



Airworthiness Directive

AD No.: 2020-0022R2

Issued: 23 December 2020

Note: This Airworthiness Directive (AD) 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.

This AD is issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [Regulation (EU) 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [Regulation (EU) 2018/1139, Article 71 exemption].

Design Approval Holder's Name:

AIRBUS HELICOPTERS

Type/Model designation(s):

AS 332 helicopters

Effective Date: Revision 2: 30 December 2020
Revision 1: 21 September 2020
Original issue: 21 February 2020

TCDS Number(s): EASA.R.002

Foreign AD: Not applicable

Revision: This AD revises EASA AD 2020-0022R1 dated 18 September 2020. The original issue of this AD superseded EASA AD 2018-0066 dated 23 March 2018.

ATA 05 – Time Limits / Maintenance Checks – Main Gear Box / Particle Detectors – Inspection

ATA 63 – Main Rotor Drive – Planet Gear Assemblies – Replacement / Modification

Manufacturer(s):

Airbus Helicopters (AH), formerly Eurocopter, Eurocopter France, Aérospatiale

Applicability:

AS 332 L, L1, C and C1 helicopters, all serial numbers.

Definitions:

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

The ASB: AH Alert Service Bulletin (ASB) AS332-05.01.08 Revision 1.

The modification SB: AH Service Bulletin (SB) AS332-63.00-86.

Affected MGB: Main gearbox (MGB) equipped with at least one Type A second stage planet gear, identified by Part Number (P/N) in Appendix 4.B of the ASB.



Serviceable MGB: An MGB equipped with Type B second stage planet gears only, identified by P/N in Appendix 4.B of the ASB.

ALF: After the last flight of the day (ALF) inspection.

Groups: Group 1 helicopters are those in pre-mod 07 53061 configuration.

Group 2 helicopters are those in post-mod 07 53061 configuration. Helicopters modified in service in accordance with the instructions of the modification SB are Group 2 helicopters, provided that the helicopter remains in that configuration.

Reason:

Investigation prompted by an EC 225 helicopter accident revealed involvement of a failure of a second stage planet gear of the MGB. It was determined that one of the two types of planet gear used in the epicyclic module of the MGB is subject to higher outer race contact pressures and therefore has a greater susceptibility to spalling and cracking. As one of a number of measures developed to ensure safe operation of the EC 225/AS 332 L2 fleet, this type of planet gear has been permanently removed from service. AH is reviewing its entire range of helicopters in regard to this particular issue.

On AS 332 L, L1, C and C1 helicopters there are two types of planet gear part numbers used in the epicyclic module of the MGB, one of which is subject to higher outer race contact pressures. The production of this type of planet gear was stopped since 1990, nevertheless, although unlikely, few of these parts might still be in service or kept in stock.

As a precautionary measure, AH issued ASB AS332-05.01.08 (original issue) applicable to AS 332 L, L1, C and C1 helicopters, providing instructions to identify the installed planet gears and, depending on the finding, replacement of Type A planet gears. That ASB also provided updated inspection intervals and particle assessment criteria, aligning the AS 332 L, L1, C and C1 particle inspection to the standards set for EC 225 LP and AS 332 L2 helicopters. Consequently, EASA issued AD 2018-0066 to require repetitive inspections of the MGB magnetic plugs, identification of the affected planet gear assemblies installed in the MGB and, depending on findings, replacement of Type A second stage planet gears. That AD also prohibited installation of an affected MGB on any helicopter.

Since that AD was issued, AH developed modification (mod) 07 53061, installing a Full Flow Magnetic Plug (FFMP) device enabling collection of MGB particles upstream of the oil cooler, and issued the modification SB, as defined in this AD, to provide installation instructions. AH also issued the ASB, as defined in this AD, introducing repetitive inspections of the new FFMP. Consequently, EASA issued AD 2020-0022 (later revised, prompted by reassessment of the risk by AH), retaining the requirements of EASA AD 2018-0066, which was superseded, and additionally requiring installation of an FFMP device. That AD also introduced repetitive FFMP inspections for post-mod helicopters.

Prompted by further reassessment of the risk by AH, this AD is revised to extend the compliance time for installation of FFMP.



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

Required as indicated, unless accomplished previously:

Replacement:

- (1) For Group 1 and Group 2 helicopters: Within 50 flight hours (FH) after 30 March 2018 [the effective date of EASA AD 2018-0066], identify the P/N of each second stage planet gear assembly installed on the MGB and replace each affected MGB with a serviceable MGB in accordance with the instructions of Section 3.B.4 of the ASB.

Modification:

- (2) For Group 1 helicopters: Within 300 FH or 14 months, whichever occurs first after 21 February 2020 [the effective date of the original issue of this AD], modify the helicopter by installing FFMP in accordance with the instructions of the modification SB. As a result of this modification, the helicopter effectively becomes Group 2 helicopter, as defined in this AD, provided the helicopter remains in that configuration.

Repetitive Inspections:

- (3) For Group 1 and Group 2 helicopters: Within 10 FH after 30 March 2018 [the effective date of EASA AD 2018-0066] and, thereafter, at intervals not to exceed 10 FH, inspect the MGB particle detector in accordance with the instructions of Section 3 of the ASB.
- (4) For Group 2 helicopters: Within 10 FH or at the next ALF check, whichever occurs first after modification as required by paragraph (2) of this AD and, thereafter, during each ALF or at intervals not to exceed 10 FH, whichever occurs first, inspect the FFMP in accordance with the instructions of Section 3.B.2 of the ASB.

Corrective Action(s):

- (5) If, during any inspection as required by paragraph (3) or (4) of this AD, as applicable, any particle is detected, before next flight, analyse the collected particles in accordance with the instructions of Appendix 4.A of the ASB.
- (6) If, during any analysis as required by paragraph (5) of this AD, particles are detected which exceed the limits as specified in Appendix 4.A of the ASB, before next flight, accomplish the applicable corrective action(s) in accordance with the instructions of Appendix 4.A of the ASB.

Terminating Action:

- (7) None.

Parts Installation:

- (8) From 30 March 2018 [the effective date of EASA AD 2018-0066], do not install on any helicopter an affected MGB. It is allowed to install a serviceable MGB, provided that, following installation, it is inspected as required by this AD.

Credit:

- (9) Replacement(s), inspection(s) and, depending on findings, corrective action(s), accomplished on a helicopter before 21 February 2020 [the effective date of this AD at original issue] in accordance with the instructions of the AH ASB AS332-05.01.08 at original issue, are acceptable



to comply with the requirements of paragraphs (1), (3), (5) and (6) of this AD for that helicopter.

Ref. Publications:

AH ASB AS332-05.01.08 original issue dated 20 March 2018, Revision 1 dated 03 February 2020, Revision 2 dated 18 September 2020, or Revision 3 dated 21 December 2020.

AH SB AS332-63.00-86 original issue dated 03 February 2020.

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

Remarks:

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.
3. Enquiries regarding this AD should be referred to the EASA Programming and Continued Airworthiness Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this AD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.
5. For any question concerning the technical content of the requirements in this AD, please contact: Airbus Helicopters (Technical Support), web portal: <https://keycopter.airbushelicopters.com> > Technical Requests Management, or e-mail: support.technical-airframe.ah@airbus.com.

