Airworthiness Directive

AD No.: 2017-0042R1

Issued: 28 February 2017

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) 216/2008 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 66 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 (EC) 216/2008, Article 14(4) exemption].

Design Approval Holder's Name:	Type/Model designation(s):
AIRBUS HELICOPTERS	AS 332 L2 and EC 225 LP helicopters

Effective Date:	01 March 2017 (same as original issue)
TCDS Number(s):	EASA.R.002
Foreign AD:	Not applicable
Revision:	This AD revises EASA AD 2017-0042 dated 25 February 2017.

ATA 63 / 79 – Main Rotor Drive / Engine Oil – Main Gearbox Oil Cooler – Inspection

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Manufacturer(s):
Airbus Helicopters (formerly Eurocopter, Eurocopter France, Aerospatiale)

Applicability:
AS 332 L2 and EC 225 LP helicopters, all manufacturer serial numbers (MSN).

Reason:
Following a fatal accident that occurred in Norway to an EC 225 LP helicopter, involving in-flight detachment of the main rotor hub from the main gearbox (MGB), EASA issued Emergency AD 2016-0089-E to require a one-time inspection and the reporting of findings. Prompted by reported findings relating to the installation of the MGB upper deck fittings of the three MGB suspension bars, EASA issued Emergency AD 2016-0103-E, which superseded AD 2016-0089-E, to require further inspection to ensure correct installation of the MGB suspension bars and attachment fittings. After AD 2016-0103-E was issued, prompted by metallurgical findings of fatigue and surface degradation in the outer race of a second stage planet gear of the MGB epicyclic module, EASA issued Emergency AD 2016-0104-E, prohibiting flight of all AS 332 L2 and EC 225 LP helicopters.

Subsequently, Airbus Helicopters (AH) investigated possible accident contributory factors and determined that the likely cause relates to the rupture of the second stage planet gear found with fatigue and surface degradation. Although the root cause is still not fully understood, it involved cracking of the planet gear bearing outer race, some spalling and propagation of a crack into the rim

of the gear, finally resulting in its rupture. Prompted by these determinations, AH issued several Emergency Alert Service Bulletins to introduce the necessary instructions to allow return to service.

Consequently, EASA issued AD 2016-0199, ending the flight prohibition imposed by EASA Emergency AD 2016-0104-E, which was superseded, and required accomplishment of the actions specified in the related AH service publications. EASA AD 2016-0199 was primarily based on the better performance of the low stress planet gear configuration and improved close monitoring procedures as derived from testing performed in the scope of the investigation.

Since that AD was issued, further testing investigation has delivered additional results as regards the close monitoring provisions. Those results require to amend the inspection regime in place with a one-time inspection of the oil cooler to acquire additional information on the condition of the MGB oil system.

For the reason described above, EASA issued AD 2017-0042, requiring a one-time inspection of the MGB oil cooler, and the reporting of all findings to EASA.

AH issued Alert Service Bulletin (ASB) AS332 ASB 05.01.07 and EC225 ASB 05A049 (single document) Revision 3, which provides those approved instructions. Consequently, this AD is revised to include reference to AH ASB, confirming this as an acceptable method to inspect the MGB oil cooler.

This AD is still considered an interim measure and further AD action may follow.

Required Action(s) and Compliance Time(s):
Required as indicated, unless accomplished previously:

Inspection of the MGB Oil Cooler:
(1) Before any second stage planet gear of the MGB epicyclic module exceeds 300 flight hours (FH) since first installation on any helicopter, or within 10 FH after the effective date of this AD, whichever occurs later, inspect the MGB oil cooler for the presence of particles in accordance with a specific flushing method approved by EASA, or approved under AH DOA. AH AS332 ASB 05.01.07 and EC225 ASB 05A049 (single document) Revision 3 provides an acceptable method to comply with this requirement.

Corrective Action:
(2) If, during the inspection as required by paragraph (1) of this AD, any 16NCD13 particle is found, before next flight, report to both Airbus Helicopters and EASA; do not resume flights until corrective action(s) are agreed by EASA.

Reporting:
(3) Within 3 days after the inspection as required by paragraph (1) of this AD, report the following data to EASA at ADs@easa.europa.eu:

- Helicopter MSN and total FH
- MGB main module: Part Number (P/N), serial number (s/n), Time Since New (TSN) and Time Since Overhaul (TSO)
- MGB Epicyclic module: P/N, s/n, TSN and TSO

- Second stage planet gears: P/N, s/n and TSN
- Number and type of particles found (with photographs of the particles on scaled paper)
- Details of any problems encountered with the oil cooler flushing procedure
- Details of any problems encountered with particles collection and characterisation

Ref. Publications:

Airbus Helicopters AS332 ASB 05.01.07 and EC225 ASB 05A049 (single document) Revision 3, dated 25 February 2017.

The use of later approved revisions of this document 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 Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.

4. For any question concerning the technical content of the requirements in this AD, please contact: Airbus Helicopters (Technical Support) – Aéroport de Marseille Provence 13725 Marignane Cedex, France, Telephone +33 (0)4 42 85 97 97, Fax +33 (0)4 42 85 99 66, E-mail: TechnicalSupport.Helicopters@airbus.com.