Airworthiness Directive

AD No.: 2020-0048

Issued: 06 March 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:
LEONARDO S.p.A.

Type/Model designation(s):
AW169 and AW189 helicopters

Effective Date: 20 March 2020

TCDS Number(s): EASA.R.509, EASA.R.510

Foreign AD: Not applicable

Supersedure: This AD supersedes EASA AD 2019-0193 dated 07 August 2019.

ATA 64 – Tail Rotor – Tail Rotor Servo Actuator / Duplex Bearing – Inspection / Check / Modification

---

Manufacturer(s):
Leonardo S.p.A. Helicopters, formerly Finmeccanica S.p.A., AgustaWestland S.p.A.

Applicability:
AW169 helicopters, all serial numbers (s/n); and
AW189 helicopters, all s/n.

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

Affected part: Tail rotor actuators (TRA), having Part Number (P/N) 6F6730V00331.

The applicable inspection ASB: Leonardo Emergency Alert Service Bulletin (SB) 169-148 and SB 189-237, as applicable.

The applicable modification SB: Leonardo SB 169-153 and SB 189-249, as applicable.

Groups: Group 1 helicopters are those that have an affected part installed. Group 2 helicopters are those that do not have an affected part installed.

The applicable HUMS retro-mod: Health and usage monitoring system (HUMS) upgrade, known as retro-mod P/N 6F3130P00811 for AW169 (available for in-service installation by Leonardo SB 169-140) and retro-mod P/N 8G3130P02011 for AW189 (available for in-service installation by Leonardo SB 189-227), as applicable.

Reason:

An accident occurred with an AW169 helicopter, the root cause of which is still under investigation. While the helicopter was on a take-off phase at low forward speed, a loss of yaw control has been observed. As a precautionary measure, Leonardo issued ASB 169-120 for AW169 helicopters to provide inspection instructions to check correct installation of the tail rotor (TR) servo-actuator and, subsequently, ASB 189-213 with the same instructions for AW189 helicopters, since these have a TR flight control system of similar design to AW169 helicopters.

Incorrect installation of the TR servo-actuator, if not detected and corrected, depending on the flight condition, could possibly result in loss of control of the helicopter.

EASA issued Emergency AD 2018-0241-E to require a one-time visual inspection of the TR servo-actuator installation and, depending on findings, accomplishment of applicable corrective action(s), as well as reporting of inspection results to Leonardo.

After that AD was issued, based on further information, EASA consecutively issued Emergency AD 2018-0250-E, Emergency AD 2018-0252-E, Emergency AD 2018-0261-E, AD 2019-0023 and AD 2019-0121 (later revised), each AD superseding the previous AD, completely or partially retaining requirements, to additionally require accomplishment of certain inspections and checks of the TR duplex bearing and, depending on findings, applicable corrective action(s).

After AD 2019-0121R1 was issued, the mandatory reporting requirements of that AD were reassessed, including consideration of an upgrade of the HUMS done by Leonardo. The applicable HUMS retro-mod relocates an existing HUMS accelerometer sensor to the TR servo-actuator lever to allow monitoring of the vibration signature of the TR duplex bearing. Consequently, EASA issued AD 2019-0193, retaining the requirements of EASA AD 2019-0121R1, which was superseded, to require a revised reporting regime, including the reporting of HUMS data for helicopters equipped with the applicable HUMS retro-mod.

Since that AD was issued, Leonardo developed an improved TRA P/N 6F6730V00332, introducing a control rod and related castellated nut on the back-end side with left-hand thread. Leonardo issued the applicable modification SB to provide instructions for installation of the improved TRA and concurrently revised the applicable inspection ASB.

For the reasons described above, this AD retains the requirements of EASA AD 2019-0193, which is superseded, and requires installation of the improved TRA. This AD no longer requires compliance with paragraph (1) for Group 2 helicopters which have an improved TRA installed. Finally, this AD also prohibits (re)installation of a TRA P/N 6F6730V00331 on a helicopter.

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

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

Required as indicated, unless accomplished previously:

Repetitive Inspections:

(1) For Group 1 helicopters: Within 10 flight hours (FH) after last accomplishment of Part I of the applicable inspection ASB, as previously required by EASA AD 2019-0193, and, thereafter, at intervals not to exceed 10 FH, inspect the slippage marking of the castellated nut installed on the back-end of the TR servo-actuator in accordance with the instructions of Part I of the applicable inspection ASB.

(2) For Group 1 and Group 2 helicopters: Within 50 FH after last accomplishment of Part II of the applicable inspection ASB, as previously required by EASA AD 2019-0193, and, thereafter, at intervals not to exceed 50 FH, inspect the roughness and breakaway force of the TR duplex bearing in accordance with the instructions of Part II of the applicable inspection ASB.

Repetitive Thermal Strip Installation:

(3) For Group 1 and Group 2 helicopters: Within 20 FH after last accomplishment of Part III of the applicable inspection ASB, as previously required by EASA AD 2019-0193, and, thereafter, at intervals not to exceed 20 FH, install a thermal strip on the spacer next to the TR duplex bearing in accordance with the instructions of Part III of the applicable inspection ASB.

Repetitive Thermal Strip Check:

(4) For Group 1 and Group 2 helicopters: Within 10 FH after last accomplishment of Part IV of the applicable inspection ASB, as previously required by EASA AD 2019-0193, and, thereafter, at intervals not to exceed 10 FH, check the condition of the thermal strip and the indicated temperature in accordance with the instructions of Part IV of the applicable inspection ASB.

Additional Repetitive Inspections / Checks:

(5) For Group 1 and Group 2 helicopters: Within 10 FH after last accomplishment of Part I of the applicable inspection ASB, as previously required by EASA AD 2019-0193, and, thereafter, at intervals not to exceed the value as specified in Table 1 of this AD, as applicable, inspect/check the TR duplex bearing in accordance with the instructions of Part V and Part VI of the applicable inspection ASB.

Table 1 – Additional Inspection/Check Intervals

Inspection Interval (not to exceed)	**Part of applicable inspection ASB**
10 FH	Part V (particles)
200 FH	Part VI (additional roughness)

Corrective Action(s):

(6) If, during any inspection as required by paragraph (1) of this AD, any evidence of rotation of TR servo-actuator nut is found, before next flight, contact Leonardo for approved corrective action instructions and accomplish those instructions accordingly.

(7) If, during any thermal strip check as required by paragraph (4) of this AD, the thermal strip is detached, partially detached or unreadable, before next flight, inspect the roughness and breakaway force of the TR duplex bearing in accordance with the instructions of Part II of the applicable inspection ASB.

(8) If, during any thermal strip check as required by paragraph (4) of this AD, the indicated temperature exceeds the value specified in Part IV of the applicable inspection ASB, before next flight, contact Leonardo for approved corrective action instructions and accomplish those instructions accordingly.

(9) If, during any inspection as required by paragraph (2) or (7) of this AD, as applicable, any discrepancy is found, before next flight, contact Leonardo for approved corrective action instructions and accomplish those instructions accordingly.

(10) If, during any inspection as required by paragraph (7) of this AD, no discrepancy of the TR duplex bearing is detected, before next flight, install a thermal strip on the spacer next to the TR duplex bearing in accordance with the instructions of Part III of the applicable inspection ASB (see paragraph (4) of this AD for next thermal strip checks).

(11) If, during any additional TR duplex bearing inspection or check as required by paragraph (5) of this AD, any particles or roughness are found, before next flight, contact Leonardo for approved corrective action instructions and accomplish those instructions accordingly.

Reporting:

(12) If, during any inspection and check as required by paragraph (1), (2), (4), (5) or (7) of this AD, as applicable, any discrepancy is found, within 2 days after that inspection and check, or after 14 August 2019 [the effective date of EASA AD 2019-0193], whichever occurs later, report information to Leonardo as required by paragraphs (12.1) and (12.2) of this AD, as applicable.

(12.1) For all helicopters: Report inspection and check finding results, along with records of previous inspections and checks. This can be accomplished by using the instructions of the applicable inspection ASB.

(12.2) For helicopters with the applicable HUMS retro-mod installed: In addition to the reporting as required by paragraph (11.1) of this AD, download the HUMS data, which includes the “A24” health indicator related to the vibration signature of the TR duplex bearing, and perform the HUMS data post-processing and analysis using the Heliwise maintenance software tool. Instructions can be provided by Leonardo on operator request.

Part Removal and Sending to Leonardo:

(13) For Group 1 and Group 2 helicopters: From 03 June 2019 [the effective date of the original issue of EASA AD 2019-0121], within 2 days after removal of a TR duplex bearing, if part of the corrective actions as required by paragraph (6), (8), (9) or (11) of this AD, as applicable, send the TR duplex bearing and the collecting containers of the grease to Leonardo for in-shop inspection. This can be done by using the instructions of the applicable inspection ASB.

Modification:

(14) For Group 1 helicopters: Within 9 months after the effective date of the AD, modify the helicopter by installing a TRA P/N 6F6730V00332 in accordance with the instructions of the applicable modification SB.

Terminating Action:

(15) Corrective action(s) on a helicopter, accomplished as required by paragraph (6), (7), (8), (9), (10) or (11) of this AD, as applicable, does not constitute terminating action for any repetitive actions as required by this AD for that helicopter.

(16) Modification of a helicopter as required by paragraph (14) of this AD constitutes terminating action for the repetitive inspections as required by paragraph (1) of this AD for that helicopter. All other repetitive actions of this AD remain required.

Part Installation:

(17) Do not install an affected part on any helicopter, as required by paragraph (17.1) or (17.2) of this AD, as applicable.

(17.1) Group 1 helicopters: After modification of the helicopter as required by paragraph (14) of this AD.

(17.1) Group 2 helicopters: From the effective date of this AD.

Ref. Publications:

Leonardo S.p.A. ASB 169-148 original issue dated 29 May 2019, Revision A dated 05 September 2019, and Revision B dated 04 February 2020.

Leonardo S.p.A. ASB 189-237 original issue dated 29 May 2019, Revision A dated 05 September 2019, and Revision B dated 04 February 2020 or Revision B dated 04 February 2020 with Errata Corrige.

Leonardo S.p.A. SB 169-153 original issue dated 04 February 2020.

Leonardo S.p.A. SB 189-249 original issue dated 04 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. This AD was posted on 05 February 2020 as PAD 20-027 for consultation until 19 February 2020. The Comment Response Document can be found in the EASA Safety Publications Tool, in the compressed (zipped) file attached to the record for this AD.

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.

5. For any question concerning the technical content of the requirements in this AD, please contact: Leonardo S.p.A. Helicopters,
E-mail: PSE_AW169.MBX.AW@leonardocompany.com, or
E-mail: PSE_AW189.MBX.AW@leonardocompany.com.