EASA Safety Information Bulletin

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Subject: **Uncommanded Engine Loss of Power, Rotor Speed Fluctuations or In-Flight Shutdown following Electronic Engine Control Unit Failure**

Ref. Publication: Turboméca Service Bulletin (SB) 292 73 2852

Applicability: Turboméca ARRIEL 2D engines (EASA TCDS E.001).

These engines are known to be installed on, but not limited to, Eurocopter AS 350 B3 and EC 130 T2 helicopters.

Description: A report was received of an in-flight event where the pilot noticed that the temporary amber governor (GOV) light had illuminated, followed by the failure of the VEMD (Vehicle Engine Monitoring Display) screens, and no automatic or auxiliary Engine Back-up Control Ancillary Unit (EBCAU) was available. The ensuing investigation revealed an internal failure of the engine Electronic Engine Control Unit (EECU), which led to a loss of fuel flow regulation (fuel metering unit frozen) without red GOV indication but with amber GOV indication and loss of VEMD display. If this fuel metering unit is frozen in open position, it may lead to a rotor overspeed; on the other hand, if it is frozen in closed position, it may lead to an unavailability of engine power. This failure was not indicated to the pilot, as might be expected, which would be a red GOV warning light.

To address this condition, EASA issued AD 2013-0287, requiring a temporary Rotorcraft Flight Manual (RFM) procedure to be incorporated in the RFM emergency procedures section. This procedure provides the pilot with the means to identify the failure condition and defines the appropriate response.

In parallel, the investigation conducted by Turboméca on the EECU removed following this occurrence, revealed a short-circuiting of a tantalum capacitor, which had induced a fuel flow freeze from the control system and the chain of consequences described above.

This is information only. Recommendations are not mandatory.

Prompted by these findings, Turboméca developed a modification of the EECU preventing the progression from failure and limits the consequence of the capacitor failure to a Level 2 control failure, which results in a normal amber governor (GOV) indication with degraded engine performance and avoids the condition described above. This modification should therefore mitigate the risk of rotor speed fluctuations, loss of power or uncommanded in-flight shutdown.

Recommendation(s): Affected operators are recommended to incorporate Turboméca modification of the EECU in accordance with the instructions of Turboméca SB 292 73 2852.

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