EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2015-0211 **Date: 15 October 2015** 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 EU 748/2012, Part 21.A.3B. In accordance with 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 [EU 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].

Design Approval Holder's Name :	**Type/Model designation(s) :**
TURBOMECA	ASTAZOU XIV engines

TCDS Number:	EASA.E.075
Foreign AD :	Not applicable
Supersedure :	This AD supersedes EASA AD 2010-0004 dated 5 January 2010.

ATA 72	**Engine – Third Stage Turbine Wheel – Inspection**
Manufacturer(s):	Turbomeca
Applicability:	ASTAZOU XIV B and XIV H engines, all serial numbers, if fitted with a third stage turbine wheel that incorporates modification AB 173 or modification AB 208, except those engines that have been reworked in accordance with the instructions of Turbomeca Service Bulletin (SB) 283 72 0805. These engines are known to be installed on, but not limited to, Airbus Helicopters (formerly Aerospatiale, Sud Aviation) Alouette III SA 319 B and GAZELLE SA 342 J helicopters.
Reason:	Investigation of an uncommanded in-flight shut down (IFSD) event revealed that a third stage turbine wheel rupture was not contained by the turbine casings. The released portion consisted of a turbine blade together with the rim piece immediately below the blade. The rim piece was bounded by two adjacent axial slots and a fatigue crack that had developed between the holes in which the slots terminate. The slots and holes, which are closed by riveted plugs, were introduced by modification (MOD) AB 173 in order to improve the vibration characteristics of the turbine wheel. MOD AB 208 introduced an improvement to MOD AB 173 by changing only the riveting detail. Turbomeca issued SB 283 72 0805 to provide instructions for re-boring the holes (at overhaul or repair) in order to improve their surface condition. A manufacturing process modification has been introduced to improve the surface condition of these holes in third stage turbine wheels. Wheels subject to the improved manufacturing process have serial numbers (S/Ns) outside the range specified in Turbomeca Mandatory SB (MSB) 283 72 0804 Version C. Although only one event has been reported which resulted in an uncommanded

<table>
<tr><td></td><td>IFSD and no damage to the affected helicopter, this condition, if not detected and corrected, could lead to an emergency autorotation landing.

To address the unsafe condition, EASA issued AD 2009-0136 to require inspection of certain third stage turbine wheels and removal of any damaged wheel. The wheels to be inspected were those that would exceed 2 000 cycles since new (CSN) by 01 February 2011.

Following additional research by Turbomeca on crack initiation and growth, EASA issued AD 2010-0004, which superseded AD 2009-0136, to require new inspections, based on new criteria, and removal from service of any damaged wheels.

Since EASA AD 2010-0004 was issued, a new case of cracking on a third stage turbine wheel was detected during engine overhaul in a repair center. This turbine had previously been inspected in accordance with MSB 283 72 0804 Version C but the crack, if present at that time, was not detected.

Prompted by these findings, Turbomeca, issued MSB 283 72 0804 Version D in order to expand the population of potentially affected turbines and to introduce repetitive inspections.

For the reasons described above, this AD requires repetitive inspections of the affected third stage turbine wheels, as specified in MSB 283 72 0804 Version D, and, depending on findings, accomplishment of the applicable corrective actions.</td></tr>
<tr><td>Effective Date:</td><td>29 October 2015</td></tr>
<tr><td>Required Action(s) and Compliance Time(s):</td><td>Required as indicated unless accomplished previously:

Note 1: For the purpose of this AD, an affected third stage turbine wheel has a P/N and S/N as listed in Turbomeca MSB 283 72 0804 Version D.

(1) Within the compliance time specified in Table 1 of this AD, as applicable, and, thereafter, at intervals not to exceed 400 engine cycles (EC), accomplish a dye penetrant inspection on the rear face of each affected third stage turbine wheel in accordance with the instructions of Turbomeca MSB 283 72 0804 Version D.

Table 1 – Initial dye penetrant inspection

<table>
<tr><th>Engine condition
(on the effective date of this AD)</th><th>Compliance Time</th></tr>
<tr><td>Third stage turbine wheel installed, not affected by Turbomeca MSB 283 72 0804 Version C</td><td rowspan="2">Within 150 EC after the effective date of this AD</td></tr>
<tr><td>Third stage turbine wheel installed, listed in Turbomeca MSB 283 72 0804 Version C, and accumulated 300 EC or more since last inspection, or since new, or since last overhaul, or repair, as applicable</td></tr>
<tr><td>Third stage turbine wheel installed, listed in Turbomeca MSB 283 72 0804 Version C, and accumulated less than 300 EC since the last inspection, or since new, or since last overhaul, or repair, as applicable</td><td>Before exceeding 400 EC since the last inspection, or since new, or since the last overhaul, or since repair, as applicable</td></tr>
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Note 2: A non-cumulative tolerance of 50 EC may be applied only to the inspection interval as specified in paragraph (1) of this AD.

(2) If, during any inspection as required by paragraph (1) of this AD, a crack is</td></tr>
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	detected, before next flight, remove the engine from the helicopter and contact Turbomeca for approved instructions. (3) In-shop rework of a third stage turbine on an engine in accordance with the instructions of Turbomeca SB 283 72 0805 constitutes a terminating action for the repetitive inspections as required by paragraph (1) of this AD for that engine. (4) From the effective date of this AD, installation on an engine of an affected third stage turbine wheel is allowed, provided that, following installation, the engine is inspected as required by this AD.
Ref. Publications :	Turbomeca MSB 283 72 0804 Version C dated 23 October 2009, or Version D dated 24 July 2015. Turbomeca SB 283 72 0805 Version B dated 15 December 2010. 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. This AD was posted on 15 September 2015 as PAD 15-124 for consultation until 13 October 2015. No comments were received during the consultation period. 3. Enquiries regarding this AD should be referred to the Safety Information 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: Operator Support ASTAZOU - TURBOMECA 40220 TARNOS – FRANCE Phone: +33 (0)5 59 74 40 00 Fax: +33 (0)5 59 74 45 15 or refer to your nearest TURBOMECA technical representative on http://www.turbomeca-support.com.