


EASA	NOTIFICATION OF A PROPOSAL TO ISSUE AN AIRWORTHINESS DIRECTIVE
	<p>PAD No.: 08-141</p> <p>Date: 12 December 2008</p> <p>Note: This Proposed Airworthiness Directive (PAD) 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>In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance/cancellation of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below. All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation closing date indicated.</p>	
<p>Type Approval Holder's Name :</p> <p>TURBOMECA</p>	<p>Type/Model designation(s) :</p> <p>ARRIEL 2S1 turboshaft engines</p>
<p>TCDS Number : EASA.E.001</p>	
<p>Foreign AD : Not applicable</p>	
<p>Supersedure : None</p>	
ATA 73	Engine Fuel & Control - Digital Engine Control Unit (DECU) – Software Modification
Manufacturer(s):	Turbomeca
Applicability:	<p>ARRIEL 2S1 turboshaft engines, all serial numbers.</p> <p>These engines are known to be installed on, but not limited to, Sikorsky S-76C+ series twin-engine helicopters.</p>
Reason:	<p>During acceleration to OEI 30-second rating, one event of in-flight loss of full automatic control occurred on an Arriel 2S1 engine.</p> <p>OEI 30-second rating selection on this engine (engine 1) was triggered by the automatic detection of an OEI situation further to a transient deceleration of engine 2. Transient deceleration of engine 2 was caused by the untimely reset of its DECU. Once this reset was completed, engine 2 resumed its nominal operation. The aircraft then continued its flight safely with engine 1 operating in manual control mode.</p> <p>The loss of full automatic control of engine 1 was caused by loss of steps of the stepper motor controlling the fuel metering valve inside the Hydromechanical Unit (HMU).</p> <p>It has been found that high accelerations, notably up to OEI 30-second rating, increase the risk of loss of steps of the HMU stepper motor.</p> <p>Therefore, this event has lead to the consideration of the following unsafe condition at aircraft level: In-flight loss of full automatic control of the engine induced by stepper motor loss of steps during acceleration to OEI</p>

	<p>30-second rating, further to an actual OEI situation on the other engine (such as a power loss event). It has been determined that the Arriel 2S1 is the only engine variant of the Arriel 2 family affected by this potential unsafe condition.</p> <p>For the reason stated above, this AD requires, on the Arriel 2S1 engine, the application of TU109 modification which is a software modification that increases the tolerance to loss of steps of the control system. It reduces significantly the risk of an in-flight loss of full automatic control due to loss of steps of the stepper motor, notably during engine accelerations up to OEI 30-second rating.</p>
Effective Date:	[TBD: 14 days after final AD issue date]
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <p>No later than 31 August 2010, perform a onetime upgrade of the DECU software to TU109 standard in accordance with Turbomeca Mandatory Service Bulletin (MSB) N° 292 73 2109 Version E.</p> <p>(1) Either replace both DECUs with DECUs incorporating TU109 standard software or</p> <p>(2) Upload the DECUs with the TU109 standard software.</p> <p>This modification must be incorporated simultaneously on both DECUs. Mixing a post TU 109 DECU with a pre TU 109 DECU on the same helicopter is not authorized.</p> <p>Note: <i>Corrective actions accomplished before the effective date of this AD, in accordance with the accomplishment instructions of Turboméca Service Bulletin No. 292 73 2109 Version D, dated 30 November 2007, are acceptable for compliance with the requirements of paragraphs (1) or (2) of the present AD.</i></p>
Ref. Publications:	<p>Turbomeca Mandatory Service Bulletin 292 73 2109 Version E, dated 17 September 2008.</p> <p>The use of later approved revisions of this document is acceptable for compliance with the requirement of this AD.</p>
Remarks :	<ol style="list-style-type: none"> 1. This Proposed AD will be closed for consultation on 09 January 2009. 2. Enquiries regarding this PAD should be referred to the Airworthiness Directives, Safety Management & Research Section, Certification Directorate, EASA. E-mail ADs@easa.europa.eu. 3. For any questions 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)