AWB 62-1 Issue 1, BK 117 Helicopter Main Rotor Vibration

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BK 117 Helicopter
Main Rotor Vibration

Effectivity

Kawasaki & Eurocopter BK117 helicopters fitted with main rotor blades part numbers 117-150071, 117-150081, 117-151311 and 117-151331.

Purpose

The objective of this bulletin is to advise operators that main rotor vibration may be the result of chips and cracks in the main rotor blade thimble area and to emphasise the importance of complying with the manufacturer's service bulletins and other technical data.

Background

Both manufacturers of the BK117 helicopter have warned that considerable changes in blade track after only a few hours, or tracking problems which cannot be corrected, may be an indication of possibly serious rotor system defects which can result in failure of the main rotor system. In particular, damage to a main rotor blade, which is not immediately obvious, can manifest itself in considerable changes in blade track. Kawasaki Service Bulletin KSB-117-168 and Eurocopter Service Bulletin ASB-MBB-BK117-10-118 address this issue.

These service bulletins both point out that damage to the MRB thimble area can result in changes to MRB track. Because of the philosophy applied in the design of this helicopter, damage to this part of the MRB will not be immediately catastrophic. Eurocopter has advised the German Regulatory Authority (LBA) that the blade structure is sufficiently damage tolerant to allow time for detection of any cracks before they reach a length, which would compromise safety. The LBA have agreed with Eurocopter's analysis and deemed that an Airworthiness Directive is not warranted in this instance. This is primarily because the vibration caused by the resultant out-of-balance forces will be apparent long before the critical crack length is reached, allowing early detection of any cracks. On that basis, CASA has elected not to raise an Airworthiness Directive unless the German or Japanese authorities elect to do so.

Because this type has been designed to be damage tolerant, it is important that feedback from operators (via the CASA Maintenance Defect Reporting System) is provided if any defects or abnormal vibration are detected in service. Such defect reporting is important because it allows the manufacturer and regulatory authorities to monitor and refine the type's maintenance programs, and allows sharing of important safety related information.

Recommendations

It is recommended that Kawasaki service bulletin KSB-117-168 or Eurocopter service bulletin ASB-MBB-BK117-10-118 (as appropriate), be complied with, and that the MDR/SDR system be used to report all serious defects, particularly those which are found during investigation of abnormal vibrations.