

Airworthiness Directive

AD No.: 2022-0099

Issued: 01 June 2022

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, or Annex Vb Part ML.A.301, as applicable, 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 Annex Vb Part ML.A.303, as applicable] 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):

EC 175 B helicopters

Effective Date: 05 June 2022

TCDS Number(s): EASA.R.150

Foreign AD: Not applicable

Supersedure: This AD supersedes EASA AD 2020-0132R1 issued 27 April 2021.

ATA 55 – Stabilizers – Horizontal Stabilizer Attachment Bolts – Inspection / Clearance Check / Modification

Manufacturer(s):

Airbus Helicopters (AH), formerly Eurocopter, Eurocopter France

Applicability:

EC 175 B helicopters, all serial numbers (s/n), except those on which AH modification (mod) 99A05341 has been embodied in production.

Definitions:

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

The ASB: Emergency Alert Service Bulletin (ASB) 05A020 Revision 6.

Affected stabilizer: Horizontal stabilizers, having Part Number (P/N) M551H1B01056, P/N M551H1D01056, P/N M551H1F01056, P/N M551H1G01056, P/N M551H1I01056, P/N M551H1A01056, P/N M551H1C01056 or P/N M551H1E01056 (all pre-mod); and those having P/N M551A1101103 or P/N M551A1A01103 (post-mod), as applicable.

Affected fitting: Horizontal stabilizer fittings, having P/N M536A3401102 (pre-mod) or P/N M536A3401105 (post-mod), as applicable. AH modification ASB EC175-55A006 refers to these parts as 'horizontal stabilizer bracket'.

Affected bolt: Bolts, having P/N M008A5511218 (pre-mod) or P/N M551A1101212 (post-mod), as applicable, attaching the horizontal stabilizer to the tail boom.

Groups: Group 1 helicopters are those that have pre-mod affected stabilizer, fittings or bolts installed. Group 2 helicopters are those that have post-mod stabilizer, fittings and bolts installed.

Reason:

Occurrences were reported where, during daily inspection of EC 175 B helicopters, a gap was noticed between the affected stabilizer and the affected fitting. A subsequent torque check revealed the loss of torque of one of the nuts. After removal of the affected nut, the observed clearance was found to be above the maximum allowable value of 0.1 millimetres (mm). On another helicopter, one of the two affected bolts was found to be protruding from its seat. At closer inspection, the bolt was found to be broken in its threaded section and kept in place by the sealant.

This condition, if not detected and corrected, could lead to in-flight loss of the horizontal stabilizer, possibly resulting in loss of control of the helicopter.

To address this potential unsafe condition, AH issued EC175 Emergency ASB 05A014, providing inspection instructions. Consequently, EASA issued Emergency AD 2016-0243-E to require a one-time measurement of the clearance between affected stabilizer and affected fitting, repetitive inspections of affected bolts for integrity and cracks, repetitive measurement of the torque of the related nuts and, depending on findings, accomplishment of corrective action(s), as applicable.

After that AD was issued, prompted by further analyses, AH issued EC175 Emergency ASB 05A014 Revision 1, providing instructions for additional inspections. Consequently, EASA issued Emergency AD 2016-0262-E, retaining the requirements of EASA AD 2016-0243-E, which was superseded, and additionally requiring repetitive visual inspections of the attachment area of the affected stabilizer.

After that AD was issued, occurrences were reported of fretting on the bushings at the interface with the affected fitting, and of damaged bolts. Prompted by these findings, AH issued EC175 ASB 05A014 Revision 2, to provide improved and additional inspection instructions, and EASA issued AD 2017-0127-E, partially retaining the requirements of EASA AD 2016-0262-E, which was superseded, and additionally requiring inspection of the contact areas between the affected stabilizer and affected fitting, a reduction of the inspection interval for the affected stabilizer, introducing a service limit for the affected bolts, and implementation of a penalty factor to the flight hours (FH) accumulated by certain helicopters.

After that AD was issued, a refined stress analysis and failure assessment concluded that reduction of the existing service life limits, additional maintenance tasks and also flight limitation(s) were necessary. Prompted by these developments, AH issued EC175 Emergency ASB 05A014 Revision 3 and Service Bulletin (SB) EC175-55-005 to provide additional instructions, and a Temporary Revision to the EC 175 B Rotorcraft Flight Manual (RFM). Consequently, EASA issued Emergency AD 2017-0194-E, retaining the requirements of EASA AD 2017-0127-E, which was superseded, and requiring additionally a reduction of the life limit for the affected bolts, the installation of upper and lower stop brackets on the affected stabilizer, to prevent a move of the affected bolts from their position in case of bolt failure, and amendment of the RFM to limit the 'never-exceed speed' (Vne) Power-On.



After that AD was issued, AH developed mod 99A05226-00-M-ECP/05 and mod 99A05435-00-M-ECP/00, which included the installation of a re-designed horizontal stabilizer (P/N M551A1101103 or P/N M551A1A01103), fitting (stabilizer bracket, P/N M536A3401105) and new attachment bolts (P/N M551A1101212), and published ASB EC175-55A006 to provide modification instructions. To provide separate inspection instructions for pre-mod (Group 1) helicopters and post-mod (Group 2) helicopters, AH issued respectively EC175 ASB 05A014 Revision 4 and ASB EC175 ASB 05A020 (original issue). Consequently, EASA issued AD 2018-0113, retaining the requirements of EASA AD 2017-0194-E, which was superseded, amending the requirements for respectively Group 1 and Group 2 helicopters, as applicable, and to require modification of all Group 1 helicopters, which constituted terminating action for the repetitive bolt inspections as required by that AD.

After that AD was issued, inconsistencies were discovered between the P/N of the affected post-mod stabilizers in that AD and those specified in the applicable inspection ASB, and therefore EASA issued AD 2020-0132, retaining the requirements of EASA AD 2018-0113, which was superseded, but incorporating the correct P/N of the affected post-mod stabilizers. That AD was still considered an interim action, pending the development of a dedicated modification.

After that AD was issued, AH developed mod 99A05341, incorporating the installation of a new horizontal stabilizer with supporting rods (P/N M551H1A03101), which permanently addresses the above-described potential unsafe condition. Consequently, EASA issued AD 2020-0132R1 to reduce the Applicability by excluding helicopters on which mod 99A05341 has been embodied in production.

Since that revised AD was issued, occurrences were reported where, during repetitive inspections as required by paragraph (9) of that AD, a fatigue crack was identified on the skin of a horizontal stabilizer, then another fatigue crack was identified on the visible part of a horizontal stabilizer spar of another helicopter. Based on the following additional stress load analysis and the determination of the propagation rate, it was decided to shorten the inspection interval, to ensure timely detection of such fatigue cracks, and to introduce a modification of the affected stabilizer spar to improve the detectability of cracks. AH revised EC175 ASB 05A020 (Revision 6) accordingly.

For the reasons described above, this AD partially retains the requirements of AD 2020-0132R1, which is superseded, reduces the interval for the inspection of the affected stabilizers' attachment area, and requires modification of the visible part of the horizontal stabilizer spar.

Considering that AH has confirmed to EASA that all Group 1 helicopters have been modified as originally required by EASA AD 2018-0113, the pre-mod requirements have not been retained in this AD.

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

Required as indicated, unless accomplished previously:

Inspection(s):

- (1) Within 5 FH after the effective date of this AD, and thereafter, at intervals not to exceed 5 FH, accomplish a detailed visual inspection of the attachment area of the affected stabilizer in accordance with the instructions of Section 3 of the ASB.



- (2) Within 55 FH after 22 June 2020 [the effective date of the original issue of EASA AD 2020-0132], and, thereafter, at intervals not to exceed 55 FH, measure and record the tightening torque of the nuts of the affected bolts, including determination of the torque loss in comparison with the value measured during the latest inspection, or the nominal maximum value, as applicable, in accordance with the instructions of Section 3 of the ASB.
- (3) Within 55 FH after 22 June 2020 [the effective date of the original issue of EASA AD 2020-0132], and, thereafter, at intervals not to exceed 200 FH, inspect the affected stabilizer and affected fittings in accordance with the instructions of Section 3 of the ASB.

Note 1: Unless specified otherwise, the FH indicated in paragraph (3) of this AD are those accumulated by the horizontal stabilizer on 22 June 2020 [the effective date of the original issue of EASA AD 2020-0132] since first installation on a helicopter.

Corrective Action(s):

- (4) If, during any inspection as required by paragraph (2) of this AD, any bolt is found broken or the loss of torque is more than 20%, before next flight, measure the clearance between the affected horizontal stabilizer and its fitting and determine the accumulated thickness loss (ATL) in accordance with the instructions of Section 3 of the ASB.
- (5) If, during a thickness determination as required by paragraph (4) of this AD, it is established that the ATL is 0.4 mm or more, within 50 FH after this determination, replace the affected stabilizer with a serviceable part in accordance with the instructions of the ASB.
- (6) If, during any inspection as required by paragraph (2) of this AD, any cracked or damaged bolt is detected, before next flight, replace both affected bolts with serviceable parts in accordance with the instructions of the ASB.
- (7) If, during any inspection as required by paragraph (1) or (3) of this AD, as applicable, any damage (as defined in the ASB) to the affected stabilizer or an affected fitting is detected, before next flight, replace each damaged part with a serviceable part in accordance with the instructions of the ASB.

Credit:

- (8) Inspections and corrective actions on a helicopter, accomplished before the effective date of this AD in accordance with AH EC175 ASB 05A020 at Revision 5 or any earlier version, are acceptable to comply with the initial requirements of paragraphs (2), (3), (4), (5), (6) and (7) of this AD for that helicopter.

Modification:

- (9) Within 50 FH, or at the next scheduled removal of the horizontal stabilizer, whichever occurs first after the effective date of this AD, remove the paint from the designated areas of an affected stabilizer spar as indicated in the ASB and replace it with primer and varnish in accordance with the instructions of Section 3 of the ASB.

Terminating Action:



- (10) Modification of a helicopter as required by paragraph (3) of EASA AD 2021-0178R1 constitutes terminating action for the inspection requirements of this AD for that helicopter.

Reporting:

- (11) If, during any inspection as required by this AD, an affected bolt is found damaged, cracked or broken, or if, during any action as required by paragraph (4) of this AD, the clearance between the affected stabilizer and affected fitting is found to exceed the maximum allowable value as defined in the ASB, within 30 days after that finding, report to AH the measured clearance value and/or any found damaged bolt. Using the 'Response Form' of the ASB is an acceptable method to comply with this reporting requirement.

Parts Installation:

- (12) From the effective date of this AD, do not install on any helicopter an affected pre-mod stabilizer, affected pre-mod fitting or affected pre-mod bolt, as defined in this AD.
- (13) From the effective date of this AD, it is allowed to install on any helicopter an affected post-mod stabilizer (as defined in this AD), provided that, before installation, any finishing paint has been removed from the designated areas of the horizontal stabiliser spar and those designated areas have been painted with primer and varnish, in accordance with the instructions of Section 3 of the ASB.

Ref. Publications:

Airbus Helicopters EC175 ASB 05A020 original issue dated 27 March 2018, or Revision 1 dated 03 June 2019, or Revision 2 dated 25 July 2019, or Revision 3 dated 10 May 2021, or Revision 4 dated 20 December 2021, or Revision 5 dated 28 February 2022, or Revision 6 dated 30 May 2022.

The use of later approved revisions of the above-mentioned 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. 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) at:
Web portal: <https://airbusworld.helicopters.airbus.com> / Technical Requests Management, or
E-mail: TechnicalSupport.Helicopters@airbus.com, or Telephone +33 (0)4.42.85.97, or
E-mail: support.technical-airframe.ah@airbus.com.

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