Emergency Airworthiness Directive

AD No.: 2016-0153-E

Issued: 27 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:
LEONARDO S.p.A. – HELICOPTERS

Type/Model designation(s):
AB212 and AB412 helicopters

Effective Date: 29 July 2016

TCDS Number(s): EASA.R.114

Foreign AD: Not Applicable

Supersedure: This AD supersedes EASA Emergency AD 2016-0136-E dated 08 July 2016.

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:
AB212 helicopters, all serial numbers (s/n) and AB412 helicopters, all 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. Consequently, EASA issued Emergency AD 2016-0136-E, requiring

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identification and repetitive inspections of the affected spiral bevel gears and, depending on findings, replacement.

Since that AD was issued, as it has been determined that the same P/N spiral bevel gears are eligible for installation on AB212 helicopters, which are therefore potentially affected by the same unsafe condition, Leonardo – Helicopters (previously FHD) issued BT212-207. This has the same technical content as BT412-146 revision (rev.) A, but applies to AB212 helicopters equipped with spiral bevel gear, P/N 204-040-701-103.

For the reason stated above, this AD retains the requirements of AD 2016-0136-E, which is superseded, and expands the Applicability to include AB212 helicopters.

This AD is still 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 a 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 the compliance time as specified in Table 2 of this AD, as applicable, inspect the helicopter to determine the s/n of the spiral bevel gear P/N 204-040-701-103, in accordance with the instructions of Part I of Leonardo – Helicopters BT212-207 or FHD BT412-146 rev. A, as applicable.

Table 2 – Spiral Bevel Gear Identification

Helicopter	Compliance Time
AB212	Within 10 FH after the effective date of this AD
AB412	Within 10 FH after 12 July 2016 [the effective date of AD 2016-0136-E]

(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 Leonardo – Helicopters BT212-207, or FHD BT412-146 rev. A, as applicable.

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(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 3 of this AD) in accordance with the instructions of Part I of Leonardo – Helicopters BT212-207, or FHD BT412-146 rev. A, as applicable.

As an alternative to replacing the spiral bevel gear, replace the main rotor transmission with a main rotor transmission equipped with a serviceable spiral bevel gear (see Notes 2 and 3 of this AD).

Note 2: Using the instructions of AB212 maintenance manual (MM), BHT-212-MM Chapter 63, or AB412-MM, Chapter 63-22, as applicable, is an acceptable method to replace a main rotor transmission.

Note 3: 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 an affected part (see Note 1 of this AD) that has accumulated less than 1 200 FH since first installation on a helicopter, or has accumulated less than 300 FH since passing an FMPI in accordance with the instructions of Part II of Leonardo – Helicopters BT212-207, or FHD BT412-146 rev. A.

(4) Following the inspection as required by paragraph (1) of this AD, before the affected spiral bevel gear exceeds 1 200 FH since first installation on a helicopter (see Note 4 of this AD), or within 100 FH after the inspection as required by paragraph (1) of this AD, whichever occurs later, and, thereafter, at intervals not to exceed 300 FH, accomplish an FMPI of that affected spiral bevel gear (see Note 1 of this AD) in accordance with the instructions of Part II of Leonardo – Helicopters BT212-207, or FHD BT412-146 rev. A, as applicable.

As an alternative to an FMPI as required by paragraph (4) of this AD, replace the main rotor transmission with a main rotor transmission equipped with a serviceable spiral bevel gear (see Notes 2 and 3 of this AD). If the replacement spiral bevel gear is an affected part (see Note 1 of this AD), the next FMPI is due within the time specified in Table 3 of this AD.

Note 4: 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 3 – Next FMPI after installation of an affected spiral bevel gear

FH accumulated by the Spiral Bevel Gear (see Note 4 of this AD)	**Compliance Time**
Less than 1 200 FH since first installation on a helicopter	Before exceeding 1 200 FH since first installation on a helicopter
Less than 300 FH since passing an FMPI in accordance with the instructions of Part II of Leonardo – Helicopters BT212-207 or FHD BT412-146	Before exceeding 300 FH after the last FMPI

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(5) From the effective date of this AD, installation on a AB212 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 3 of this AD).

(6) From 12 July 2016 [the effective date of AD 2016-0136-E], installation on a AB412 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 3 of this AD).

Ref. Publications:
Leonardo – Helicopters BT 212-207 original issue, dated 25 July 2016.

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

The use of later approved revisions of these 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. 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.

4. For any question concerning the technical content of the requirements in this AD, please contact: Leonardo S.p.A. – Helicopters, Customer Support & Services
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