



SERVICE LETTER

DATE: 24 JUNE 2009

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MAIN ROTOR BLADE RETENTION BOLT CHECK

MODELS AFFECTED: MD900 helicopters serial numbers 900-00008 and subsequent with Part Number 900R3100001-103 main rotor blade retention bolts installed.

This Service Letter is issued to recommend that operators do the additional check of the main rotor blade retention bolt before or after each flight as recommended in EASA Safety Information Bulletin 2009-18.

(Ref. Attachment EASA Safety Information Bulletin 2009-18)

For further assistance, contact the Field Service Department at MDHI, Mesa, Arizona. Telephone 1-800-388-3378 or (480) 346-6387. DATAFAX: (480) 346-6813.



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EASA Safety Information Bulletin

SIB No.: 2009-18
Issued: 19 June 2009

Subject: **Inspection of Main Rotor Blade Retention Bolts Part Number (P/N) 900R3100001-103**

Ref. Publications: Federal Aviation Administration (FAA) Airworthiness Directive (AD) 2003-14-51, Amendment 39-13255 dated 8 August 2003; and MD Helicopters Inc. (MDHI) Mandatory Service Bulletin SB900-092R2 dated 2 September 2004.

Description: The FAA originally issued the referenced AD as an Emergency AD on 2 July 2003, to require repetitive checking and inspecting each P/N 900R3100001-103 main rotor blade retention bolt and, if a crack, fretting or corrosion was found, replacing the bolt with an airworthy bolt. These actions were intended to prevent failure of a bolt, loss of main rotor blade, and subsequent loss of control of the helicopter. The FAA AD and the referenced MDHI SB also indicate that installation of new bolts, effective June 2003, constitutes terminating action for all of the AD requirements.

However, since June 2003, the reported number of P/N 900R3100001-103 bolts failing in service has now risen to 11: ten in the United Kingdom (UK) and one in the United States. Despite the elapsed time period, the number of reported failures, or the data gathered as a result of the MDHI SB900-092 (referenced above) and associated FAA AD 2003-14-51, no clear cause has become evident.

With the tenth reported failure, on a Sussex Police (UK) helicopter in March 2009, the bolt migration was downward rather than upward, which had apparently been the case on the previous 9 occasions.

With the eleventh reported failure, on a South Yorkshire Police (UK) helicopter in May 2009, there was no vibration evident to the pilot or indicated on the 'check main rotor balance' caption of the IDS (Integrated Instrument Display System) on the preceding flight, nor was there more than a couple of millimetres of upward migration of the broken bolt. What first revealed the failure was a very loose cam handle/spring clip.

Recommendations: After reviewing the available information and pending further investigation to determine the cause(s) of these bolt failures and the availability of a permanent solution from the Type Certificate Holder MDHI, or Rotorcraft Flight Manual (RFM) instructions or limitations that attain an equal safety level, EASA recommends owners and operators of the affected helicopters to take the following actions:

The visual check of bolt vertical position relative to its neighbour [ref. RFM Section IV; 4-2; ROTOR SYSTEM; “Blade attach pins (bolts)”] should include the lower as well as the upper surface of the pitch case. Despite the instructions at the start of RFM paragraph 4-2 stating ‘prior to the first flight of the day’, in light of recent findings it is recommended to visually check/inspect the bolts prior to or after each flight.

The pre (or post) flight visual check should be accompanied by a simple ‘touch check’ (e.g. light hand pressure) of each blade bolt cam handle/spring clip to detect easy sideways movement, i.e. lack of bolt tension. It should be noted that the retainer (bolt anti-rotation strap) on the upper surface of the pitch case is designed to prevent more than a small amount of rotation of the bolt/clip assembly. However, this restraint should not prevent the effectiveness of this simple check, as any movement is likely to indicate a loss of bolt tension associated with a failure and should be investigated prior to further flight.

In summary:

- The visual check [ref. RFM Section IV; 4-2; ROTOR SYSTEM; “Blade attach pins (bolts)”] should be carried out before or after each flight.
- A failed bolt can migrate downwards as well as upwards, and the visual check should account for this.
- A touch check (light hand pressure) of each bolt assembly cam handle/spring clip should accompany each visual inspection, and should any movement be noted, the bolt assembly in question should be investigated further.

Applicability: MD900 helicopters, all serial numbers, with main rotor blade retention bolt P/N 900R3100001-103 installed.

Contacts: For further information contact the Airworthiness Directives, Safety Management & Research Section, Certification Directorate, EASA; E-mail: ADs@easa.europa.eu.

Copies of the referenced ASB or any other technical information and assistance may be obtained upon request from MDHI, Attn: Customer Support Division, 4555 E. McDowell Road, Mail Stop M615-GO48, Mesa, Arizona 85215-9734, United States of America. Telephone +1-480-346-6387, Fax +1-480-891-6782, or +1-480-346-6813.

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