



Airworthiness Directive

AD No.: 2021-0144

Issued: 17 June 2021

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):

A109 helicopters

Effective Date: 01 July 2021

TCDS Number(s): EASA.R.005

Foreign AD: Not applicable

Supersedure: None

ATA 64 – Tail Rotor – Shaft Assembly – Inspection

Manufacturer(s):

Leonardo S.p.A. Helicopters, formerly Finmeccanica S.p.A., AgustaWestland S.p.A., Agusta S.p.A.

Applicability:

A109C, A109K2, A109E, A109S and AW109SP helicopters, all serial numbers (s/n).

Definitions:

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

The SB: Leonardo Alert Service Bulletin (SB) 109-156, Alert SB 109K-074, Alert SB 109EP-175, Alert SB 109S-101 and Alert SB 109SP-144, as applicable.

Affected part: Tail rotor (TR) sleeve assemblies, having Part Number (P/N) 109-0130-90-117, all s/n; or having P/N 109-0130-90-121, s/n MO.001 to MO.677 inclusive, s/n MOR678 to MOR1140 inclusive, or unknown s/n.

Updated part: An affected part, the bushing of which has been replaced in accordance with the instructions of Annex B (including marking an 'R' after the affected part s/n) of the SB; or any TR sleeve assembly, eligible for installation, which is not an affected part.



Serviceable part: Any affected part that passed (no defects found) an inspection in accordance with the instructions of Part I of the SB; or that, following inspection, has been repaired in accordance with instructions approved under Leonardo Design Organisation Approval (DOA) or by EASA; or an updated part.

TR shaft assembly: A TR shaft assembly, having P/N 109-0445-08-XXX, where XXX represents any number.

Serviceable 90-degrees gearbox: A 90-degrees gearbox, having a TR shaft assembly installed which is new, or which has passed an inspection in accordance with the instructions of Part I of the SB.

Bushing: Bushings, having P/N 109-0133-07-101, part of the TR sleeve assembly.

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. Group 3 helicopters are those for which it cannot be excluded that an affected part has been installed at any time since last Tail Gear Box (TGB) overhaul.

Reason:

An occurrence was reported of finding a crack on the TR mast of an A109E helicopter.

This condition, if not detected and corrected, could lead to failure of the TR mast, with consequent loss of control of the helicopter.

To address this potential unsafe condition, Leonardo published the SB, providing instructions for inspection of affected parts.

For the reason described above, this AD requires repetitive inspections of the affected part (including the bushing), a one-time inspection of the TR shaft assembly, and, depending on findings, accomplishment of applicable corrective action(s). This AD also requires reporting of discrepancies detected during any inspection.

This AD is 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:

Inspection(s) / Measurement(s):

- (1) For Group 1 and Group 3 helicopters: Within 25 flight hours (FH) or 3 months, whichever occurs first after the effective date of this AD, inspect the affected part and the bushing in accordance with the instructions of Part I of the SB.
- (2) For Group 1 and Group 3 helicopters: Concurrently with the inspection as required by paragraph (1) of this AD, inspect the TR shaft assembly in accordance with the instructions of Part I of the SB.



- (3) For Group 1 helicopters: Concurrently with the inspection as required by paragraph (1) of this AD, measure the position of the bushing in accordance with the instructions of Part I of the SB.
- (4) For Group 1 helicopters: Within 25 FH after the inspection as required by paragraph (1) of this AD, and, thereafter, at intervals not exceeding 25 FH, measure the position of the bushing in accordance with the instructions of Part II of the SB.
- (5) For Group 1 and Group 3 helicopters: Within 400 FH after the inspection as required by paragraph (1) of this AD, and, thereafter, at intervals not to exceed 400 FH, inspect the affected part in accordance with the instruction of Part IV of the SB (see Note 1 of this AD).

Note 1: A non-cumulative tolerance of 30 FH may be applied to allow synchronization of the required inspections with other maintenance tasks, for which a non-cumulative tolerance is already granted in the applicable Maintenance Manual.

Corrective Action(s):

- (6) If, during the inspection as required by paragraph (1) of this AD, discrepancies are detected on the affected part and/or the bushing, before next flight, replace that affected part with a serviceable part in accordance with the instructions of the SB (see Note 2 of this AD).

Note 2: After repair of an affected part in accordance with instructions approved under Leonardo DOA or by EASA, that affected part is effectively a serviceable part, as defined in this AD.

- (7) If, during the inspection as required by paragraph (2) of this AD, discrepancies are detected on the TR shaft assembly, before next flight, repair that TR shaft assembly in accordance with instructions approved under Leonardo DOA or by EASA, or replace the 90-degrees gearbox with a serviceable 90-degrees gearbox, as defined in this AD.
- (8) If, during any measurement as required by paragraph (4) of this AD, it is determined that the bushing position has changed since previous measurement, before next flight, replace the affected part with a serviceable part in accordance with the instructions of the SB (see Note 2 of this AD).
- (9) If, during any inspection as required by paragraph (5) of this AD, any discrepancy is detected, as identified in the SB, before next flight, accomplish the applicable corrective action(s) in accordance with the instructions of Part IV of the SB.

Terminating Action(s):

- (10) Replacing the affected part on a helicopter with an updated part, as defined in this AD, constitutes terminating action for the repetitive measurements as required by paragraph (4) of this AD for that helicopter, provided that, after replacement, no affected part is (re)installed on that helicopter.
- (11) Replacing the TGB on a helicopter with a TGB which, after the effective date of this AD, has been overhauled, constitutes terminating action for the repetitive inspections as required by paragraph (5) of this AD for that helicopter.



Part(s) Installation:

- (12) For Group 1, Group 2 and Group 3 helicopters: From the effective date of this AD, it is allowed to install on any helicopter an affected part, provided it is a serviceable part, as defined in this AD. Following installation of an affected part on a helicopter, that helicopter is effectively Group 1, and must be inspected as required by this AD.

Reporting:

- (13) Within 30 days after each inspection as required by paragraphs (1), (2), (4) and (5) of this AD, as applicable, or within 30 days after the effective date of this AD, whichever occurs later, report any discrepancy detected during that inspection to Leonardo. This can be accomplished in accordance with the instructions of the SB.

Ref. Publications:

Leonardo S.p.A. Helicopters SB 109EP-175 original issue dated 26 April 2021 and Revision A dated 18 May 2021.

Leonardo S.p.A. Helicopters SB 109-156 original issue dated 26 April 2021 and Revision A dated 18 May 2021.

Leonardo S.p.A. Helicopters SB 109K-074 original issue dated 26 April 2021 and Revision A dated 18 May 2021.

Leonardo S.p.A. Helicopters SB 109S-101 original issue dated 26 April 2021 and Revision A dated 18 May 2021.

Leonardo S.p.A. Helicopters SB 109SP-144 original issue dated 26 April 2021 and Revision A dated 18 May 2021.

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 27 April 2021 as PAD 21-059 for consultation until 11 May 2021 and republished as PAD 21-059R1 on 20 May 2021 for additional consultation until 03 June 2021. No comments were received during the consultation period.
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: Leonardo S.p.A. Helicopters, Customer Support & Services, Product Support Engineering, E-mail: aw109.mbx.aw@leonardocompany.com.

