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## AIRWORTHINESS DIRECTIVE

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On the effective date specified below, and for the reasons set out in the background section, the CASA delegate whose signature appears below revokes Airworthiness Directive (AD) AD/MAKILA/7 and issues the following AD under subregulation 39.001(1) of CASR 1998. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct the unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

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### Turbomeca Turbine Engines - Makila Series

**AD/MAKILA/7**                      **Digital Engine Control Unit Software**                      **7/2007**  
**Amdt 1**

Applicability:    Makila 1A2 turboshaft engines.

*Note 1: These engines are known to be installed on, but not limited to, Super Puma Mark II helicopters.*

- Requirement:    1. If not previously accomplished in accordance with the original issue of this Directive, replace the digital engine control unit (DECU) with a DECU incorporating Modification TU 244C (upgrade of software version 9 to version 11) in accordance with Turbomeca Mandatory Service Bulletin No A298 73 0244 Update 1 dated 30 March 2007 update.
2. Engines, post Modification TU 244C, may only be installed on a helicopter if the other engine is either post Modification TU 244C or TU 230C (previous version of the control system software).

*Note 2: EASA AD 2007-0143 refers.*

Compliance:    For Requirement 1 - No later than 30 November 2008.

                         For Requirement 2 - As of the effective date of this Amendment.

                         This Amendment becomes effective on 5 July 2007.

Background:    The French Direction Générale de l'Aviation Civile (DGAC) advised that a backup law at 65% of NG (gas generator speed) has been added to the control system of Makila 1A2 engines in order to limit the acceleration of the free turbine overspeed in the event of a failure of the drive train between the engine and the main gearbox.

                         Tests performed on the engine test bench have revealed a possible scenario that can lead to the activation of another backup law at 85% of NG. In this scenario, there is no longer an overspeed protection by going into backup at 65% of NG therefore, in the event of a transmission interruption between the engine and the main gearbox, the free turbine can accelerate until it bursts. Incorporation of modification TU 244C on the control system software enables the overspeed protection function to be maintained, including in the occurrence scenario described above.

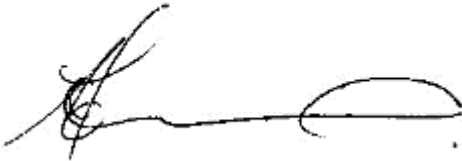
## Turbomeca Turbine Engines - Makila Series

AD/MAKILA/7 Amdt 1 (continued)

The original issue of this Directive required the use of the new version of the software, as introduced by modification TU 244C, to re-establish an acceptable level of overspeed protection. Additionally, the Directive ensured the compatibility of the two engines installed on the same helicopter.

This Amendment is issued following the revision of DGAC AD F-2006-029 by the European Aviation Safety Agency (EASA). The Amendment continues the requirement to upgrade the software, but references an updated Turbomeca service bulletin. The Amendment also continues the requirement to ensure installed engine compatibility.

The original issue of this Directive became effective on 13 April 2006.



Charles Lenarcic  
Delegate of the Civil Aviation Safety Authority

25 May 2007