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| EASA | AIRWORTHINESS DIRECTIVE |
|  | <p>AD No.: 2013-0170</p> <p>Date: 30 July 2013</p> <p>Note: This 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> | |
| Design Approval Holder's Name: TURBOMECA | Type/Model designation(s): ARRIEL 2 engines |
| TCDS Number: | EASA E.001 |
| Foreign AD: | Not applicable |
| Supersedure: | This AD supersedes EASA AD 2007-0044 dated 21 February 2007, including the Correction dated 27 February 2007. |
| ATA 73 | Engine Fuel & Control – Hydro-Mechanical Metering Unit – Inspection / Replacement |
| Manufacturer(s): | Turbomeca S.A. |
| Applicability: | <p>ARRIEL 2B, 2B1, 2B1A, 2B1B, 2C, 2C1, 2C2, 2S1 and 2S2 engines, all serial numbers.</p> <p>These engines are known to be installed on, but not limited to, Eurocopter AS 350 B3, EC 130 B4, AS 365 N3 and EC 155 B1, Changhe Z11 and Sikorsky S-76C helicopters.</p> |
| Reason: | <p>In 2007, two cases of in-flight shutdown were reported on ARRIUS 2B1 engine, resulting from spline deterioration of the high/low pressure (HP/LP) fuel pump assembly drive shaft. The Hydro-Mechanical Metering Unit (HMU) of the ARRIEL 2 engine has the same HP/LP pump drive design as the one installed on the ARRIUS 2B1 engine.</p> <p>This condition, if not corrected, could lead to an uncommanded in-flight shutdown, which may result in an emergency autorotation landing.</p> <p>To address this potential unsafe condition, Turbomeca published Mandatory Service Bulletin (MSB) 292 73 2812 for engines installed on single engine helicopters and a recommended Service Bulletin 292 73 2822 for engines installed on twin-engine helicopter. To mandate accomplishment of the actions as specified in Turbomeca MSB 292 73 2812, EASA issued AD 2007-0044, requiring a one-time inspection of the HMU drive gear shaft splines and coupling shaft assembly splines before exceeding a defined limit of operating hours, for single-engine applications.</p> <p>Since that AD was issued, one case of wear of HMU drive gear shaft splines</p> |

| | <p>and coupling shaft assembly splines have been reported on both ARRIEL 2 engines of the same helicopter. Based on this report, EASA reviewed this case again and decided that engines on twin-engine helicopters should also be inspected.</p> <p>For the reasons described above, this AD retains and clarifies the requirements of EASA AD 2007-0044, which is superseded, and extends its applicability to ARRIEL 2C, 2C1, 2C2, 2S1 and 2S2 engines installed on twin-engine helicopters, and adding the ARRIEL 2B1B engine, which was recently certified. This AD requires inspections of each HMU and, depending on findings, replacement.</p> | | | | | | | | | | | | | | |
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| Effective Date: | 13 August 2013 | | | | | | | | | | | | | | |
| Required Action(s) and Compliance Time(s): | <p>Required as indicated, unless accomplished previously:</p> <p>(1) For ARRIEL 2B, 2B1, 2B1A and 2B1B within the compliance time specified in Table 1 of this AD, as applicable, inspect the HP pump drive gear shaft splines and coupling shaft assembly splines in accordance with the instructions of paragraph 2.B of Turbomeca MSB 292 73 2812 version G.</p> <p style="text-align: center;">Table 1</p> <table> <tr> <th>Accumulated HMU operating hours on current module 01, on the effective date of this AD (see Note 1)</th><th>Compliance Time</th></tr> <tr> <td>500 and more</td><td>Within 25 HMU operating hours on current M01 after the effective date of this AD</td></tr> <tr> <td>Less than 500</td><td>Before exceeding 525 and not before 500 accumulated HMU operating hours on current M01</td></tr> </table> <p>(2) For ARRIEL 2C, 2C1, 2C2, 2S1 and 2S2 engines, within the compliance time specified in Table 2 of this AD, as applicable, inspect the HP pump drive gear shaft splines and coupling shaft assembly splines in accordance with the instructions of paragraph 2.B of Turbomeca MSB 292 73 2822 version F.</p> <p style="text-align: center;">Table 2</p> <table> <tr> <th>Accumulated HMU operating hours on current module 01, on the effective date of this AD (see Note 1)</th><th>Compliance Time</th></tr> <tr> <td>500 and more or not known</td><td>Within 200 HMU operating hours on current module 01 after the effective date of this AD</td></tr> <tr> <td>more than 300, but less than 500</td><td>Within 225 HMU operating hours on current module 01, <i>but</i>: Before exceeding 700 operating hours, <i>and</i> not before 500 operating hours</td></tr> <tr> <td>300 or less</td><td>Between 500 and 525 accumulated HMU operating hours on current module 01 .</td></tr> </table> | Accumulated HMU operating hours on current module 01, on the effective date of this AD (see Note 1) | Compliance Time | 500 and more | Within 25 HMU operating hours on current M01 after the effective date of this AD | Less than 500 | Before exceeding 525 and not before 500 accumulated HMU operating hours on current M01 | Accumulated HMU operating hours on current module 01, on the effective date of this AD (see Note 1) | Compliance Time | 500 and more or not known | Within 200 HMU operating hours on current module 01 after the effective date of this AD | more than 300, but less than 500 | Within 225 HMU operating hours on current module 01, <i>but</i> : Before exceeding 700 operating hours, <i>and</i> not before 500 operating hours | 300 or less | Between 500 and 525 accumulated HMU operating hours on current module 01 . |
| Accumulated HMU operating hours on current module 01, on the effective date of this AD (see Note 1) | Compliance Time | | | | | | | | | | | | | | |
| 500 and more | Within 25 HMU operating hours on current M01 after the effective date of this AD | | | | | | | | | | | | | | |
| Less than 500 | Before exceeding 525 and not before 500 accumulated HMU operating hours on current M01 | | | | | | | | | | | | | | |
| Accumulated HMU operating hours on current module 01, on the effective date of this AD (see Note 1) | Compliance Time | | | | | | | | | | | | | | |
| 500 and more or not known | Within 200 HMU operating hours on current module 01 after the effective date of this AD | | | | | | | | | | | | | | |
| more than 300, but less than 500 | Within 225 HMU operating hours on current module 01, <i>but</i> : Before exceeding 700 operating hours, <i>and</i> not before 500 operating hours | | | | | | | | | | | | | | |
| 300 or less | Between 500 and 525 accumulated HMU operating hours on current module 01 . | | | | | | | | | | | | | | |

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| | <p>Note 1: Accumulated HMU operating hours since HMU operates on current M01 (since first installation on current module 01). If the HMU was repaired/overhauled since first installation on current M01, operating hours since repair/overhaul must be considered.</p> <p>(3) If, during any inspection as required by paragraph (1) or (2) of this AD, a discrepancy is detected, before next flight, replace the affected HMU with a serviceable HMU in accordance with the instructions of paragraph 2.B of Turbomeca MSB 292 73 2812 version G or MSB 292 73 2822 version F, as applicable.</p> <p>(4) Inspections and corrective actions, accomplished before the effective date of this AD in accordance with the instructions of Turbomeca MSB 292 73 2812 version F or earlier, or SB 292 73 2822 Update 2 or earlier, as applicable, are acceptable for compliance with the requirements of paragraph (1) or (2) or (3) this AD.</p> <p>(5) Conditions for the installation of an HMU on a Module 01 or on an engine, from the effective date of this AD: Before the installation of an HMU, inspect and, depending on findings, correct the HP pump drive gear shaft splines and coupling shaft assembly splines in accordance with the instructions of paragraph 2.B of Turbomeca MSB 292 73 2812 version G, or MSB 292 73 2822 version F, as applicable.</p> <p>An HMU that is new, or one that has not accumulated any operating hours since repair or overhaul, does not need to be inspected, prior to installation.</p> <p>(6) Conditions for the installation of an engine on a helicopter, from the effective date of this AD: Installation of an engine on a helicopter is allowed provided that the HMU is in compliance with the requirements of this AD.</p> |
| .Ref. Publications: | <p>Turbomeca MSB 292 73 2812 version G dated 24 June 2013.</p> <p>Turbomeca MSB 292 73 2822 version F dated 21 June 2013.</p> <p>The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.</p> |
| Remarks: | <ol style="list-style-type: none"> 1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. This AD was posted on 03 July 2013 as PAD 13-093 for consultation until 24 July 2013. No comments were received during the consultation period. 3. Enquiries regarding this AD should be referred to the Safety Information Section, Executive Directorate, EASA. E-mail: ADs@easa.europa.eu. 4. For any question concerning the technical content of the requirements in this AD, please contact: Turbomeca S.A., ARRIEL 2 Customer Support 40220 Tarnos, France Fax: +33 5 59 74 45 15, or your usual or nearest TURBOMECA technical representative (refer to http://www.turbomeca-support.com). |