EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2010-0198 **Date: 01 October 2010** 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 series turboshaft engines

TCDS Number :	EASA.E.001
Foreign AD :	Not applicable
Supersedure :	None

ATA 72	**Engine – Module M03 (Gas Generator) – Turbine Blade – Modification**
Manufacturer(s):	Turboméca S.A.
Applicability:	Arriel 2B, 2B1, 2B1A turboshaft engines, if not modified by TU166 modification. These engines are known to be installed on, but not limited to: Eurocopter AS 350 B3, EC 130 B4 helicopters and Changhe Z11 helicopters.
Reason:	Several cases of Gas Generator (GG) Turbine Blade rupture occurred in service on ARRIEL 2 twin engine applications and recently one on a single engine helicopter. For the case occurring in flight on a single engine helicopter (ARRIEL 2B1 engine), the pilot performed an emergency autorotation, landing the helicopter without further incident. The design of ARRIEL 2 engines (containment shield around the GG turbine) allows debris from a blade or the disc inter-blade area to be contained in the event of rupture. However, the rupture of a GG Turbine Blade may lead to an uncommanded In Flight Shut-Down which, on a single-engine helicopter, could ultimately lead to an emergency autorotation landing. The most probable root cause of the ruptures is an excitation of one of the vibration modes of the GG Turbine Blade in conjunction with several secondary contributing factors which are deemed sufficient to reduce the stress margin of the blade to a level consistent with the rate of occurrences

	of ruptures encountered. Turboméca has released TU166 modification which consists in inserting Blade dampers between the GG Turbine Disc and the GG Turbine Blade platform. Introduction of these dampers minimizes the effects of HP blade vibratory excitation and increases the blade tolerance for this type of stress. For the reasons stated above, this AD requires the accomplishment of TU166 modification on ARRIEL 2 single engine applications. After the issuance of EASA PAD 10-094 related to this AD, Turboméca has issued Turboméca Mandatory Service Bulletin (MSB) A292 72 3166 version B.
Effective Date:	15 October 2010
Required Action(s) and Compliance Time(s):	Required as indicated, unless accomplished previously: (1) Accomplish TU166 modification in accordance with the instructions specified within Turboméca Mandatory Service Bulletin (MSB) A292 72 3166 version B: when the GG Turbine is replaced (at approved Operator or Service Center) or when the engine or Module M03 is going through overhaul or repair (at approved Maintenance or Repair Center), whichever occurs first, but no later than 25 months after the effective date of this AD. (2) Accomplishment, before the effective date of this AD, of TU166 modification in accordance with the instructions of Turboméca MSB A292 72 3166 version A is acceptable for compliance with the requirement of paragraph (1) of this AD.
Ref. Publications:	Turboméca Mandatory Service Bulletin (MSB) A292 72 3166 version B dated 20 September 2010. The use of later approved revisions of this document 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. This AD was posted on 31 August 2010 as PAD 10-094 for consultation until 28 September 2010. No comments were received during the consultation period. 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 2 Customer Support 40220 Tarnos, France Fax: +33 5 59 74 45 15 or your usual or nearest Turboméca technical representative at www.turbomeca-support.com