



Notification of a Proposal to issue an Airworthiness Directive

PAD No.: 19-110

Issued: 18 June 2019

Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below.
All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation date indicated.

Design Approval Holder's Name:

HELICOPTERES GUIMBAL

Type/Model designation(s):

CABRI G2 helicopters

Effective Date: [TBD - standard: 14 days after AD issue date]

TCDS Number(s): EASA.R.145

Foreign AD: Not applicable

Supersedure: This AD supersedes EASA AD 2017-0039 dated 24 February 2017.

ATA 71 – Powerplant – Engine Cooling Fan – Replacement

Manufacturer(s):

Hélicoptères Guimbal (HG)

Applicability:

Cabri G2 helicopters, all manufacturer serial numbers.

Definitions:

For the purpose of this AD, the following definitions apply:

Affected part:

- **Group 1:** An aluminium cooling fan which has Part Number (P/N) G52-00-000.
- **Group 2:** An aluminium cooling fan which has P/N G52-00-001, or has P/N G52-04-100, and is mounted, or was previously mounted, on a 12-hole engine pulley P/N G52-10-100 or P/N G52-10-101.

Serviceable part: An aluminium cooling fan which has P/N G52-04-101.

The SB: HG Service Bulletin (SB) 16-021 issue D.



Reason:

In July 2013, an occurrence was reported on a Cabri G2 helicopter, experiencing an engine in-flight shut-down (IFSD), leading to a forced landing. Subsequent investigation revealed that the engine cooling fan had failed, which led to power shutdown as the fan damaged the scroll and pulled the mixture control cable. The cause of the cooling fan failure was a crack which had developed in the fan external ring, but the origin of the crack was not determined with certainty due to the bad state of the retrieved failed parts.

This condition, if not detected and corrected, could lead to other events of cooling fan failure and subsequent engine IFSD or damage to the engine installation, possibly resulting in reduced control of the helicopter.

To address this potential unsafe condition, HG issued SB 13-021, providing instructions for inspection of the fan external ring to detect damage or cracking.

HG also designed a new external ring with improved mechanical characteristics and a fail-safe feature (glass fibre winding). HG SB 13-022 was issued to provide instructions for installation of this new external ring, P/N G52-00-101, on in-service helicopters.

Consequently, EASA issued AD 2014-0038 to require repetitive inspections of the engine cooling fan external ring and replacement of the ring with the new design ring P/N G52-00-101 as terminating modification.

After that AD was issued, a second in-flight failure was reported on an engine cooling fan modified as required by AD 2014-0038. The glass fibre winding of the new external ring maintained the integrity of the failed fan and no damage occurred to the helicopter. Analysis of the failed part identified that the crack had initiated on the cooling fan front flange, on areas of fretting near the screws fitting the flange on the engine starter ring gear. Prompted by these findings, HG issued SB 14-018, providing instructions for inspection of the fan front flange to detect cracking.

Consequently, EASA issued AD 2014-0196, retaining only the modification requirements of EASA AD 2014-0038, which was superseded, to require new repetitive inspections of the engine cooling fan front flange and, depending on findings, replacement of the cooling fan.

After that AD was issued, results of deeper analysis of the failed parts led to the conclusion that crack propagation depends mainly on engine start/stop (ESS) cycles. Therefore, an inspection interval expressed in such cycles was defined by HG to take into account helicopters operated with a number of ESS cycles beyond the assumed figure established during type certification.

Consequently, EASA issued AD 2016-0033, retaining the modification and inspection requirements of EASA AD 2014-0196, which was superseded, and requiring repetitive inspections of the engine cooling fan front flange and, depending on findings, replacement of the cooling fan.

After that AD was issued, HG developed a new engine cooling fan P/N G52-04-101, which includes a front flange made of composite materials having improved structural strength. HG issued SB 16-021 to provide instructions to install this new part, replacing the cooling fan P/N G52-00-001 equipped with an aluminium front flange. HG SB 16-021 also provides instructions to replace cooling fan P/N G52-04-100 (also equipped with an aluminium front flange) when mounted on certain type of engine pulleys. This part was not subject to inspections required by EASA AD 2016-0033, but subject to similar inspection requirements through HG Cabri G2 Maintenance Manual (MM).

Consequently, EASA issued AD 2017-0039, retaining the requirements of EASA AD 2016-0033, which



was superseded, and requiring replacement of the affected cooling fans with new cooling fans, equipped with a composite front flange, which constitutes terminating action for the repetitive inspections.

Since that AD was issued, HG published a revision of SB 16-021 to add a flight hour (FH) requirement for the replacement compliance time of affected cooling fans with less than 500 FH on 10 March 2017 [the effective date of EASA AD 2017-0039].

For the reason described above, this AD retains part of the requirements of EASA AD 2017-0039, which is superseded, and adds the new FH compliance time for the affected parts. This AD removes the modification and inspection requirements which have either become obsolete, or are meanwhile covered in HG Cabri G2 Maintenance Manual No. J70-002, Section C, Airworthiness Limitations, issue 06 dated 06 December 2018, compliance with which is currently mandated through EASA AD 2019-0025.

Required Action(s) and Compliance Time(s):

Required as indicated, unless accomplished previously:

Replacement:

- (1) Within the applicable compliance time specified in Table 1 of this AD, modify the helicopter by replacing the affected part with a serviceable part (as defined in this AD), in accordance with the instructions of the SB.

Table 1 – Affected Cooling Fan Replacement

Affected Parts (see Note 1 of this AD)	Compliance Time (after 10 March 2017 [the effective date of EASA AD 2017-0039])
Group 1	Within 3 months
Group 2 with 1 500 FH or more	Within 150 FH or 3 months, whichever occurs first
Group 2 with 500 FH or more, but less than 1 500 FH	Within 500 FH or 12 months, whichever occurs first
Group 2 with less than 500 FH	Before exceeding a total of 1 000 FH, or within 36 months, whichever occurs first

Note 1: The FH specified in the first column of Table 1 of this AD are those accumulated by the Group 2 affected part (as defined in this AD) on 10 March 2017 [the effective date of EASA AD 2017-0039], since first installation on a helicopter.

Parts Installation:

- (2) From the effective date of this AD, do not install an affected part on any helicopter.

Ref. Publications:

Hélicoptères Guimbal SB 16-021 issue D dated 20 May 2019.

The use of later approved revisions of the above-mentioned document is acceptable for compliance with the requirements of this AD.



Remarks:

1. This Proposed AD will be closed for consultation on 16 July 2019.
2. Enquiries regarding this PAD should be referred to the EASA Programming and Continued Airworthiness Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
3. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this PAD, and which may occur, or have occurred on a product, part or appliance not affected by this PAD, can be reported to the [EU aviation safety reporting system](#).
4. For any question concerning the technical content of the requirements in this PAD, please contact: Hélicoptères Guimbal – Customer support, Aérodrome d’Aix-en-Provence, 1070 rue Lieutenant Parayre, 13290 Les Milles, France, Telephone: +33 (0) 4 42 39 10 88, Fax: +33 (0) 4 42 39 10 82, E-mail: support@guimbal.com.

