EMERGENCY AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

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

www.faa.gov/aircraft/safety/alerts/

DATE: October 16, 2008
AD #: 2008-22-51

This Emergency Airworthiness Directive (EAD) is prompted by 2 reports of cracks on the ring frame that connects the tail rotor fenestron housing to the rear structure tube (tailboom). The first crack was discovered in Germany during a daily inspection on a helicopter that had approximately 300 hours time-in-service. The crack ran alongside one rivet row over almost half the circumference of the ring frame. The second crack, which was 9 inches long, was discovered in the U.S. The crack was in the same area as the first reported crack. We are still investigating the cause of these cracks. A crack in the ring frame, if not detected and corrected, could result in loss of the fenestron structure and subsequent loss of control of the helicopter.

We have reviewed Eurocopter Emergency Alert Service Bulletin No. EC135-53A-022, dated October 13, 2008 (ASB), which describes procedures for visually inspecting the ring frame between the rear structure tube and the fenestron housing for cracks.

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, notified us that an unsafe condition may exist on this helicopter model. EASA advises that, during a recent pre-flight check on an EC135 helicopter, a crack was detected on the ring frame that connects the tail rotor fenestron housing to the rear structure tube (tailboom). The crack ran alongside one rivet row over almost half the circumference of the ring frame. This condition, if not corrected, could lead to crack propagation remaining undetected, possibly resulting in loss of the fenestron structure and loss of control of the helicopter. EASA classified the ASB as mandatory and issued EAD No. 2008-0190-E, dated October 13, 2008, to ensure the continued airworthiness of these helicopters.

These helicopter models are manufactured in the Federal Republic of Germany and are type certificated for operation in the United States under the provisions of 14 CFR 21.29 and the applicable bilateral agreement. Pursuant to the applicable bilateral agreement, EASA has kept us informed of the situation described above. We have examined the findings of EASA, reviewed all available information, and determined that AD action is necessary for products of these type designs that are certificated for operation in the United States.

This unsafe condition is likely to exist or develop on other helicopters of the same type design. Therefore, this EAD requires visually inspecting the ring frame between the rear structure tube and the fenestron housing for a crack. The inspections are required before further flight and before the first flight of each day. Replacing any cracked ring frame with an airworthy ring frame is required before further flight.

Because we do not have enough information related to the cause of the ring frame cracks or the growth rate of these cracks, this EAD differs from the ASB and the EASA EAD as follows:

- We require that the inspections be done by a certified mechanic because a complete visual inspection of the ring frame requires the removal of the transmission fairing (commonly known as the tail rotor drive shaft cover); the ASB and the EASA EAD specify that the inspections can be done by a pilot.

- We require the visual inspections before further flight and before the first flight of each day; the ASB and the EASA EAD specify that the visual inspections be performed before further flight and then before the first flight of each day, followed by an inspection by qualified maintenance staff within 25 flight hours.

- We do not require making any changes to the rotorcraft flight manual.

This EAD is an interim action. We might consider additional rulemaking once we determine the cause of the cracks and develop terminating action.

This rule is issued under 49 U.S.C. Section 44701 pursuant to the authority delegated to me by the Administrator, and is effective immediately upon receipt of this EAD.

2008-22-51 EUROCOPTER DEUTSCHLAND GmbH: Directorate Identifier 2008-SW-57-AD.

Applicability: Model EC135 helicopters with a ring frame, part number L535A3501230, installed, certificated in any category.

Compliance: Required as indicated, unless accomplished previously.

To detect a crack in the ring frame which could result in loss of the fenestron structure and subsequent loss of control of the helicopter, accomplish the following:

(a) Before further flight, and thereafter before the first flight of each day, visually inspect the ring frame that connects the tail rotor fenestron housing to the rear structure tube (tailboom) for a crack. Paint cracks around the rivet heads and in the transition area between the rear structure tube/ring frame and between the ring frame/fenestron housing may be present and do not create an unsafe condition. If you are in doubt as to whether a crack is on the paint or on the ring frame, you must remove the paint to do an accurate inspection.

(b) If any crack is found in the ring frame, replace it with an airworthy part before further flight.

(c) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Contact the Manager, Safety Management Group, FAA, ATTN: Sharon Miles, Aviation Safety Engineer, FAA, Rotorcraft Directorate, Regulations and Guidance Group, Fort Worth, Texas 76193-0111, telephone (817) 222-5122, fax (817) 222-5961, for information about previously approved alternative methods of compliance.

(d) Special flight permits are prohibited.

(e) Eurocopter Alert Service Bulletin No. EC135-53A-022, dated October 13, 2008, and European Aviation Safety Agency (EASA) Emergency AD No. 2008-0190-E, dated October 13, 2008, contain related information. However, this EAD differs from those documents as follows:

(1) We require that the inspections be done by a certified mechanic because a complete visual inspection of the ring frame requires the removal of the transmission fairing (commonly known as the tail rotor drive shaft cover); the ASB and the EASA EAD specify that the inspections can be done by a pilot.

(2) We require the visual inspections before further flight and before the first flight of each day; the ASB and the EASA EAD specify that the visual inspections be performed before further flight and then before the first flight of each day, followed by an inspection by qualified maintenance staff within 25 flight hours.

(3) We do not require making any changes to the rotorcraft flight manual.

(f) Copies of the applicable service information may be obtained from American Eurocopter Corporation, 2701 Forum Drive, Grand Prairie, TX 75053-4005, telephone (972) 641-3460, fax (972) 641-3527, or at http://www.eurocopter.com.

(g) Emergency AD 2008-22-51, issued October 16, 2008, becomes effective upon receipt.

FOR FURTHER INFORMATION CONTACT: Sharon Miles, Aviation Safety Engineer, FAA, Rotorcraft Directorate, Regulations and Guidance Group, Fort Worth, Texas 76193-0111, telephone (817) 222-5122, fax (817) 222-5961.

Issued in Fort Worth, Texas, on October 16, 2008.

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Aircraft Certification Service.