



Notification of a Proposal to issue an Airworthiness Directive

PAD No.: 19-132

Issued: 19 July 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:

AIRBUS HELICOPTERS

Type/Model designation(s):

AS 332 and SA 330 helicopters

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

TCDS Number(s): EASA.R.002

Foreign AD: Not applicable

Supersedure: This AD supersedes EASA AD 2018-0248 dated 15 November 2018.

ATA 64 – Tail Rotor – Hub Assembly – Inspection / Replacement

Manufacturer(s):

Airbus Helicopters (AH), formerly Eurocopter, Eurocopter France, Aerospatiale, Sud Aviation

Applicability:

AS 332 C, AS 332 C1, AS 332 L, AS 332 L1 and SA 330 J helicopters, all manufacturer serial numbers.

Definitions:

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

Affected flapping hinge components: Flapping hinge components installed on a tail rotor (TR) transmission assembly, having a Part Number (P/N) as listed in Table 1 of this AD.

Affected spindle bolts: A spindle bolt installed on a TR transmission assembly, having a P/N as listed in Table 1 of this AD.

Serviceable parts: Affected flapping hinge components which are new (not previously installed on a helicopter).



The applicable flapping hinges ASB: AH Alert Service Bulletin (ASB) AS332-05.01.10 and ASB SA330-05.105, as applicable.

The applicable spindle bolts ASB: AH ASB AS332-64.00.44 and SA330-65.135, as applicable.

TC per FH: For the purpose of this AD, torque cycles (TC) per flight hour (FH) are counted in accordance with specifications defined in AS 332 or SA 330 Airworthiness Limitation Section (applicable ALS).

Groups:

Group 1 are SA 330 helicopters with affected flapping hinge components installed that have been inspected and, depending on findings, corrected in accordance with AH ASB SA330-65.132 (see EASA AD 2018-0042), except those with affected flapping hinge components replaced in accordance with AH ASB SA330-05.105.

Group 2 are AS 332 helicopters with affected flapping hinge components installed that have been inspected and, depending on findings, corrected in accordance with AH ASB AS332-64.00.43 (see EASA AD 2018-0042), except those with affected flapping hinge components replaced in accordance with AH ASB AS332-05.01.10.

Group 3 helicopters are all other AS 332 and SA 330 helicopters.

Reason:

Damage of a flapping hinge link on one of the five TR blades was reported. Investigation is ongoing to determine the root cause of the damage.

This condition, if not detected and corrected, could lead to failure of flapping hinge link and unbalance of the TR, possibly resulting in detachment of TR gearbox and TR hub, with consequent loss of control of the helicopter.

To address this potentially unsafe condition and pending further information from the technical investigation, AH issued ASB AS332 64.00.43 and ASB SA330 65.132 to provide inspection instructions and, consequently, EASA issued Emergency AD 2017-0232-E (for AS 322 only), which was subsequently superseded by AD 2018-0042, expanding the applicability to SA 330 J helicopters, to require a one-time inspection of flapping hinges of the TR blades and, depending on findings, corrective action(s). EASA AD 2018-0042 also required reporting of the detected findings and sending any cracked components to AH to support the investigation.

Since that AD was issued, it was determined that repetitive replacement (reduction of service life) of affected flapping hinge components is necessary to ensure that the repeated loads of variable magnitude, expected to be imposed on an affected component during its service life, do not lead to part failure.

Prompted by this development, AH issued the applicable flapping hinges ASB to provide replacement and reporting instructions to support the investigation and EASA issued AD 2018-0248, which superseded EASA AD 2018-0042, to require those actions.



After that AD was issued, it was determined that helicopters involved in high TC per FH operations were prone to crack development on the affected spindle bolts.

Prompted by this development, AH issued the applicable spindle bolts ASB and Revision 1 of applicable flapping hinges ASB to provide inspection instructions and to reduce the compliance time applicable to flapping hinges replacement, depending on helicopter TC per FH.

For the reasons described above, this AD partially retains the requirements of EASA AD 2018-0248, which is superseded, and requires repetitive inspections of the affected spindle bolts until the replacement of flapping hinge components starts and reduces the replacement compliance time for helicopters involved in high TC per FH operations. This AD also requires to send back to AH the removed flapping hinge components to support investigation of deterioration mechanism and scenario of those components.

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

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

Required as indicated, unless accomplished previously:

Table 1 – Tail Rotor Transmission Assemblies

Helicopter	P/N
AS 332	332A330001.02, 332A330001.03, 332A330001.04, 332A330001.05 and 332A330001.06
	332A330009.00 and 332A330009.01
SA 330	330A330000.04, 330A330000.05, 330A330000.06, 330A330000.07, 330A330000.08, 330A330000.09, 330A330000.10, 330A330000.11, 330A330000.12, 330A330000.13, 330A330000.14, 330A330000.15, 330A330000.16, 330A330000.17, 330A330000.18 and 330A330000.19

Determination(s):

- (1) Group 1 and Group 2 helicopters: Within 50 flight hours (FH) after the effective date of this AD, determine the helicopter TC per FH in accordance with the specifications defined in the applicable ALS.
- (2) For Group 1 helicopters: If the TC, determined as required by paragraph (1) of this AD, is 6 TC or less per FH (no high TC per FH operations, see Table 2 of this AD): Within 50 FH after the effective date of this AD, determine the FH remaining to the applicable compliance time defined in AH ASB SA330-05.105.
- (3) For Group 2 helicopters: If the TC, determined as required by paragraph (1) of this AD, is 4 TC or less per FH (no high TC per FH operations, see Table 2 of this AD): Within 50 FH after the effective date of this AD, determine the FH remaining to the applicable compliance time defined in AH ASB AS332-05.01.10.



Table 2 – Determination of the Helicopter Operations

Helicopter	TC per FH	Is the helicopter involved in high TC per FH operations?
SA 330	6 or less	NO
	More than 6	YES
AS 332	4 or less	NO
	More than 4	YES

Inspection(s):

- (4) For Group 1 and Group 2 helicopters: If the remaining FH, determined as required by paragraph (2) or (3) of this AD, as applicable, are more than 50 FH: Within 50 FH after the effective date of this AD, and, thereafter, at intervals not to exceed 50 FH, inspect all affected spindle bolts in accordance with the instructions of the applicable spindle bolts ASB.

Repetitive Replacement:

- (5) For Group 1 and Group 2 helicopters for which the remaining FH, determined as required by paragraph (2) or (3) of this AD, as applicable, are 50 FH or less, and for Group 3 helicopters: Within the compliance time defined in the applicable flapping hinges ASB, and thereafter, at intervals not to exceed the value as defined in Table 3 of this AD, as applicable, replace, for each flapping hinge, all affected flapping hinge components with serviceable parts, as defined in this AD, in accordance with the instructions specified in Section 3 of the applicable flapping hinges ASB.
- (6) For Group 1 helicopters for which the TC, determined as required by paragraph (1) of this AD, is more than 6 TC per FH (high TC per FH operations, see Table 2 of this AD), or could not be determined; and for Group 2 helicopters for which the TC, determined as required by paragraph (1) of this AD, is more than 4 TC per FH (high TC per FH operations, see Table 2 of this AD), or could not be determined: Within 50 FH after the effective date of this AD, and, thereafter, at intervals not to exceed the value as defined in Table 3 of this AD, as applicable, replace, for each flapping hinge, all affected flapping hinge components with serviceable parts, as defined in this AD, in accordance with the instructions of Section 3 of the applicable flapping hinges ASB.

Table 3 – Affected Flapping Hinge Components Reduced Service Life

Helicopter	Replacement (see Note 1 of this AD)
AS 332	250 FH
SA 330	300 FH

Note 1: The FH specified in Table 3 of this AD are those accumulated by the affected flapping hinge components since first installation on a helicopter.



Corrective Actions:

- (7) For Group 1 and Group 2 helicopters: If, during any inspection, as required by paragraph (4) of this AD, any spindle bolt crack is detected, before next flight, replace, for each flapping hinge, all affected flapping hinge components with serviceable parts in accordance with the instructions of the applicable flapping hinges ASB.

Reporting / Parts to be Returned:

- (8) Within 60 days after each replacement of flapping hinge components, as required by paragraph (5), (6) or (7) of this AD, as applicable, send those components to AH for further investigation. This can be accomplished in accordance with the instructions of the applicable flapping hinges ASB.

Terminating Action:

- (9) Replacement, on each flapping hinge, of all affected flapping hinge components on a helicopter, as required by paragraph (7) of this AD, constitutes terminating action for repetitive inspections, as required by paragraph (4) of this AD, for that helicopter.

Parts Installation:

- (10) From the effective date of this AD, it is allowed to install the affected flapping hinge components (see Note 2 of this AD) on any helicopter, provided that they are serviceable parts, as defined in this AD.

Note 2: For the purpose of this AD, removal of an affected flapping hinge component from a helicopter and subsequent re-installation of that component in the same position on the TR transmission assembly of that same helicopter within the same maintenance visit, is not an 'installation' as specified in paragraph (10) of this AD.

Ref. Publications:

AH ASB AS332-05.01.10 original issue dated 25 October 2018, or Revision 1 dated 16 July 2019.

AH ASB SA330-05.105 original issue dated 25 October 2018, or Revision 1 dated 16 July 2019.

AH ASB AS332-64.00.44 original issue dated 16 July 2019.

AH ASB SA330-65.135 original issue dated 16 July 2019.

AH ASB SA330-65.132 original issue dated 12 February 2018, or Revision 1 dated 25 October 2018, or Revision 2 dated 16 July 2019.

AH ASB AS332-64.00.43 original issue dated 21 November 2017, or Revision 1 dated 12 February 2018, or Revision 2 dated 25 October 2018, or Revision 3 dated 16 July 2019.

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



Remarks:

1. This Proposed AD will be closed for consultation on 09 August 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: Airbus Helicopters (EBSESB) – Aéroport de Marseille Provence, 13725 Marignane Cedex, France; Telephone +33 (4) 42 85 97 97; Fax +33 (4) 42 85 99 66; E-mail: Directive.technical-support@airbus.com.

