


<b>EASA</b>	<b>AIRWORTHINESS DIRECTIVE</b>	
	<p><b>AD No.: 2012-0117</b></p> <p><b>Date: 03 July 2012</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 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><b>Design Approval Holder's Name:</b></p> <p>TURBOMÉCA</p>	<p><b>Type/Model designation(s):</b></p> <p>ARRIEL 1 engines</p>	
<p>TCDS Number:</p>	<p>EASA.E.073</p>	
<p>Foreign AD:</p>	<p>Not applicable</p>	
<p>Supersedure:</p>	<p>None</p>	
<p><b>ATA 72</b></p>	<p><b>Engine – Gas Generator Rotating Assembly and Rear Bearing – Check / Replacement</b></p>	
<p>Manufacturer(s):</p>	<p>Turboméca S.A.</p>	
<p>Applicability:</p>	<p>ARRIEL 1A1, 1A2, 1B, 1C, 1C1, 1C2, 1D, 1D1, 1E2, 1K, 1K1, 1S and 1S1 turbo-shaft engines, all serial numbers.</p> <p>These engines are known to be installed on, but not limited to, Eurocopter (formerly Eurocopter France, Aerospatiale) AS 350 B, BA, BB, B1 and B2, and AS 365 N, Eurocopter Deutschland (formerly Messerschmidt-Bölkow-Blohm) MBB-BK117-C1 and -C2, AgustaWestland (formerly Agusta) A 109 K2, and Sikorsky S-76A helicopters.</p>	
<p>Reason:</p>	<p>Several cases of uncommanded in-flight shut-down (IFSD) have been reported on ARRIEL 1 engines. Results of subsequent investigations showed that some Gas Generator (GG) rear bearing failures have occurred following “Level 3” maintenance operations on the GG Assembly. Some of these maintenance operations may have created an unbalanced condition of the GG rotating assembly and, ultimately, failure of the GG rear bearing.</p> <p>This condition, if not detected and corrected, could lead to an uncommanded engine in-flight shut down and may ultimately lead to an emergency landing.</p> <p>Prompted by these findings, a mandatory high GG speed (NG) rating vibration check at the rear part of the engine has been introduced in the chapter 05-10 Airworthiness Limitation Section (ALS) of ARRIEL 1 Maintenance Manuals.</p> <p>For the reasons described above, this AD requires accomplishment of high NG rating vibration check and depending on findings, accomplishment of corrective actions. After issuance of EASA PAD 12-054, it has been realised that paragraph (2) of this AD needed to be amended as the corrective action does not necessarily require replacement of the affected Module 03 with a serviceable Module.</p>	

Effective Date:	17 July 2012
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <p>(1) From the effective date of this AD, following any Level 3 maintenance action(s) on the GG rotating assembly (Application of Maintenance Technical Instructions (MTI) reference Nr. X 292 87 451 2, or ITM Nr. X 292 87 451 1 for French version), before release to service of the engine, accomplish a high NG rating vibration check in accordance with the chapter 05-10 requirements of the applicable ARRIEL 1 Maintenance Manual as listed in Appendix of this AD.</p> <p><b>Definition:</b> Level 3 maintenance on the GG rotating assembly is when the Module 03 is removed from the helicopter for implementation of deep maintenance operation to be performed in accordance with applicable MTI.</p> <p>(2) If, during the check as required by paragraph (1) of this AD, a discrepancy on Module 03 is identified, before next flight, accomplish the applicable corrective actions as specified in Chapter 71-02-10-760-801 of applicable Arriel 1 Maintenance Manual. Following application of corrective actions, before release to service of the engine, repeat the high NG rating vibration check as required by paragraph (1) of this AD.</p> <p><b>Note:</b> Corrective action may ultimately lead to the replacement of the affected Module 03 with a serviceable Module 03.</p> <p>(3) Compliance with the requirements of paragraphs (1) and (2) of this AD can be demonstrated by:</p> <p>(3.1) Revising as follows the approved Aircraft Maintenance Programme (AMP) and standard practices on the basis of which the operator or the owner ensures the continuing airworthiness of each operated helicopter:</p> <p style="padding-left: 40px;">Incorporate the high NG rating vibration check as defined in chapter 05-10 of the applicable ARRIEL 1 Maintenance Manual,</p> <p style="padding-left: 40px;">and</p> <p>(3.2) Complying with the approved AMP described in paragraph (3.1) of this AD.</p>
Ref. Publications:	<p>Turboméca ARRIEL 1 Maintenance Manuals, as listed in Appendix of this AD.</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"> <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 31 May 2012 as PAD 12-054 for consultation until 28 June 2012. No comments were received during the consultation period.</li> <li>3. Enquiries regarding this AD should be referred to the Safety Information Section, Executive 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: Turboméca, S.A., ARRIEL 1 Customer Support, 40220 Tarnos, France, Fax: +33 5 59 74 45 15, or contact your usual or nearest Turboméca technical representative at <a href="http://www.turbomeca-support.com">www.turbomeca-support.com</a>.</li> </ol>

## Appendix

Maintenance Manuals according to Engine Variant, with initial issue/version incorporating the additional requirement of this AD in the ALS:

Engine Variant	Maintenance Manual	
	French Version	English Version
ARRIEL 1A1	X 292 B3 452 1 Issue 13	X 292 B3 452 2 Issue 13
ARRIEL 1A2	X 292 A9 452 1 Issue 14	X 292 A9 452 2 Issue 14
ARRIEL 1B	X 292 65 452 1 Issue 13	X 292 65 452 2 Issue 13
ARRIEL 1C	X 292 B0 452 1 Issue 14	X 292 B0 452 2 Issue 14
ARRIEL 1C1	X 292 C3 452 1 Issue 14	X 292 C3 452 2 Issue 14
ARRIEL 1C2	X 292 G1 452 1 Issue 14	X 292 G1 452 2 Issue 14
ARRIEL 1D	X 292 E5 452 1 Issue 14	X 292 E5 452 2 Issue 14
ARRIEL 1D1	X 292 G2 452 1 Issue 14	X 292 G2 452 2 Issue 14
ARRIEL 1E2	X 292 M3 452 1 Issue 14	X 292 M3 452 2 Issue 14
ARRIEL 1K	X 292 D8 452 1 Issue 14	X 292 D8 452 2 Issue 14
ARRIEL 1K1	X 292 H3 452 1 Issue 14	X 292 H3 452 2 Issue 14
ARRIEL 1S	X 292 F9 452 1 Issue 14	X 292 F9 452 2 Issue 14
ARRIEL 1S1	X 292 H4 452 1 Issue 14	X 292 H4 452 2 Issue 14