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| <b>EASA</b>   | <b>AIRWORTHINESS DIRECTIVE</b>  |
|    | <p><b>AD No.: 2009-0184</b></p> <p><b>Date: 14 August 2009</b></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 EC 1702/2003, Part 21A.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 Airworthiness Directive applies, except in accordance with the requirements of that Airworthiness Directive 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> |   |
| <b>Type Approval Holder's Name :</b><br>TURBOMECA   | <b>Type/Model designation(s) :</b><br>ARRIEL 2B, 2B1, 2B1A turboshaft engines   |
| TCDS Number : EASA.E.001  |   |
| Foreign AD : Not applicable   |   |
| Supersedure : None  |   |
| <b>ATA 73</b>   | <b>Engine Fuel &amp; Control – HP/LP Pump Metering Unit – Low Pressure Fuel Pump Impeller Drive – Inspection/Replacement</b>  |
| Manufacturer(s):  | Turboméca S.A.  |
| Applicability:  | <p>all ARRIEL 2B, 2B1 and 2B1A turboshaft engines, which do not incorporate modification TU147.</p> <p>These engines are known to be installed on, but not limited to:</p> <p>Eurocopter AS 350 B3 and EC 130 B4 helicopters; Changhe Z11 helicopters.</p>  |
| Reason:   | <p>Several events of uncoupling of the LP (Low Pressure) fuel pump impeller and the HP (High Pressure) fuel pump shaft have been reported on ARRIEL 2 engines which do not incorporate modification TU 147 <sup>(1)</sup>. In most cases the “low fuel pressure switch” enlightened, the pilot activated the aircraft booster pump in accordance with the Flight Manual Instructions and landed safely with no other incident. One case, on a single-engine helicopter, led to a sudden engine power loss.</p> <p>The uncoupling of the LP fuel pump impeller and the HP fuel pump shaft may lead to a limitation of engine power or, at worst, an uncommanded In-Flight Shut-Down (IFSD). On a single-engine helicopter, the result may be an emergency autorotation landing.</p> <p>For the reasons stated above, this Airworthiness Directive requires to ensure that the LP fuel pump impeller is correctly driven by the HP fuel pump shaft, to prevent any detachment of the LP impeller from the HP shaft.</p> <p><sup>(1)</sup> TU147 modification consists of bonding the LP fuel pump impeller with the impeller screw.</p> |

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| Effective Date:                            | 28 August 2009  |
| Required Action(s) and Compliance Time(s): | <p>The following measures are made mandatory from the effective date of this AD, unless accomplished previously:</p> <p>Within 500 Engine Flight Hours (EFH) from the effective date of this AD, but no later than 30 June 2010, perform a check of the transmissible torque between the LP pump impeller and the HP pump shaft in accordance with paragraph 2 of Turboméca Mandatory Service Bulletin (MSB) n° A292 73 2830.</p> <ul style="list-style-type: none"> <li>- If the check is compliant, apply the nominal tightening torque to the screw of the LP pump impeller.</li> <li>- If the check is not compliant, replace the HP/LP Pump Metering Unit with a pre-TU147 compliant unit or a post-TU147 unit.</li> </ul> <p><b>NOTE:</b> If the HP/LP Pump Metering Unit incorporates modification TU147, no action is required.</p>   |
| Ref. Publications:                         | <p>Turboméca Mandatory Service Bulletin n° A292 73 2830, Version B dated 10 July 2009.</p> <p>The use of later approved updates of this document is acceptable for compliance with the requirement of this AD.</p>  |
| 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. This AD was posted on 10 July 2009 as PAD 09-089 for consultation until 07 August 2009. No comments were received during the consultation period.</li> <li>3. Enquiries regarding this AD should be referred to the Airworthiness Directives, Safety Management &amp; Research Section, Certification Directorate, EASA. E-mail <a href="mailto:ADs@easa.europa.eu">ADs@easa.europa.eu</a></li> <li>4. For any question concerning the technical content of the requirements in this AD, please contact:<br/> <b>TURBOMÉCA S.A.</b><br/> ARRIEL 2 Customer Support<br/> 40220 Tarnos, France<br/> Fax: +33 5 59 74 45 15, or your usual or nearest TURBOMÉCA technical representative (refer to <a href="http://www.turbomeca-support.com">http://www.turbomeca-support.com</a>)</li> </ol> |