# Airworthiness Directive

**AD No.: 2011-0218R1**

**Issued: 27 April 2016**

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) 216/2008 on behalf of the European Union, 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 Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 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 [Regulation (EU) 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [Regulation (EC) 216/2008, Article 14(4) exemption].

| Design Approval Holder's Name: | Type/Model designation(s): |
|---|---|
| TURBOMECA | ARRIEL 2 engines |

| | |
|---|---|
| Effective Date: | Revision 1: 04 May 2016<br>Original issue: 24 November 2011 |
| TCDS Number(s): | EASA.E.001 |
| Foreign AD: | Not applicable |
| Revision: | This AD revises EASA AD 2011-0218 dated 10 November 2011. |

## ATA 72 – Engine – Module M04 (Power Turbine) / Power Turbine Blades – Life Limit / Replacement

**Manufacturer(s):**
Turboméca S.A.

**Applicability:**
ARRIEL 2B, 2B1, 2B1A, 2B1B engines, all serial numbers.
These engines are known to be installed on, but not limited, to Airbus Helicopters (formerly Eurocopter) AS 350 B3, EC 130 B4 and AS 350 C3 helicopters, and Changue Z11 helicopters.

**Reason:**
During production of ARRIEL 2 Power Turbine (PT) wheels, Turboméca have detected geometric non-conformities on blade fir-tree roots. The technical investigations carried out by Turboméca have shown that this non-conformity is due to PT blade manufacturing and that only a limited number of PT blades are potentially affected.

This situation, if not detected and corrected, may potentially lead to a reduction in the fatigue resistance of the PT blades, which can reduce their in service use limit. This reduction of fatigue resistance can potentially result in blade rupture, which could cause an uncommanded in-flight shut down, ultimately leading to an emergency autorotation landing for a single-engine helicopter.

To address this unsafe condition, Turboméca issued Turboméca Mandatory Service Bulletin (MSB) A292 72 2842 version A, in which the life limit of those PT blades was reduced to 5 000 flight cycles (FC). Consequently, EASA issued AD 2011-0218 to require identification of the installed PT blades, replacement of the affected blades before exceeding the new life limit.

Since that AD was issued, Turboméca accomplished complementary tests and justified life limit extension of the affected PT blades up to 7 500 FC, and Turboméca MSB A292 72 2842 was updated accordingly.

For the reasons described above, this AD is revised to extend the life limit for the affected PT blades.

**Required Action(s) and Compliance Time(s):**
Required as indicated, unless accomplished previously:

(1) Within one month after 24 November 2011 [the effective date of this AD at original issue], identify if the M04 Power turbine wheel assembly has at least one installed PT blade having:

- a Part Number (P/N) 2 292 81 A01 0, and
- Serial Numbers (S/N) 102782 through 120230 inclusive, or S/N 120293 through 120390 inclusive.

Note: The instructions for the identification of the serial number of the PT blades of the module M04 are given in paragraph 2.3.2.1 of Turboméca MSB A292 72 2842.

(2) If an affected PT blade is installed, concurrent to the identification as required by paragraph (1) of this AD, record the life limit of 7 500 FC for that PT blade in the module M04 log book and the engine log book, in accordance with the instructions of paragraph 2.3.4 of Turboméca MSB A292 72 2842, and, before exceeding 7 500 FC by a PT blade since first installation on an engine, accomplish the following actions in accordance with the instructions of Turboméca MSB A292 72 2842:

- Replace the PT blades with a serviceable PT blades;
- Replace the module M04 with a module M04 embodying serviceable PT blades;
- Replace the PT wheel assembly with a PT wheel assembly embodying serviceable PT blades.

(3) From 24 November 2011 [the effective date of this AD at original issue], do not install a PT blade as listed in paragraph (1) of this AD on an installed engine, or on an engine to be installed on a helicopter, unless the PT blade is in compliance with the requirements of this AD.

**Ref. Publications:**
Turboméca MSB A292 72 2842 version A dated 23 September 2011, or version B, dated 06 April 2016.

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. The original issue of this AD was posted on 10 October 2011 as PAD 11-107 for consultation until 07 November 2011. The comment Repsonse documents can be found at http://ad.easa.europa.eu.

3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. 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 TURBOMECA technical representative (refer to http://www.turbomeca-support.com).