EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2012-0147 **Date: 07 August 2012** 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.

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].

Type Approval Holder's Name:	**Type/Model designation(s):**
TURBOMÉCA	ARRIEL 2 engines

TCDS Number:	EASA.E.001
Foreign AD:	Not applicable
Supersedure:	This AD supersedes EASA AD 2007-0085 dated 02 April 2007.

ATA 73	**Engine Fuel & Control – Digital Engine Control Unit – Software Modification**
Manufacturer(s):	Turboméca S.A.
Applicability:	ARRIEL 2B1 and 2B1A engines, all serial numbers. These engines are known to be installed on, but not limited to, Eurocopter AS 350 B3 and EC 130 B4 helicopters, and Changhe Aircraft Industries Corporation Z11 single-engine helicopters.
Reason:	Two cases of flame-out have been reported on ARRIEL 2B1 engines: one when lowering collective pitch on ground at landing and one when switching from Flight Position to Idle Position on ground. Both flame-out events were likely caused by stepper motor loss of steps to a value below the "level 1 failure" detection threshold. If that occurs, the fuel flow of the anti-flame-out limit can be reduced, which can be sufficient to cause an engine flame-out when decreasing rapidly the demand for power. This condition, if not corrected, could lead to an uncommanded in-flight shut-down. For a single-engine helicopter, the result may be an emergency autorotation landing. Turboméca has released a new software version 5.02 for ARRIEL 2B1 (modification TU144C) which increases the anti-flame-out limit in the event of small stepper motor loss of steps (below the "level 1 failure" detection threshold). To address this condition, EASA issued AD 2007-0085 to require the accomplishment of software modification TU144C on ARRIEL 2B1 engines. Since issuance of EASA AD 2007-0085, Turboméca started ARRIEL 2B1A engine production and released TU175 software version 6 to increase the

	anti-flame out limit in the event of small stepper motor loss of steps (below the "level 1 failure" detection threshold). For the reason described above, this AD retains the requirements of EASA AD 2007-0085, which is superseded, expands the Applicability to ARRIEL 2B1A engines and requires embodiment of modification TU175 on those engines.
Effective Date:	21 August 2012
Required Action(s) and Compliance Time(s):	Required as indicated, unless accomplished previously: **Restatement of the requirements of EASA AD 2007-0085:** (1) For Arriel 2B1 engines, no later than 31 August 2007, modify the engine Digital Engine Control Unit (DECU) by embodying Turboméca TU144C modification, or replace the DECU with a DECU embodying Turboméca TU144C modification in accordance with the instructions of Turboméca Mandatory Service Bulletin (MSB) A292 73 2144 original issue. **New requirements of this AD:** (2) For Arriel 2B1A engines installed on a helicopter at the effective date of this AD, within 14 days after the effective date of this AD, modify the engine DECU by embodying Turboméca TU175 modification, or replace the DECU with a DECU embodying Turboméca TU175 modification in accordance with the instructions of Turboméca MSB A292 73 2175 version A. (3) For Arriel 2B1A engines which are in shop at the effective date of this AD, before release to service of the engine, modify the engine DECU by embodying Turboméca TU175 modification, or replace the DECU with a DECU embodying Turboméca TU175 modification in accordance with the instructions of Turboméca MSB A292 73 2175 version A. (4) From the effective date of this AD, do not install a DECU on an engine, and do not install an engine on a helicopter, unless in compliance with the requirements of this AD.
Ref. Publications:	Turboméca MSB A292 73 2144 original issue dated 05 January 2007. Turboméca MSB A292 73 2175 version A dated 06 July 2012. The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.
Remarks:	1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication. 3. Enquiries regarding this AD should be referred to the Safety Information Section, Executive 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 2 Customer Support 40220 Tarnos, France Fax: +33 5 59 74 45 15 or your usual or nearest Turboméca technical representative at www.Turboméca-support.com.