FAA
Aviation Safety

EMERGENCY AIRWORTHINESS DIRECTIVE

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DATE: May 15, 2012
AD #: 2012-10-51

This emergency airworthiness directive (EAD) 2012-10-51 is being sent to owners and operators of Eurocopter Deutschland GmbH (ECD) Model EC135 P1, EC135 P2, EC135 P2+, EC135 T1, EC135 T2, and EC135 T2+ helicopters.

Background

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Union, has issued EASA AD No. 2012-0041-E, dated March 12, 2012 (2012-0041-E), to correct an unsafe condition for the ECD Model EC 135 helicopters. EASA advises that during an inspection of an EC 135 helicopter, a crack was detected on the lower hub-shaft flange of a main rotor hub (MRH) shaft. Since issuing 2012-0041-E, two other lower hub-shaft flange cracks have been reported. ECD is investigating the cause of the cracks and may issue a revised service bulletin with further corrective action. We are issuing this EAD to detect a crack on the hub-shaft flange, which if not corrected could result in failure of the main rotor hub and subsequent loss of control of the helicopter.

FAA's Determination

These helicopters have been approved by the aviation authority of the Federal Republic of Germany (Germany) and are approved for operation in the United States. Pursuant to our bilateral agreement with Germany, EASA, its technical representative, has notified us of the unsafe condition described in the EASA AD. We are issuing this EAD because we evaluated all information provided by EASA and determined the unsafe condition exists and is likely to exist or develop on other helicopters of these same type designs.

Related Service Information

Eurocopter has issued Alert Service Bulletin EC135-62A-029, Revision 0, dated March 8, 2012, which describes procedures for conducting a check of the blade bolts and inspecting the upper and lower hub-shaft flanges; and Safety Information Notice No. 2450-S-62, Revision 0, dated May 7, 2012, which provides for a repetitive check of the upper and lower hub-shaft flanges.

EAD Requirements

This EAD requires the following:

- Before the first flight of each day, checking the lower hub-shaft flange for a crack and each blade attachment bolt safety pin for deformation. An owner/operator (pilot) may perform the visual check required by this EAD and must enter compliance with that paragraph into the helicopter maintenance records in accordance with 14 CFR §§ 43.9(a)(1)-(4) and 91.417(a)(2)(v). A pilot may perform this check because it involves only looking at the blade bolts and safety pins and can be performed equally well by a pilot or a mechanic. This check is an exception to our standard maintenance regulations.

- If a blade bolt safety pin is deformed, which may indicate a rotated blade bolt or a crack on a hub-shaft flange, before further flight, inspecting the upper and lower hub-shaft flanges for a crack.

- Within 5 hours time in service (TIS), removing the rotor-hub cap and inspecting the upper and lower hub-shaft flanges for a crack and the blade attachment bolts for deformed safety pins.

- If there is a crack, replacing the MRH shaft.

Differences Between This EAD and the EASA AD

The EASA AD requires the visual inspection to be accomplished within 100 flight-hours, while this EAD requires the inspection within 5 hours TIS. The EASA AD requires you to report the findings and send any cracked MRH to ECD, and this EAD does not.

Interim Action

We consider this EAD to be an interim action. The design approval holder is currently developing a modification that will address the unsafe condition identified in this EAD. Once this modification is developed, approved, and available, we might consider additional rulemaking.

Costs of Compliance

We estimate that this EAD will affect 244 helicopters of U.S. Registry. We estimate inspecting the MRH flanges will require 1 hour at an average labor rate of $85 per work-hour, for a total cost per helicopter of $85 and a total cost to U.S. operators of $20,740. Replacing a cracked MRH will require about 8 hours at an average labor rate of $85 per work-hour, and required parts will cost $55,715, for a total cost per helicopter of $56,395.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. "Subtitle VII, Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701, General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Adoption of the Emergency Airworthiness Directive (EAD)

We are issuing this EAD under 49 U.S.C. Sections 106(g), 40113, and 44701 according to the authority delegated to me by the Administrator.

2012-10-51 **EUROCOPTER DEUTSCHLAND GMBH (ECD):** Directorate Identifier 2012-SW-041-AD.

(a) Applicability.

This EAD applies to Model EC135 P1, EC135 P2, EC135 P2+, EC135 T1, EC135 T2, and EC135 T2+ helicopters, with a main rotor hub-shaft part number (P/N) L623M1006103 installed, certificated in any category.

(b) Unsafe Condition.

This EAD defines the unsafe condition as a crack in the flange of the main rotor hub-shaft, which could result in failure of the main rotor hub and subsequent loss of control of the helicopter.

(c) Effective Date.

This EAD is effective upon receipt.

(d) Compliance.

You are responsible for performing each action required by this EAD within the specified compliance time unless it has already been accomplished prior to that time.

(e) Required Actions.

(1) Before further flight, and thereafter before the first flight of each day, check the lower hub-shaft flange for a crack and each blade attachment bolt for a deformed safety pin by reference to figures 1 and 2 of this EAD. The actions required by this paragraph may be performed by the owner/operator (pilot) holding at least a private pilot certificate, and must be entered into the aircraft records showing compliance with this EAD in accordance with 14 CFR §§ 43.9 (a)(1)-(4) and 14 CFR § 91.417(a)(2)(v). The record must be maintained as required by 14 CFR §§ 91.417, 121.380, or 135.439.

(2) If there is a deformed safety pin, before further flight, inspect the upper and lower hub-shaft flange in accordance with paragraph (e)(3)(i) and (e)(3)(ii) of this EAD.

(3) Within 5 hours time in service:

(i) Remove rotor-hub cap.

(ii) Clean the upper and lower hub-shaft flange as depicted in figure 3 of this EAD and visually inspect for a crack.

(iii) Inspect safety pins for deformation as shown in figure 1 of this EAD.

(4) If there is a crack in the upper or lower hub-shaft flange, before further flight, replace the main rotor hub-shaft.

Note to paragraph (e)(4): Replacing the main rotor hub-shaft with a main rotor hub-shaft having the same P/N does not constitute terminating action for the requirements of this EAD.

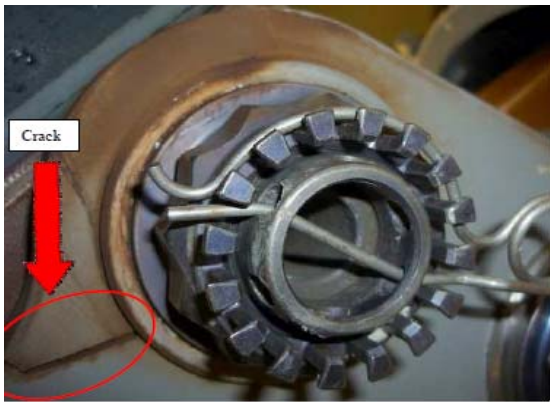


Figure 1

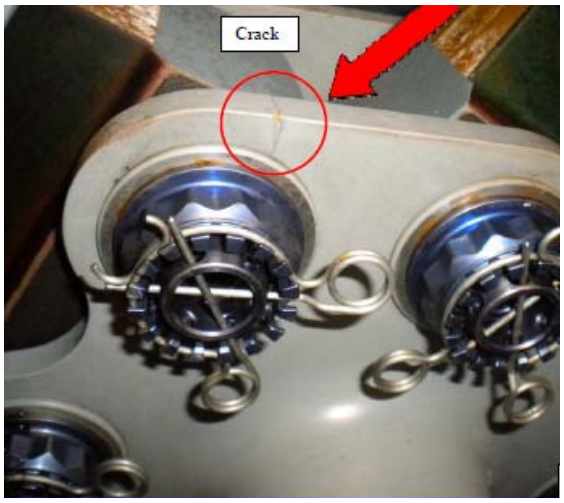
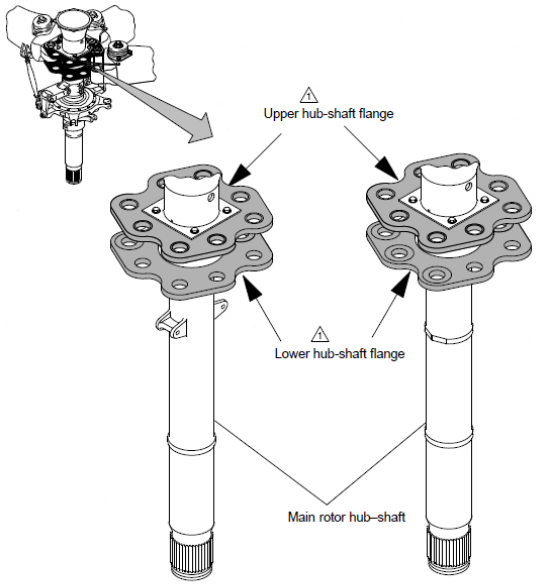


Figure 2



⚠ Check visible area of the upper and lower hub-shaft flange.

Figure 3

(f) Alternative Methods of Compliance (AMOCs).

(1) The Manager, Safety Management Group, FAA, may approve AMOCs for this EAD. Send your proposal to: Gary Roach, Aviation Safety Engineer, Regulations and Policy Group, Rotorcraft Directorate, FAA, 2601 Meacham Blvd., Fort Worth, Texas 76137; telephone (817) 222-5110; email gary.b.roach@faa.gov.

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR Part 91, subpart K, we suggest that you notify your principal inspector, or lacking a principal inspector, the manager of the local flight standards district office or certificate holding district office, before operating any aircraft complying with this EAD through an AMOC.

(g) Additional Information.

(1) For further information contact: Gary Roach, Aviation Safety Engineer, Regulations and Policy Group, Rotorcraft Directorate, FAA, 2601 Meacham Blvd., Fort Worth, Texas 76137; telephone (817) 222-5110; email gary.b.roach@faa.gov.

(2) For a copy of the service information referenced in this EAD, contact: American Eurocopter Corporation, 2701 N. Forum Drive, Grand Prairie, TX 75052; telephone (972) 641-0000 or (800) 232-0323; fax (972) 641-3775; or at http://www.eurocopter.com/techpub.

(3) The subject of this EAD is addressed in European Aviation Safety Agency AD No. 2012-0041-E, dated March 12, 2012.

(h) Subject.

Joint Aircraft Service Component (JASC) Code: 6220: Main Rotor Head.

Issued in Fort Worth, Texas, on May 15, 2012.

Kim Smith,
Manager, Rotorcraft Directorate,
Aircraft Certification Service.