


<b>EASA</b>	<b>EMERGENCY AIRWORTHINESS DIRECTIVE</b>	
	<p><b>AD No.: 2014-0118-E</b></p> <p><b>Date: 13 May 2014</b></p> <p>Note: This Emergency Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.</p>	
<p>This AD is issued in accordance with EU 748/2012, Part 21.A.3B. In accordance with EC 2042/2003 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 [EC 2042/2003 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].</p>		
<p><b>Design Approval Holder Names:</b> BELL HELICOPTER TEXTRON Inc.</p>	<p><b>Type/Model designation(s):</b> 212, 412, and 412EP helicopters</p>	
<p>TCDS Numbers:     FAA USA H4SW</p>		
<p>Foreign AD:         None</p>		
<p>Supersedure:       None</p>		
<b>ATA 63</b>	<b>Main Rotor Drive – Engine-to-Transmission Drive Shaft Line Nuts – Inspection / Replacement</b>	
<p>Manufacturer(s):    Bell Helicopter Textron Inc. (BHTI, formerly Bell Helicopters, Inc.).</p>		
<p>Applicability:       BHTI 212, 412 and 412EP helicopters, all serial numbers (s/n).</p>		
<p>Reason:</p>	<p>An occurrence was reported on one in-service AgustaWestland AB 412EP helicopter, where during scheduled inspection of the engine-to-transmission drive shaft line, two nuts Part Number (P/N) MS21042L4 that connect a flexible coupling with the coupling adapter were found cracked.</p> <p>The subsequent technical investigation identified that the reported cracks of the nuts are the result of a production deficiency (causing hydrogen embrittlement) at the nut supplier. Nut P/N MS21042L5 may also be affected.</p> <p>This condition, if not detected and corrected, could lead to the disconnection of the engine from the transmission with the consequent complete loss of power to the main rotor, resulting in reduced control of the helicopter.</p> <p>To address this unsafe condition, EASA issued Emergency AD 2013-0300-E to require repetitive inspections of each nut P/N MS21042L4 or P/N MS21042L5 installed on the engine-to-transmission drive shaft line of AB 412 and AB 412EP helicopters, as well as replacement of each affected nut with a serviceable part having a different P/N.</p> <p>After that AD was issued, it was determined that AgustaWestland model AB 212 and BHTI model 212, 412 and 412EP helicopters have the same engine-to-transmission drive shaft line installation as the AgustaWestland AB 412 and AB 412EP helicopters.</p>	

	<p>For the reasons described above, this Emergency AD is issued to require repetitive inspections of each nut P/N MS21042L4 or P/N MS21042L5 installed on the engine-to-transmission drive shaft line of BHTI model 212, 412, and 412EP helicopters, and replacement of each affected nut with a serviceable part having a different P/N.</p> <p>EASA Emergency AD 2014-0113-E was issued to supersede AD 2013-0300-E, retaining its requirements and expanding its Applicability to include AgustaWestland model AB 212 helicopters.</p>
Effective Date:	15 May 2014
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <ol style="list-style-type: none"> <li>(1) Within 10 flight hours (FH) after the effective date of this AD, and, thereafter, at intervals not to exceed 25 FH, inspect each nut P/N MS21042L5 or P/N MS21042L4, as applicable depending on helicopter model and/or s/n, in accordance with the instructions of Appendix 1 of this AD.</li> <li>(2) If, during any inspection as required by paragraph (1) of this AD, a nut is found cracked, before next flight, replace the nut with a serviceable part having a different P/N in accordance with the instructions of Appendix 2 of this AD.</li> </ol> <p>Note: For a typical crack, refer to Appendix 1 of this AD, Fig. 3 and Fig. 4.</p> <ol style="list-style-type: none"> <li>(3) Unless each nut P/N MS21042L4 or P/N MS21042L5 was replaced with a serviceable nut as required by paragraph (2) of this AD, within 3 months after the effective date of this AD, replace each nut P/N MS21042L4 or P/N MS21042L5 with a serviceable nut having a different P/N in accordance with the instructions of Appendix 2 of this AD.</li> <li>(4) Replacement of each affected nut on a helicopter as required by paragraph (2) or (3) of this AD, as applicable, constitutes terminating action for the repetitive inspections required by paragraph (1) of this AD for that helicopter.</li> <li>(5) From the effective date of this AD, do not install a nut having P/N MS21042L5 or P/N MS21042L4 on the engine-to-transmission drive shaft line on any helicopter.</li> </ol>
Ref. Publications:	None.
Remarks:	<ol style="list-style-type: none"> <li>1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.</li> <li>2. The results of the safety assessment have indicated the need for immediate publication and notification, without the full public consultation process.</li> <li>3. Enquiries regarding this AD should be referred to the Safety Information Section, Executive Directorate, EASA. E-mail: <a href="mailto:ADs@easa.europa.eu">ADs@easa.europa.eu</a>.</li> </ol>

## Appendix 1 – Instructions for Nut Inspection

1. Prepare helicopter for safe ground maintenance; disconnect battery and all the electric power source and/or the external power supply.
2. In accordance with the applicable Maintenance Manual Chapter 63, gain access to the engine-to-transmission drive shaft.
3. Using a source light and a mirror, inspect the nuts P/N MS21042L5 connecting the flexible coupling with the adapter installed on the engine-to-transmission drive shaft (refer to Fig. 1) or inspect the nuts P/N MS21042L4 connecting the flexible coupling with the adapter and nuts P/N MS21042L4 connecting the drive shaft with the flexible coupling (refer to Fig. 2). The configuration depends on the helicopter model and s/n.

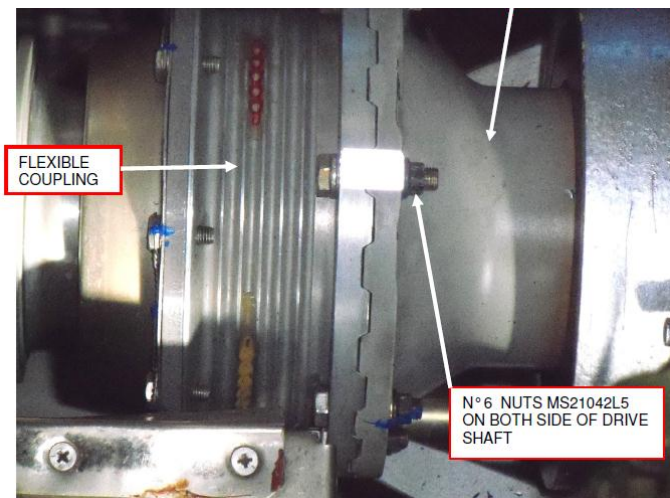


Fig. 1

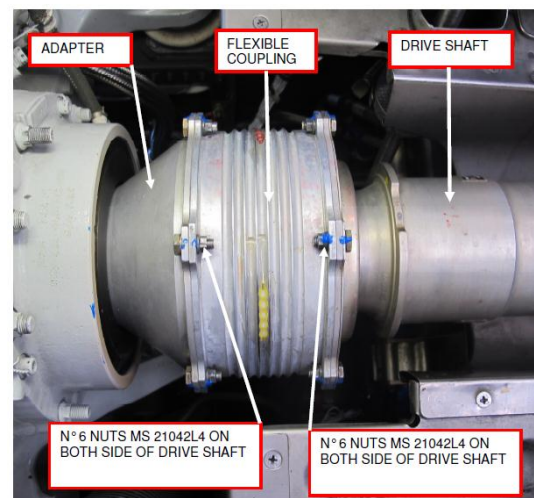


Fig. 2

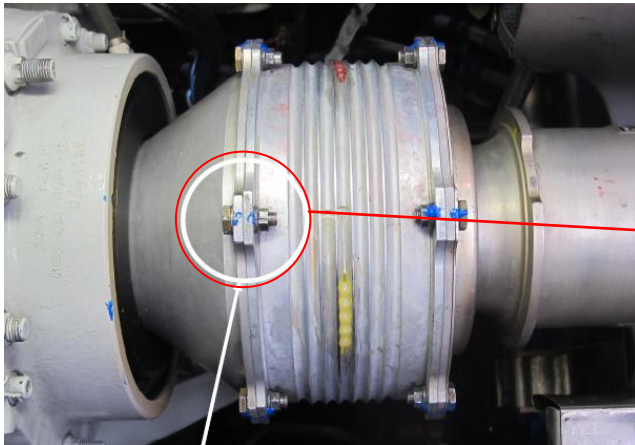


Fig. 3

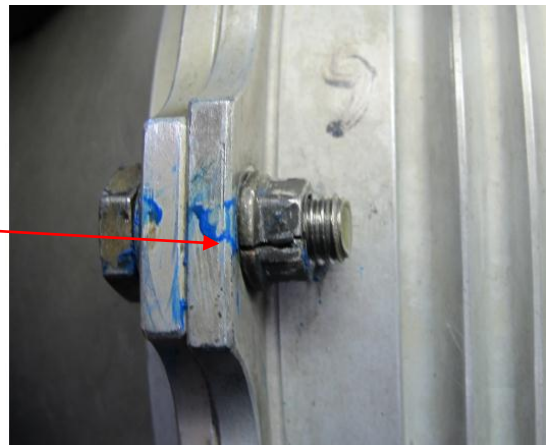


Fig. 4

4. If no cracks are found, in accordance with the applicable Maintenance Manual Chapter 63, reinstall the access panel and close the access doors previously removed/opened and return the helicopter to a "ready to flight" condition.

## Appendix 2 – Instructions for Nut Replacement

1. In accordance with the applicable Maintenance Manual Chapter 63, replace the nuts P/N MS21042L5 with nuts P/N MS21043-5 or the nuts P/N MS21042L4 with nuts MS21043-4, as applicable depending on helicopter configuration (it is recommended to replace the nuts one at a time). Restore witness mark as required.
2. In accordance with the applicable Maintenance Manual Chapter 63, reinstall the access panel and close the access doors previously removed/opened and return the helicopter to a “ready to flight” condition.