



**FAA**  
**Aviation Safety**

# **EMERGENCY**

## **AIRWORTHINESS DIRECTIVE**

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**DATE: July 20, 2010**

**AD #: 2010-16-51**

This Emergency Airworthiness Directive (AD) is prompted by a rotor burst of the main gearbox (MGB) oil cooling fan assembly (fan). Investigation of the incident has shown that some fan rotor blades interfered with the upper area of the guide vane bearing housing of the fan. The blades detached from the rotor, struck the MGB compartment environment, and punctured holes in the transmission deck. This interference was due to internal degradation of the bearings of the fan rotor shaft. This condition, if not corrected, could lead to fan rotor burst, damage to the hydraulic pipes and flight controls, and subsequent loss of control of the helicopter.

The FAA has reviewed Eurocopter Emergency Alert Service Bulletin No. 05.96, dated July 12, 2010 (EASB), for Model SA330J helicopters and for non-FAA type-certificated Model SA330Ba, Ca, Ea, L, Jm, S1, and Sm helicopters. The EASB specifies checking for a minimum play of 0.2 millimeters (mm) between a fan blade and the guide vane bearing housing using a locally manufactured tool. If the minimum play is not complied with, the EASB specifies replacing the two bearings of the fan rotor shaft.

The European Aviation Safety Agency (EASA), the airworthiness authority for France, notified the FAA that an unsafe condition may exist on these helicopter models. EASA advises of a case of rotor burst of a fan. Investigation has shown that some fan rotor blades interfered with the upper area of the guide vane bearing housing of the fan. The blades detached from the rotor, impacted the MGB compartment environment, and punctured holes in the transmission deck. This interference was due to internal degradation of the bearings of the fan rotor shaft. This condition, if not corrected could lead to fan rotor burst and possibly result in damage to hydraulic pipes and flight controls located nearby the MGB cooling fan. EASA classified the EASB as mandatory and issued AD No. 2010-0147-E, dated July 14, 2010, to ensure the continued airworthiness of these helicopters.

This helicopter model is manufactured in France and is 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 the FAA informed of the situation described above. The FAA has examined the findings of EASA, reviewed all available information, and determined that AD action is necessary for helicopters of this type design 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 AD requires, within 10 hours time-in-service (TIS), using a 0.2 mm (0.008 inch) feeler gauge attached to a rigid rod, inspecting for a gap between a fan rotor blade and the upper section of the guide vane bearing housing over the entire width of the blade. If the feeler gauge can be inserted between the blade and the housing (a gap greater than or equal to 0.2 mm), no further action is required. If the feeler gauge cannot be inserted between the blade and the housing (a gap less than 0.2 mm), replace the two fan rotor shaft bearings with two airworthy bearings. Reinspect to ensure compliance with this AD after installing airworthy bearings. The actions must be accomplished by following specified portions of the EASB described previously. This AD differs

from EASA Emergency AD No. 2010-0142-E in that we use the term “hours time-in-service” rather than “flight hours.” Also, for clarification, we specified inspecting for a “gap” rather than checking for “play.”

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 emergency AD.

**2010-16-51 EUROCOPTER FRANCE:** Directorate Identifier 2010-SW-072-AD.

Applicability: Model SA330J helicopters, certificated in any category.

Compliance: Required as indicated.

To prevent rotor burst of the main gearbox (MGB) oil cooling fan assembly (fan), damage to the hydraulic pipes and flight controls, and subsequent loss of control of the helicopter, do the following:

(a) Within 10 hours time-in-service (TIS), unless accomplished previously, and thereafter at intervals not to exceed 10 hours TIS, using a 0.2 millimeter (mm) (0.008 inch) feeler gauge attached to a rigid rod, inspect for a minimum gap of 0.2 mm between a fan rotor blade and the upper section of the guide vane bearing housing over the entire width of the blade as depicted in Figure 1 and as shown in Figure 2 of Eurocopter Emergency Alert Service Bulletin No. 05.96, dated July 12, 2010 (EASB), and by following the Accomplishment Instructions, paragraph 3.B., of the EASB.

(1) If the feeler gauge can be inserted between the blade and the housing (a gap greater than or equal to 0.2 mm), no further action is required.

(2) If the feeler gauge cannot be inserted between the blade and the housing (a gap less than 0.2 mm), as depicted in Figure 3 of the EASB, before further flight, replace the two fan rotor shaft bearings, with two airworthy bearings, part number 704A33651114. Reinspect to ensure compliance with paragraph (a) of this AD after installing airworthy bearings. **Replacing the two fan rotor shaft bearings does not constitute terminating action for the inspection requirements of this AD.**

(b) 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: Rao Edupuganti, Aviation Safety Engineer, Rotorcraft Directorate, Regulations and Policy Group, 2601 Meacham Blvd., Fort Worth, Texas 76137, telephone (817) 222-4389, fax (817) 222-5961, for information about previously approved alternative methods of compliance.

(c) The Joint Aircraft System/Component (JASC) Code is 6322: Main gearbox oil cooler fan.

(d) Copies of the applicable service information may be obtained from American Eurocopter Corporation, 2701 Forum Drive, Grand Prairie, TX 75053-4005, telephone (800) 232-0323, fax (972) 641-3710, or at <http://www.eurocopter.com>.

(e) Emergency AD 2010-16-51, issued July 19, 2010, becomes effective upon receipt.

Note: The subject of this AD is addressed in European Aviation Safety Agency No. 2010-0147-E, dated July 14, 2010.

FOR FURTHER INFORMATION CONTACT: Rao Edupuganti, Aviation Safety Engineer,  
Rotorcraft Directorate, Regulations and Policy Group, 2601 Meacham Blvd., Fort Worth, Texas  
76137, telephone (817) 222-4389, fax (817) 222-5961.

Issued in Fort Worth, Texas, on July 19, 2010.

Mark. R. Schilling,  
Acting Manager, Rotorcraft Directorate,  
Aircraft Certification Service.