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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2010-0820; Directorate Identifier 2010-NE-31-AD; Amendment 39-16646; AD 2011-07-09]

RIN 2120-AA64

Airworthiness Directives; Thielert Aircraft Engines GmbH Models TAE 125-01, TAE 125-02-99, and TAE 125-02-114 Reciprocating Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for the products listed above. This AD results from mandatory continuing airworthiness information (MCAI) issued by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

Service experience has shown that a case of FADEC channel B manifold air pressure (MAP) sensor hose permeability is not always recognized as fault by the FADEC. The MAP value measured by the sensor may be lower than the actual pressure value in the engine manifold, and limits the amount of fuel injected into the combustion chamber and thus the available power of the engine. A change in FADEC software version 2.91 will change the logic in failure detection and in switching to channel B (no automatic switch to channel B if MAP difference between channel A and B is detected and lower MAP is at channel B).

In addition, previous software versions allow—under certain conditions and on DA 42 aircraft only—the initiation of a FADEC self test during flight that causes an engine in-flight shutdown.

We are issuing this AD to prevent engine in-flight shutdown or power loss, possibly resulting in reduced control of the airplane.

DATES: This AD becomes effective May 5, 2011.

ADDRESSES: The Docket Operations office is located at Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.

FOR FURTHER INFORMATION CONTACT: Alan Strom, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: alan.strom@faa.gov; phone: (781) 238-7143; fax: (781) 238-7199.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM was published in the Federal Register on November 23, 2010 (75 FR 71371). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

Service experience has shown that a case of FADEC channel B manifold air pressure (MAP) sensor hose permeability is not always recognized as fault by the FADEC. The MAP value measured by the sensor may be lower than the actual pressure value in the engine manifold, and limits the amount of fuel injected into the combustion chamber and thus the available power of the engine. A change in FADEC software version 2.91 will change the logic in failure detection and in switching to channel B (no automatic switch to channel B if MAP difference between channel A and B is detected and lower MAP is at channel B).

In addition, previous software versions allow—under certain conditions and on DA 42 aircraft only—the initiation of a FADEC self test during flight that causes an engine in-flight shutdown.

Comments

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM.

We updated the revision levels to the two referenced Thielert Operation & Maintenance Manuals, and corrected a manual number reference error in paragraph (e)(2) of this AD.

Conclusion

We reviewed the available data and determined that air safety and the public interest require adopting the AD with the changes described previously. We determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

Costs of Compliance

Based on the service information, we estimate that this AD will affect about 112 engines installed on airplanes of U.S. registry. We also estimate that it will take about 0.5 work-hour per engine to comply with this AD. The average labor rate is \$85 per work-hour. There are no required parts cost. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$4,760.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs" describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this AD:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (phone: (800) 647-5527) is provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new AD:



2011-07-09 Thielert Aircraft Engines GmbH: Amendment 39-16646. Docket No. FAA-2010-0820; Directorate Identifier 2010-NE-31-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective May 5, 2011.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to Thielert Aircraft Engines GmbH models TAE 125-01, TAE 125-02-99, and TAE 125-02-114 reciprocating engines installed in, but not limited to, Cessna 172 and (Reims-built) F172 series (European Aviation Safety Agency (EASA) STC No. EASA.A.S.01527); Piper PA-28 series (EASA STC No. EASA.A.S. 01632); APEX (Robin) DR 400 series (EASA STC No. A.S.01380); and Diamond Aircraft Industries Models DA 40, DA 42, and DA 42M NG airplanes.

Reason

(d) This AD results from mandatory continuing airworthiness information (MCAI) issued by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. We are issuing this AD to prevent engine in-flight shutdown or power loss, possibly resulting in reduced control of the airplane.

Actions and Compliance

- (e) Unless already done, do the following actions.
 - (1) Within 110 flight hours after the effective date of the AD or during next maintenance, whichever occurs first, install full-authority digital electronic control (FADEC) software version 2.91.
 - (2) Guidance on FADEC software installation can be found in the following:
 - (i) For TAE 125-01 engines, Operation & Maintenance Manual OM-02-01, Version 3, Revision 15.
 - (ii) For TAE 125-02-99 and TAE 125-02-114 engines, Operation & Maintenance Manual OM-02-02, Version 2, Revision 1.

Prohibition of FADEC Software Earlier Versions

(f) Once FADEC software version 2.91 is installed, do not install any earlier version of FADEC software.

FAA AD Differences

(g) EASA AD 2010-0137 permits installation of earlier FADEC software versions, once version 2.91 is installed. This AD does not.

(h) EASA AD 2010-0137 requires compliance within 110 flight hours after the effective date of the AD or during next maintenance, whichever occurs first, but no later than 6 months after the effective date of the AD. This AD requires compliance within 110 flight hours after the effective date of the AD or during next maintenance, whichever occurs first.

Alternative Methods of Compliance (AMOCs)

(i) The Manager, Engine Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

Related Information

(j) Refer to EASA AD 2010-0137, dated June 30, 2010, for related information. Contact Thielert Aircraft Engines GmbH, Platanenstrasse 14 D-09350, Lichtenstein, Germany, phone: 37204-696-0; fax: 37204-696-2912; e-mail: info@centurion-engines.com, for a copy of the service information referenced in this AD.

(k) Contact Alan Strom, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: alan.strom@faa.gov; phone: (781) 238-7143; fax: (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(l) None.

Issued in Burlington, Massachusetts, on March 22, 2011.
Peter A. White,
Acting Manager, Engine and Propeller Directorate,
Aircraft Certification Service.