



DATE: May 18, 2012

AD #: 2012-10-53

This emergency airworthiness directive (EAD) No. 2012-10-53 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. This EAD supersedes EAD No. 2012-10-51, dated May 15, 2012 (EAD 2012-10-51).

Background

On May 15, 2012, we issued EAD 2012-10-51 for the ECD Model EC135 series helicopters to detect a crack on the main rotor hub (MRH) shaft flange. That EAD requires a pilot check of the lower MRH shaft flange for a crack or deformed blade attachment bolt safety pins before the first flight of each day, inspecting the upper and lower MRH shaft flanges for a crack within 5 hours time-in-service (TIS), and replacing the MRH shaft if there is a crack.

Since we issued EAD 2012-10-51, the European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Union, has issued EASA AD No. 2012-0085-E, dated May 17, 2012 (2012-0085-E), which superseded EASA AD No. 2012-0041R1, dated March 15, 2012 (2012-0041R1), to correct an unsafe condition for the ECD Model EC 135 helicopters. EASA advises that since issuing 2012-0041-R1, further cracks have been detected on two other helicopters during the pre-flight checks. These are the same two cracks that prompted our EAD. However, EASA also states that identification of deformed safety pins may not be sufficient to detect a crack on the MRH shaft flange. ECD is investigating the cause of the cracks and has developed new inspection procedures with further corrective actions. We are issuing this EAD to detect a crack on the MRH shaft flange, which if not corrected could result in failure of the MRH and subsequent loss of control of the helicopter.

In issuing this superseding EAD, we are including additional part-numbered MRH shafts that should have been included in EAD 2012-10-51, changing the daily checks to recurring checks at intervals not to exceed 6 hours TIS, adding a 10 hour-TIS recurring inspection on MRH shafts with 400 or more hours TIS, and removing the check of the blade attachment bolt safety pins for deformation.

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 EAD. 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 2, dated May 17, 2012 (EC135-62A-029), which describes procedures for conducting a repetitive check of the visible area of the upper and lower MRH shaft flanges and a repetitive inspection of the area of the blade bolts lower MRH shaft flange.

EAD Requirements

This EAD requires the following:

- Before further flight, and thereafter at intervals not to exceed 6 hours TIS, checking the lower MRH shaft flange and the visible area of the upper MRH shaft flange for a crack. 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 visible area of the MRH shaft flanges and can be performed equally well by a pilot or a mechanic. This check is an exception to our standard maintenance regulations.
- For a MRH shaft with 400 or more hours TIS, within 10 hours TIS, and thereafter at intervals not to exceed 10 hours TIS, removing the rotor-hub cap, inspecting the upper and lower hub-shaft flanges for a crack, and removing the blade attachment bolt safety pins, nut, and washer and inspecting the lower hub-shaft flange bolt attachment areas for a crack.
- If there is a crack, replacing the MRH shaft.

Differences Between This EAD and the EASA AD

The EASA AD identifies EC135-62A-029, Revision 1, and this EAD references Revision 2. The EASA AD requires you to report the findings and send any cracked MRH to ECD, and this EAD does not. The EASA AD requires the initial check within 3 days, while this EAD requires the check before further flight.

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 shaft flanges will require 2.5 hours at an average labor rate of \$85 per work-hour, for a total cost per helicopter of \$212 and a total cost to U.S. operators of \$51,850 per inspection cycle. Replacing a cracked MRH shaft 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.

2012-10-53 **EUROCOPTER DEUTSCHLAND GMBH (ECD)**: Directorate Identifier 2012-SW-049-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 (MRH) shaft, part number (P/N) L623M1006101, L623M1206101, L623M1006102, L623M1206102, L623M1006103, or L623M1206103 installed, certificated in any category.

(b) Unsafe Condition.

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

(c) Effective Date.

This EAD is effective upon receipt.

(d) Other Affected ADs.

This EAD supersedes EAD No. 2012-10-51, dated May 15, 2012.

(e) Compliance.

You are responsible for performing each action required by this EAD within the specified compliance time.

(f) Required Actions.

(1) Before further flight, and thereafter at intervals not to exceed 6 hours TIS, check the MRH shaft lower flange and the visible area of the MRH shaft upper flange for a crack. Figures 1 and 2 of this EAD are examples of cracks that have been discovered in the MRH shaft lower flange. 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.



Figure 1

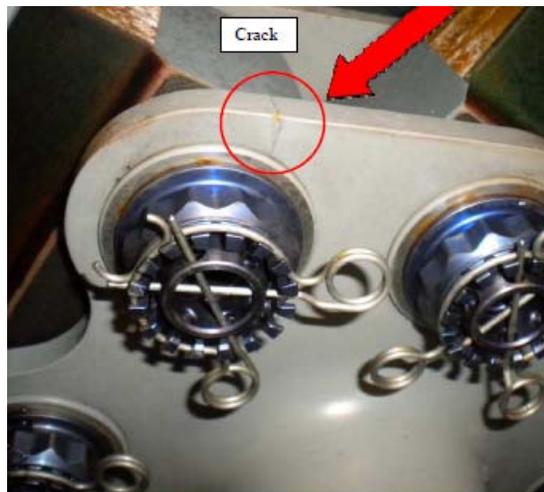
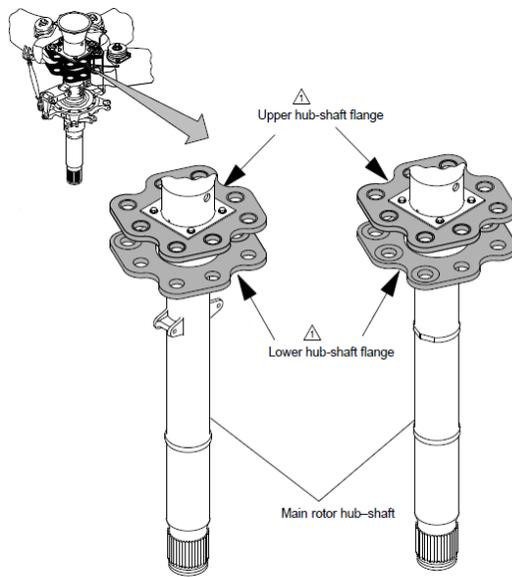


Figure 2

(2) For MRH shafts with 400 or more hours TIS, within 10 hours TIS, and thereafter at intervals not to exceed 10 hours TIS:

(i) Remove rotor-hub cap.

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



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

Figure 3

(iii) Remove the safety pins and nut from each blade bolt and the washers from the lower MRH shaft flange.

(iv) Clean the blade bolt attachment area.

(v) Using a 10X or higher power magnification, inspect all lower MRH shaft flange blade bolt attachment areas for a crack as shown in figure 4 of this EAD.

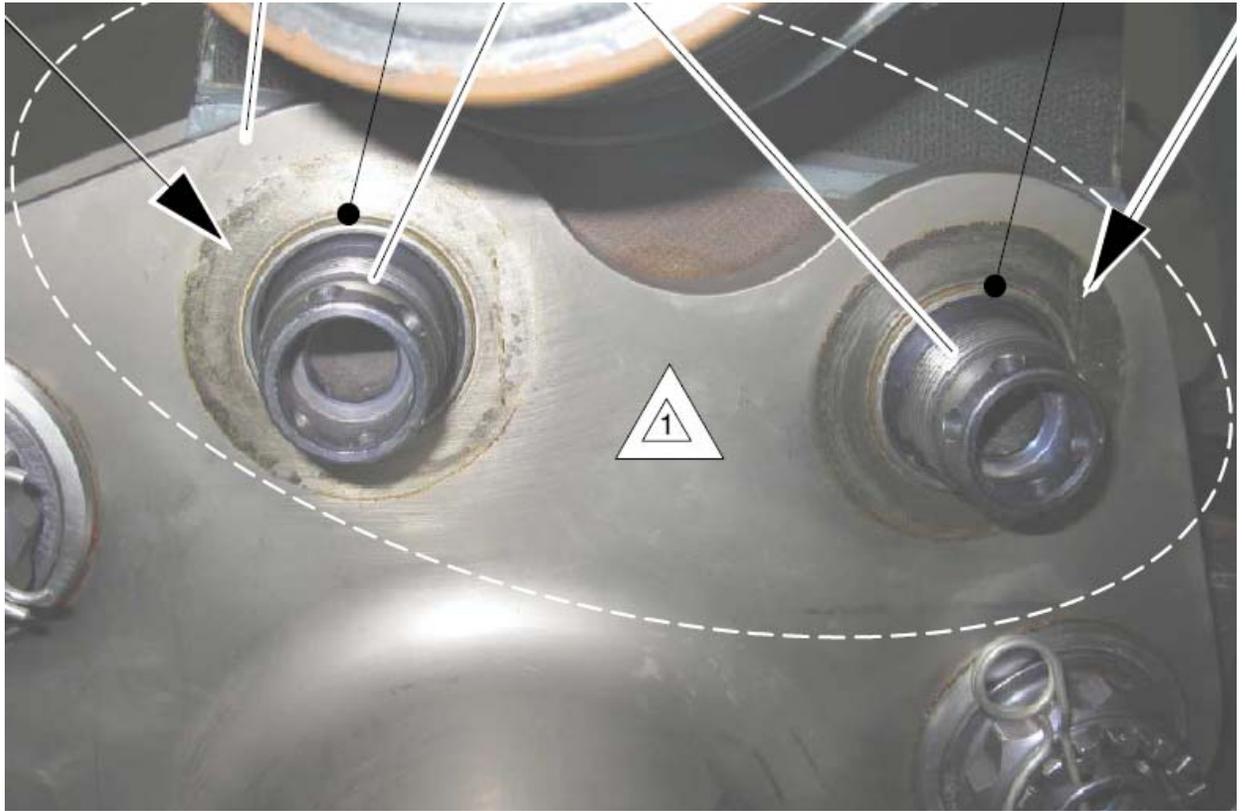


Figure 4

(3) If there is a crack in the upper or lower MRH shaft flange, before further flight, replace the MRH shaft.

Note to paragraph (f)(3): Replacing the MRH shaft with a MRH shaft having a part number listed in the applicability of this EAD does not constitute terminating action for the requirements of this EAD.

(g) 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.

(h) 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 further information after normal office hours and weekends, contact the Southwest Region Operations Center at 817-222-5006.

(3) 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. 2012-0085-E, dated May 17, 2012.

(i) Subject.

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

Issued in Fort Worth, Texas, on May 18, 2012.

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