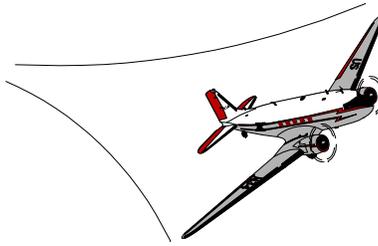


SPECIAL AIRWORTHINESS INFORMATION

AIRCRAFT CERTIFICATION SERVICE
800 INDEPENDENCE AVENUE, S.W.
WASHINGTON, DC 20591



U.S. Department
of Transportation
**Federal Aviation
Administration**

No. ASW-94-01
November 2, 1994

Published by: FAA, AFS-613, P.O. Box 26460, Oklahoma City, OK 73125

This is issued for informational purposes only and any recommendation for corrective action is not mandatory.

BELL MODELS: 204B, 205A, 205A-1 and similar models converted from military helicopters and operated under restricted category such as: UH-1A, UH-1B, UH-1B/HP, UH-1E, UH-1F, UH-1H, UH-1L, TH-1F, TH-1L.

FAILURE OF THE 42 DEGREE TAIL ROTOR DRIVE GEARBOX ASSEMBLY, P/N 204-040-003-023 or -037.

INTRODUCTION

The purpose of this Special Airworthiness Information is to advise all owners and operators of numerous reports of accidents in which failure of the 42 degree tail rotor drive gearbox assembly occurred on Bell Helicopter Textron, Inc.(BHTI) Model 204B, 205A, 205A-1, and similar converted military restricted category model helicopters (UH-1A, UH-1B, UH-1B/HP, UH-1E, UH-1F, UH-1H, UH-1L, TH-1F, and TH-1L). This information recommends procedures to reduce the probability of this type of accident. This is for information purposes only, and recommendations for corrective action are not mandatory.

BACKGROUND

The Federal Aviation Administration (FAA) has received twelve (12) reports of accidents since 1979, both in the USA and Canada, due to failures of the gearbox, P/N 204-040-003-023 or -037, on BHTI 204B, 205A, and 205A-1 helicopters and on BHTI-manufactured military helicopters converted to restricted category. It has been determined that these failures were not the result of manufacturing or material defects. All of these failures have been related to repeated heavy lift operations. The operation of these helicopters under repeated heavy lift loading results in many more high load cycles than were originally substantiated during the qualification and fatigue-life substantiation processes. This was confirmed by BHTI after analyzing bench test results which indicated gear life is reduced when the aircraft is used in repeated heavy lift operational environment.

The FAA anticipates that an Airworthiness Directive (AD) will be issued when all the test data has been received from BHTI and approved. In the meantime, awareness and education are the only means of reducing the frequency of accidents due to the gearbox failure. This Special Airworthiness Information was developed as an interim measure to aid in achieving that goal.

RECOMMENDATIONS

Until more information is available, the operators and pilots of the BHTI Model 204B, 205A, 205A-1, and similar converted military restricted category model helicopters (UH-1A, UH-1B, UH-1B/HP, UH-1E, UH-1F, UH-1H, UH-1L, TH-1F, and TH-1L) are strongly urged to:

1. Insure that the tail rotor control system is rigged in accordance with the appropriate maintenance manual.
2. Operate the aircraft within the weight limitations defined in the Rotorcraft Flight Manual (RFM).
3. While lifting an external load, maintain torque at least 10% below the maximum engine torque limit to allow for torque increases due to anti-torque (directional) control and/or for tail rotor actuation during pedal turns. Operators should avoid rapid inputs of the anti-torque controls.
4. If the aircraft has been operated in repeated heavy lifts, disassemble the gearbox, P/N 204-040-003-023 or -037, and inspect for cracks at the roots of gear teeth using a non-destructive inspection (NDI) method such as a magnetic particle inspection.
5. If the aircraft has exceeded the torque limits, inspect the gearbox, P/N 204-040-003-023 or -037, and replace the gears P/N 204-040-500-007 or -009, and P/N 204-040-500-008 or -010, with airworthy gears in accordance with the appropriate maintenance manual.

FOR FURTHER INFORMATION CONTACT:

FAA, Mr. Uday Garadi, Rotorcraft Certifications Office, ASW-170, Fort Worth, TX 76193-0170, Telephone (817) 222-5157, FAX (817) 222-5959.