
AIRWORTHINESS DIRECTIVE

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/9 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.

Turbomeca Turbine Engines - Makila Series

AD/MAKILA/9 Amdt 1	Engine Control Unit - Comparator/Selection Board	8/2008 DM
-------------------------------	---	----------------------

Applicability: Makila 1A and Makila 1A1 turbo-shaft engines.

Note 1: These engines are known to be installed in, but not limited to, Eurocopter AS 332 C, C1, L and L1 helicopters.

- Requirement:
1. Replace the Engine Control Unit (ECU) Selector-Comparator board with one incorporating Turbomeca modification TU250. Replacement of the Selector-Comparator board and return of the Modification Compliance Certificate to Turbomeca must be performed in accordance with Turbomeca Mandatory Service Bulletin 298 73 0250 dated 23 March 2007 or later revision approved by the European Aviation Safety Agency (EASA).
 2. An ECU Selector-Comparator board incorporating Turbomeca modification TU250 must be installed on at least one engine of each helicopter.

Note 2: A post-TU250 ECU and a pre-TU250 ECU can be installed in the same helicopter until 30 November 2009.

Note 3: EASA AD 2007-0144R1 refers.

Compliance: For Requirement 1 - Not later than 30 November 2009.

For Requirement 2 - After 30 November 2008.

This Amendment becomes effective on 20 June 2008.

Background: Modification TU203, applicable to Makila 1A and Makila 1A1 engines, introduced a control system backup law that fixes N1 (gas generator speed) at 65% when at least two of the three N2 (power turbine speed) signals are lost. The intent is to limit the maximum speed attainable by the power turbine in the event of a failure of the shaft between the Engine and the Main Gearbox that could result in collateral damage to the N2 speed probes.

Turbomeca Turbine Engines - Makila Series

AD/MAKILA/9 Amdt 1 (continued)

Recent occurrences of 65% N1 backup activation remain unexplained despite detailed investigation. Although not substantiated, it is postulated that the events may have been due to corruption of the engine N2 speed signals by short perturbations, for example by EMI. The potential therefore exists for a hazardous condition in which both engines on the same helicopter are simultaneously affected.

The original issue of this Directive required a hardware modification to the ECU that allows recovery from the 65% backup mode if the loss of N2 speed signals is determined to be temporary. The modification applies to the Selector-Comparator board in the ECU.

This Amendment limits the applicability to civil helicopters and continues the requirement for ECU Selector-Comparator board to be modified, extending the compliance until 30 November 2009 for both engines. The Amendment also requires that at least one engine of each helicopter has a modified ECU Selector-Comparator board installed after 30 November 2008.

The original issue of this Directive became effective on 5 July 2007.



James Coyne
Delegate of the Civil Aviation Safety Authority

13 June 2008