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/DA42/3 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.

Diamond DA42 Series Aeroplanes

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<th>AD/DA42/3</th>
<th>Engine Control Unit Back-Up Batteries</th>
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Applicability:
DA 42 aeroplanes, serial numbers (S/N) 42.004, 42.006, 42.009 through 42.156, 42.158 through 42.176, 42.178 through 42.190, 42.192 through 42.233, 42.235 through 42.246, 42.248 through 42.254, 42.256 through 42.261, 42.263 through 42.269 and Canadian production line aeroplanes S/N 42.AC001 through 42.AC109.

Requirement:
1. Modify the engine electrical system by installing additional engine control unit (ECU) backup batteries in accordance with Diamond Aircraft Industries GmbH (DAI) Mandatory Service Bulletin (MSB) 42-042 dated 22 June 2007 and DAI Work Instruction WI-MSB-42-042 dated 20 June 2007 or later revisions of these documents approved by the European Aviation Safety Agency (EASA).

2. Amend the DA 42 Aircraft Maintenance Manual by inserting DAI AMM-TR-MÄM-42-240 Temporary Revision (TR) dated 17 June 2007 or later EASA approved AMM revision, update the operator’s maintenance programme and maintain the aircraft accordingly.

3. Amend the DA 42 Aircraft Flight Manual (AFM) by inserting a copy of AFM TR-MÄM-42-240 dated 17 June 2007 or later EASA approved AFM revision, into the AFM, as instructed in that document.

AMM and AFM TRs incorporated in accordance with this Directive may be removed when the information contained in the TR is incorporated in the manual during the normal revision process.

Note: EASA AD 2007-0183 R1 refers.

Compliance: For Requirements 1 through 3 - Remains unchanged as ‘Within the next 100 hours time in service after the effective date of the original issue of this Directive, but not later than 31 October 2007, whichever occurs first’.

This Amendment becomes effective on 7 September 2007.
Background: Recently, a double in-flight engine shut down incident occurred on a DA42 aircraft equipped with TAE125-01 engines. The Bundesstelle für Flugunfalluntersuchung (German Federal Bureau of Aircraft Accident Investigation) found the root cause to be a violation of the AFM procedures (taking-off with an insufficiently charged main aircraft battery) and momentary low voltage in the electrical system of the aircraft when retracting the main landing gear. This has been the subject of Diamond Service Information (SI) 42-040 dated 9 March 2007.

The TAE125-01 and TAE125-02-99 engines, approved for installation on the DA42, are full authority digital engine control (FADEC) controlled and are not totally independent from the aircraft electrical power supply. A significant drop of the voltage caused a simultaneously reset of the FADEC on both engines with subsequent feathering of the propeller blades. Thielert Aircraft Engines (TAE) Installation Manuals IM-02-01 Issue 4 and IM-02-02 Issue 1 have been revised to address this issue.

The original issue of this Directive mandated the installation of additional ECU backup batteries to supply electrical power to the ECU, preventing high transient power drains from causing a short term voltage drop when their insufficient charge in the main battery. The Directive also required the incorporation of AFM and AMM TRs.

This Amendment continues the requirements of the original issue of this Directive but allows compliance in accordance with later EASA approved revisions of the requirement documents.

The original issue of this Directive became effective on 27 July 2007.

Charles Lenarcic
Delegate of the Civil Aviation Safety Authority

31 August 2007