. This makes the joint more susceptible to wear and fretting. For that reason, affected helicopters require repetitive inspection to monitor the joint condition for wear and/or fretting.

BHTCL subsequently determined that a torque value in the initial version of the ASB was incorrect. BHTCL issued Revision A of ASB 505-19-12 on 11 July 2019 to correct the torque value.

This AD requires the following:

- A check to determine if the helicopter is affected;
- An initial inspection of affected helicopters;
- Repetitive inspections if an excessive gap is found during the initial inspection.

This AD also requires additional corrective actions if an excessive gap or damage to affected components is found during inspection.

Corrective Actions:**Part I – Initial Inspection**

Within 100 hours air time or 6 months, whichever occurs first, from the effective date of this AD, accomplish the following:

- A. Identify the serial number of the installed truss assembly, part number SLS-030-056-015, to determine if it is an affected truss assembly. Affected assemblies are listed in Attachment A of ASB 505-19-12, Revision A.
- B. If the serial number of the truss assembly is listed in Attachment A of ASB 505-19-12, Revision A, perform an initial inspection of the transmission restraint aft attachment hardware installations in accordance with Accomplishment Instructions Part I of the ASB for an excessive gap.
- C. If a gap of 0.003 inch (0.076 mm) to 0.020 inch (0.508 mm) is detected, before further flight, reduce the torque to the affected attachment hardware and update the helicopter maintenance records in accordance with Accomplishment Instructions Part I of ASB 505-19-12, Revision A.
- D. If a gap of more than 0.020 inch (0.508 mm) is detected, before further flight, report the findings of the inspection to BHTCL in accordance with Accomplishment Instructions Part I of ASB 505-19-12, Revision A and accomplish the corrective actions specified by BHTCL in response to your report. The BHTCL-specified corrective actions may include repair or replacement of parts and may also include repetitive inspections that differ from those in Corrective Action Part II of this AD. If BHTCL specifies repetitive inspections that differ from those in Corrective Action Part II of this AD, the repetitive inspections specified by BHTCL supersede those specified in Part II of this AD.
- E. If the serial number of the truss assembly is not listed in Attachment A of ASB 505-19-12, Revision A, no further action is required.
- F. If the gap detected during the initial inspection is less than 0.003 inch (0.076 mm), complete the installation of the hardware and update the helicopter technical records in accordance with the Accomplishment Instructions Part I of ASB 505-19-12, Revision A. No further corrective action is required.

Note: If the corrective action specified above was accomplished before the effective date of this AD, in accordance with the Initial Issue of ASB 505-19-12, that corrective action also meets the intent of Corrective Action Part I of this AD.

Part II – Repetitive Inspection

- A. For helicopters found to have a gap of 0.003 inch (0.076 mm) or more during Corrective Action Part I of this AD, at intervals not to exceed 100 hours air time from the last inspection, inspect the transmission restraint aft attachment hardware in accordance with Accomplishment Instructions Part II of BHTCL ASB 505-19-12, Revision A.
- B. If fretting or other damage is detected during an inspection, before further flight, repair or replace the affected parts in accordance with BHTCL ASB 505-19-12, Revision A.

The use of later revisions of BHTCL ASB 505-19-12 that are approved by the Chief, Continuing Airworthiness, Transport Canada is acceptable for compliance to the requirements of this AD.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 2 October 2019

Contact:

Ross McGowan, Continuing Airworthiness, Ottawa, telephone 888-663-3639, facsimile 613-996-9178 or e-mail AD-CN@tc.gc.ca or any Transport Canada Centre.