



## Emergency Airworthiness Directive

**AD No.:** 2016-0136-E

**Issued:** 08 July 2016

Note: This Emergency 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:**

FINMECCANICA S.p.A. HELICOPTER DIVISION

**Type/Model designation(s):**

AB412 helicopters

**Effective Date:** 12 July 2016

**TCDS Number(s):** EASA.R.114

**Foreign AD:** Not Applicable

**Supersedure:** None

### ATA 63 – Main Rotor Drive – Spiral Bevel Gear – Inspection

**Manufacturer(s):**

AgustaWestland S.p.A. (formerly Agusta S.p.A., Costruzioni Aeronautiche Giovanni Agusta)

**Applicability:**

AB412 helicopters, all serial numbers (s/n), up to s/n 25669 inclusive.

**Reason:**

During a scheduled inspection of a main rotor transmission, Part Number (P/N) 212-040-001-59, a crack was found on the spiral bevel gear, P/N 204-040-701-103. The initial investigation determined that the crack had originated from the bottom of one of 32 threaded holes and that other spiral bevel gears, manufactured with the same process as the defective one, could be affected by the same issue.

This condition, if not detected and corrected, could lead to failure of the main rotor transmission, possibly resulting in loss of control of the helicopter.

To address this potential unsafe condition, Finmeccanica Helicopter Division (FHD) issued Bollettino Tecnico (BT) 412-146, later revised, providing instructions for identification and repetitive Fluorescent Magnetic Particle Inspection (FMPI) of affected spiral bevel gears. To accomplish the FMPI, the spiral bevel gear has to be removed from the main rotor transmission that has to be removed from the helicopter.



For the reasons stated above, this AD requires identification and inspections of the affected spiral bevel gears.

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:

Note 1: For the purpose of this AD, an affected spiral bevel gear is a part having P/N 204-040-701-103, and an s/n as listed in Table 1 of this AD.

Table 1 – Affected Spiral Bevel Gear

A0616	A0628	A2 0647	A2 0660	B27335	C45374	E28465
A0617	A0629	A2 0648	A2 0661	B27337	C45375	
A0618	A0631	A2 0650	B27326	C45369	C45376	
A0619	A0635	A2 0651	B27327	C45370	C45377	
A0620	A0637	A2 0652	B27329	C45371	C45378	
A0621	A2 0644	A2 0653	B27330	C45372	C45379	
A0624	A2 0646	A2 0659	B27333	C45373	E28464	

- (1) Within 10 flight hours (FH) after the effective date of this AD, inspect the helicopter to determine the s/n of the spiral bevel gear, in accordance with the instructions of Part I of FHD BT412-146 revision (rev.) A.
- (2) If, during the inspection as required by paragraph (1) of this AD, it is determined that an affected s/n spiral bevel gear is installed, before next flight, inspect that spiral bevel gear in accordance with the instructions of Part I of FHD BT412-146 rev. A.
- (3) If, during the inspection as required by paragraph (2) of this AD, any crack is found on the affected spiral bevel gear, before next flight, replace that spiral bevel gear with a serviceable one (see Note 2 of this AD) in accordance with the instructions of Part I of FHD BT412-146 rev. A. Replacing the main rotor transmission with a main rotor transmission equipped with a serviceable spiral bevel gear, in accordance with the instructions of AB412 maintenance manual (MM), Chapter 63-22, is acceptable to comply with this requirement.

Note 2: For the purpose of this AD, a serviceable spiral bevel gear P/N 204-040-701-103 is a part that does not have a s/n as listed in Table 1 of this AD; or a part that has accumulated less than 1 200 FH since first installation on a helicopter; or a part that has accumulated less than 300 FH since passing an FMPI in accordance with the instructions of Part II of FHD BT412-146 rev. A.

- (4) Following the inspection as required by paragraph (1) of this AD, before the spiral bevel gear exceeds 1 200 FH since first installation on a helicopter (see Note 3 of this AD), or within 100 FH after the inspection as required by paragraph (1) of this AD, whichever occurs later, and, thereafter, within the compliance time as specified in Table 2 of this AD, inspect each affected spiral bevel gear (see Note 1 of this AD) in accordance with the instructions of Part II of FHD



BT412-146 rev. A, or, as an alternative, replace the main rotor transmission with a main rotor transmission equipped with a serviceable spiral bevel gear (see Note 2 of this AD).

Note 3: For the purpose of this AD, if the FH accumulated since first installation on a helicopter of an affected spiral bevel gear are not known, the total time accumulated by the main rotor transmission since its first installation on a helicopter applies instead.

Table 2 – Compliance time (see Note 3 of this AD)

For a spiral bevel gear that has accumulated less than 1 200 FH since first installation on a helicopter	Before that spiral bevel gear exceeds 1 200 FH since first installation on a helicopter
For a spiral bevel gear that has passed an FMPI in accordance with the instructions of Part II of FHD BT412-146	Before the spiral bevel gear exceeds 300 FH after having passed that FMPI

- (5) From the effective date of this AD, installation on a helicopter of a main rotor transmission equipped with an affected spiral bevel gear (see Note 1 of this AD) is allowed, provided that the spiral bevel gear is a serviceable part (see Note 2 of this AD).

**Ref. Publications:**

FHD BT 412-146 rev. A, dated 07 July 2016.

The use of later approved revisions of this 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. The results of the safety assessment have indicated the need for immediate publication and notification, without the full consultation process.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto:ADs@easa.europa.eu).
4. For any question concerning the technical content of the requirements in this AD, please contact: Finmeccanica Helicopter Division, Customer Support & Services Product Support Engineering DPT, via Giovanni Agusta 520, 21017 Cascina Costa di Samarate (VA) – Italy  
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