


EASA	AIRWORTHINESS DIRECTIVE
	<p>AD No.: 2009-0112R1</p> <p>Date: 30 July 2009</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 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>Type Approval Holder's Name :</p> <p>TURBOMECA</p>	<p>Type/Model designation(s) :</p> <p>ARRIEL 1 and ARRIEL 2 series turboshaft engines</p>
TCDS Number:	EASA.E.073 and EASA.E.001
Foreign AD :	Not applicable
Supersedure :	This AD revises EASA AD 2009-0112, dated 18 May 2009 which superseded EASA AD 2009-0068-E, dated 25 March 2009
ATA 72	Engine - Module M04 (Power Turbine) Power Turbine Blades - Life Limit / Replacement
Manufacturer(s):	Turboméca S.A.
Applicability:	<p>Variant Arriel 1B, 1D and 1D1 turboshaft engines, fitted with Modules M04 (Power Turbine) as identified in figure 1 of Turboméca Mandatory Service Bulletin (MSB) A292 72 0827 version C, and</p> <p>Variant Arriel 2B, 2B1 and 2B1A turboshaft engines, fitted with Modules M04 as identified in figure 1 of Turboméca MSB A292 72 2833 version C.</p> <p>Arriel 1B, 1D and 1D1 turboshaft engines are known to be installed on, but not limited to, Eurocopter AS 350 B, AS 350 BA, AS 350 BB, AS 350 B1 and AS 350 B2 helicopters.</p> <p>Arriel 2B, 2B1 and 2B1A turboshaft engines are known to be installed on, but not limited to, Eurocopter AS 350 B3 and EC 130 B4 helicopters and Changhe Z11 helicopters.</p> <p>Note: The variants above are installed on single-engine helicopters.</p>
Reason:	<p>During production of Arriel 1 and Arriel 2 Power Turbine (PT) wheels, geometric non-conformities on blade fir-tree roots have been detected by Turboméca. Potentially non-conforming PT blades have been traced as having been installed on Module M04 (PT) listed in Mandatory Service Bulletin (MSB) A292 72 0827 for Arriel 1 engines and A292 72 2833 for Arriel 2 engines.</p>

	<p>The geometric non-conformities of the blades may potentially lead to a reduction in the fatigue resistance of PT blades to a lower level than their authorized in service use limit. This reduction of fatigue resistance can potentially result in blade release, which could cause an uncommanded in-flight shut down. On a single-engine helicopter, the result may be an emergency autorotation landing.</p> <p>Emergency Airworthiness Directive 2009-0068-E was initially issued requiring a restriction of the cyclic use limit of these PT blades to 1 000 flight cycles.</p> <p>After issuance of AD 2009-0068-E the following new information was made available:</p> <ul style="list-style-type: none"> - New PT wheels affected by the non-conformities were identified and the list of the Modules M04 concerned by the restriction of the cycle use limit of these PT blades was updated. In addition the serial numbers of PT wheel assemblies installed on Modules M04 were added. - Additional testing and analysis had been carried out by Turboméca which allowed increasing the cyclic use limit of these PT blades to 2 000 flight cycles. <p>AD 2009-0112 therefore superseded Emergency AD 2009-0068-E and required establishing the cyclic use limit of these PT blades to 2 000 flight cycles.</p> <p>Since issuance of initial version of AD 2009-0112 additional information is available:</p> <ul style="list-style-type: none"> - The list of Modules M04 concerned by the restriction of the cycle use limit of these PT blades has been updated again: The serial numbers of Modules M04 which have been retrofitted are crossed out. However no new affected Modules M04 have been identified. See figure 1 of the referenced Turboméca MSB. - Additional testing and analysis had been carried out by Turboméca which allows increasing the cyclic use limit of these PT blades to 5 000 flight cycles. <p>Therefore this AD revises AD 2009-0112 and requires establishing the cyclic use limit of these PT blades to 5 000 flight cycles.</p> <p>For PT blades having reached a number of flight cycles superior or equal to 5 000, removal of Module M04, or PT wheel assembly, or PT blades is required prior to next flight.</p>
Effective Date:	01 June 2009
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <ol style="list-style-type: none"> (1) <u>For engines with a Module M04 (PT module) which has accumulated 5 000 Total Power Turbine (PT) Cycles or more at the effective date of this AD:</u> Before next flight, replace the module M04, or PT wheel assembly, or PT blades, as instructed in paragraph 2.B.(1)(b) of Turboméca MSB A292 72 0827 version C for Arriel 1 engines and A292 72 2833 version C for Arriel 2 engines. (2) <u>For engines with a Module M04 which has accumulated less than 5 000 Total PT Cycles at the effective date of this AD:</u> <ol style="list-style-type: none"> (2.1) Before accomplishment of paragraph (2.2) of this AD, update the module M04 log card and the engine log book to enter the 5 000 PT Cycle life-limit of the PT blades as instructed in paragraph 2.B.(1)(a) of Turboméca MSB A292 72 0827 version C for Arriel

	<p>1 engines and A292 72 2833 version C for Arriel 2 engines.</p> <p>(2.2) Before accumulation of 5 000 Total PT Cycles on a given Module M04 (PT module), replace the module M04, or PT wheel assembly, or PT blades as instructed in paragraph 2.B.(1)(b) of Turboméca MSB A292 72 0827 version C for Arriel 1 engines and A292 72 2833 version C for Arriel 2 engines.</p> <p>Note: Serial numbers of PT wheel assemblies and Modules M04 (PT) as listed in Figure 1 of the referenced MSB are the confirmed location of the affected PT blades. The engine serial numbers are also provided for information when available. In case of conflicts between serial numbers Turboméca should be contacted for resolution.</p>
Ref. Publications:	<p>Turboméca Mandatory Service Bulletin (MSB) A292 72 0827 - version C, dated 15 July 2009;</p> <p>Turboméca Mandatory Service Bulletin (MSB) A292 72 2833 - version C, dated 15 July 2009.</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. The required actions and the risk allowance have granted the issuance of a Final AD with Request for Comments, postponing the public consultation process after publication. 3. Enquiries regarding this AD should be referred to the Airworthiness Directives, Safety Management & Research Section, Certification Directorate, EASA. E-mail: ADs@easa.europa.eu. 4. For any question concerning the technical content of the requirements in this AD, please contact: Turboméca, S.A., ARRIEL 1 & 2 Customer Support, 40220 TARNOS, FRANCE. Fax: +33 5 59 74 45 15; or contact your nearest technical representative at www.turbomeca-support.com