


<b>EASA</b>	<b>AIRWORTHINESS DIRECTIVE</b>
	<p><b>AD No.: 2009-0091</b></p> <p><b>Date: 04 May 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>	
<p><b>Type Approval Holder's Name :</b></p> <p>TURBOMECA</p>	<p><b>Type/Model designation(s) :</b></p> <p>ARRIEL 2B1/2B1A turboshaft engines</p>
<p>TCDS Number : EASA E.001</p>	
<p>Foreign AD : Not applicable</p>	
<p>Supersedure : This directive supersedes AD 2007-0126, dated 07 May 2007.</p>	
<b>ATA 73</b>	<b>Engine Fuel &amp; Control – Hydro Mechanical Unit (HMU) Constant Delta Pressure Valve Diaphragm – Replacement</b>
Manufacturer(s):	Turboméca S.A
Applicability:	<p>All ARRIEL 2B1 and 2B1A turboshaft engines, which do not incorporate modification TU157.</p> <p>These engines are known to be installed on, but not limited to: Eurocopter AS 350 B3 and EC 130 B4 helicopters.</p>
Reason:	<p>Several cases of rupture of the constant delta pressure (delta-P) valve diaphragm were reported on ARRIEL 2B1 engines, due to wear of the delta-P diaphragm fabric. Rupture can result in the loss of the automatic control mode of the helicopter, accompanied with a deterioration of the behaviour of the auxiliary back-up mode (emergency mode). On a single-engine helicopter, the result may be an emergency landing.</p> <p>In order to reduce the probability of a diaphragm rupture due to fabric wear, AD 2007-0006 was issued, requiring periodical replacement of all diaphragms having logged more than 2 000 operating hours since new.</p> <p>After the issuance of EASA AD 2007-0006, no further case of rupture of the constant delta-P valve diaphragm was reported on ARRIEL 2B1 engines. However several additional diaphragms returning from service were inspected by Turboméca, and some signs of wear were detected on diaphragms having logged less than 2 000 hours. Based on the inspection results, it was decided to decrease this limit from 2 000 hours to 1 500 hours in order to further reduce the probability of delta-P diaphragm rupture. This was the reason for issuing EASA AD 2007-0126 which</p>

	<p>superseded AD 2007-0006.</p> <p>Since the issuance of AD 2007-0126 Turboméca has released modification TU157 which consists in modifying the pressure relief valve of the HMU by introducing a damping device into the valve. Introduction of this device has demonstrated to decrease the pressure fluctuations in the system, therefore reducing significantly the risk of wear of the delta-P diaphragm fabric. This will delete the need for a periodical replacement of the delta-P diaphragm before overhaul of the HMU. The modification TU157 is therefore considered as the terminating action for this AD.</p> <p>This AD supersedes AD 2007-0126 by retaining the same requirements as in AD 2007-0126 except that:</p> <ul style="list-style-type: none"> <li>▪ In addition to the ARRIEL 2B1 engines, applicability is extended to the ARRIEL 2B1A engines, which share the same HMU design.</li> <li>▪ Applicability is limited to ARRIEL 2B1 and 2B1A engines which do not incorporate modification TU157.</li> </ul>
Effective Date:	18 May 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>If the engine does not incorporate modification TU157 and the Adjusted HMU has operated 1 500 operating hours since one of the following, whichever occurs later :</p> <ul style="list-style-type: none"> <li>▪ New</li> <li>▪ Overhaul</li> <li>▪ Incorporation of SB 292 73 2105 (all issues)</li> <li>▪ Incorporation of SB 292 73 2818 (all issues)</li> </ul> <p>replace the Adjusted HMU and return it to a Repair Centre for replacement of the constant delta-P valve diaphragm, in accordance with the instructions of Turboméca Mandatory Service Bulletin 292 73 2818 Version C.</p> <p><b>NOTE:</b> If the engine incorporates modification TU157, no action is required.</p>
Ref. Publications:	<p>Turboméca Mandatory Service Bulletin 292 73 2818 Version C dated 29 January 2009.</p> <p>The use of later approved revisions of this document is acceptable for compliance with the requirements 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 20 February 2009 as PAD 09-045 for consultation until 20 March 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:  <b>TURBOMÉCA S.A.</b>  ARRIEL 2 Customer Support, 40220 Tarnos, France  Fax: +33 5 59 74 45 15, or your usual or nearest TURBOMÉCA technical representative (refer to <a href="http://www.Turboméca-support.com">http://www.Turboméca-support.com</a>)</li> </ol>