



Airworthiness Directive

AD No.: 2017-0116R1

Issued: 15 November 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:

AIRBUS HELICOPTERS

Type/Model designation(s):

SA 365, AS 365 and EC 155 helicopters

Effective Date: Revision 1: 22 November 2017
Original issue: 12 July 2017

TCDS Number(s): EASA.R.105

Foreign AD: Not applicable

Revision: This AD revises EASA AD 2017-0116 dated 05 July 2017, which superseded EASA AD 2017-0104 dated 13 June 2017.

ATA 05 – Time Limits / Maintenance Checks – Main Gearbox Magnetic Plugs – Inspection

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

Manufacturer(s):

Airbus Helicopters (formerly Eurocopter, Eurocopter France, Aerospatiale)

Applicability:

SA 365 N, SA 365 N1, AS 365 N2, AS 365 N3, EC 155 B and EC 155 B1 helicopters, all manufacturer serial numbers.

Reason:

Prompted by an EC225 helicopter accident, the investigation revealed that this involved failure of a second stage planet gear of the Main Gearbox (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 EC225/AS332 L2 fleet, this type of planet gear has been permanently removed from service.

Airbus Helicopters (AH) has reviewed its entire range of helicopters in regard to this particular issue. As a result, it has been decided to implement precautionary measures on the SA365 / AS365 / EC155 helicopters to improve the reliability of the installed MGB. AH has issued Alert Service



Bulletin (ASB) AS365-05.00.78 and ASB EC155-05A034 (hereafter referred to as “the applicable ASB” in this AD) to provide the necessary instructions. Consequently, EASA issued AD 2017-0104 to require repetitive inspections of the MGB magnetic plugs, identification of the planet gear assemblies installed in the MGB and, depending on findings, the replacement of the planet gear assemblies.

After that AD was issued, it was determined that the required method of identification of the affected planet gear assemblies could lead to failure to identify some affected parts. Prompted by this development, AH issued Revision 1 of the applicable ASB, introducing an improved identification method, based on the affected planet gear serial number (s/n).

For the reasons described above, EASA issued AD 2017-0116, retaining the requirements of EASA AD 2017-0104, which was superseded, to require new identification of the affected planet gear assemblies using an improved method.

Since that AD was issued, AH issued Revision 2 of the both applicable ASBs to allow replacement on-site of the epicyclic reduction gear on the MGB as an alternative method to the MGB replacement. Additionally, AH issued Revision 1 of Service Bulletin (SB) AS365-63.00.21 and Revision 2 of SB EC155-63-016, providing instructions to this alternative method.

This AD is revised accordingly, confirming the approved alternative method.

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

Required as indicated, unless accomplished previously:

Repetitive Inspections of MGB magnetic plugs:

- (1) For all helicopters: Within 10 flight hours (FH) after 16 June 2017 [the effective date of EASA AD 2017-0104], and, thereafter, during each “after last flight” of the day (ALF) inspection, or at intervals not to exceed 10 FH, whichever occurs first, inspect the MGB magnetic plugs in accordance with the instructions of the applicable ASB at original issue or Revision 1. From 12 July 2017 [the effective date of the original issue of this AD], Revision 1 (or later approved revisions) of the applicable ASB must be used.

Corrective Action(s):

- (2) If, during any inspection as required by paragraph (1) of this AD, particles are detected, exceeding the criteria as defined in the applicable ASB, before next flight, accomplish the applicable corrective action(s) in accordance with the instructions of applicable ASB at original issue or Revision 1. From 12 July 2017 [the effective date of the original issue of this AD], Revision 1 (or later approved revisions) of the applicable ASB must be used.

Replacement of planet gear assemblies:

Note 1: For the purpose of this AD, an affected MGB is an MGB equipped with a planet gear assembly type X or Y, identified by the part s/n in accordance with the instructions of Revision 1 of the applicable ASB.

- (3) For helicopters equipped with an affected MGB: Depending on the helicopter model, the type of planet gear assembly installed and its accumulated FH, within the compliance times specified



in Table 1 of this AD but not later than 30 June 2019, replace the affected MGB with a serviceable MGB as defined in accordance with the instructions of the Revision 1 (or later approved revisions) of the applicable ASB, or replace the epicyclic reduction gear on the affected MGB in accordance with the instructions of Revision 2 of SB EC155-63-016 or Revision 1 of SB AS365-63.00.21, as applicable to helicopter model.

Replacement of an affected MGB, before 12 July 2017 [the effective date of the original issue of this AD], in accordance with the instructions of the applicable ASB at original issue, is an acceptable method to comply with the requirements of this paragraph, provided that the installed MGB is a serviceable MGB in accordance with the instructions of Revision 1 (or later approved revisions) of the applicable ASB.

Table 1 – Compliance Time (see Note 2 of this AD)

Helicopter Model(s)	Type Planet Gear assembly installed	FH Accumulated	Compliance Time
All	At least one planet gear assembly of type X is installed	Any	Within 50 FH after 16 June 2017 [the effective date of EASA AD 2017-0104]
EC155 B and B1	at least one planet gear assembly of type Y is installed – but no type X installed	Any	Within 50 FH after 16 June 2017 [the effective date of EASA AD 2017-0104]
SA 365 and AS 365 (all models)		Less than 1 250	Before exceeding 1 300 FH, or within 300 FH after 16 June 2017 [the effective date of EASA AD 2017-0104], whichever occurs first
		1 250 or more	Within 50 FH after 16 June 2017 [the effective date of EASA AD 2017-0104]

Note 2: Unless specified otherwise, the FH in Table 1 of this AD are those accumulated by the affected planet gear assembly with the highest number of FH, accumulated since first installation in an MGB.

Terminating Action:

(4) None.

Parts Installation:

- (5) For all helicopters: From 16 June 2017 [the effective date of EASA AD 2017-0104], do not install on any helicopter an MGB equipped with a planet gear assembly of type X.
- (6) For EC155 B and B1 helicopters: From 16 June 2017 [the effective date of EASA AD 2017-0104], do not install on any helicopter an MGB equipped with a planet gear assembly of type Y.
- (7) For SA365 and AS365 helicopters: Until 30 June 2019, it is allowed to install an MGB equipped with a planet gear assembly type Y, as required by paragraph (7.1) or (7.2) of this AD, as applicable.



(7.1) The planet gear assembly was installed on the MGB before 16 June 2017 [the effective date of EASA AD 2017-0104] and has not exceeded 1 300 FH since first installation. The MGB must be replaced before exceeding 1 300 FH accumulated by the type Y planet gear assembly with the highest number of FH accumulated since first installation in the MGB, or within 300 FH after that MGB installation, whichever occurs first.

(7.2) The planet gear assembly was installed new on the MGB after 16 June 2017 [the effective date of EASA AD 2017-0104] and has accumulated, at the time of installation on the helicopter, less than 300 FH since installation on the MGB. The MGB must be replaced before exceeding 300 FH accumulated by the type Y planet gear assembly with the highest number of FH accumulated since first installation in the MGB.

(8) For SA365 and AS365 helicopters: From 01 July 2019, do not install on any helicopter an MGB equipped with a planet gear assembly of type Y.

Credit:

(9) Modification of a helicopter, before the effective date of this AD, by replacing the epicyclic reduction gear on the affected MGB of that helicopter in accordance with AH approved maintenance data, as defined in the paragraph 1.E.2.a.5) of the applicable ASBs, is an acceptable method to comply with the requirements of paragraph (3) of this AD for that helicopter, provided that the additional maintenance work as defined in paragraph 1.E.2.a.5) of the applicable ASBs has been accomplished, as applicable.

Ref. Publications:

AH ASB AS365-05.00.78 original issue dated 13 June 2017, or Revision 1 dated 30 June 2017, or Revision 2 dated 14 November 2017.

AH ASB EC155-05A034 original issue dated 13 June 2017, or Revision 1 dated 30 June 2017, or Revision 2 dated 14 November 2017.

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

AH SB AS365-63.00.21 Revision 1 dated 14 November 2017.

AH SB EC155-63-016 Revision 2 dated 14 November 2017.

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: Web portal: <https://keycopter.airbushelicopters.com> > Technical Requests Management.

