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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2009-0201; Directorate Identifier 2008-NE-47-AD; Amendment 39-16314; AD 2010-11-09]

RIN 2120-AA64

Airworthiness Directives; Thielert Aircraft Engines GmbH (TAE) Models TAE 125-01 and TAE 125-02-99 Reciprocating Engines Installed in, but Not Limited to, Diamond Aircraft Industries Model DA 42 Airplanes

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:

Engine in-flight shutdown incidents have been reported on Diamond Aircraft Industries DA 42 airplanes equipped with TAE 125 engines. The investigations showed that it was mainly the result of failure of the Proportional Pressure Reducing Valve (PPRV) (also known as Propeller Control Valve) due to high vibrations. This condition, if not corrected, could lead to further cases of engine in-flight shutdown, possibly resulting in reduced control of the aircraft.

Since the release of European Aviation Safety Agency (EASA) AD 2008-0145, the engine gearbox has been identified as the primary source of vibrations for the PPRV, and it has also been determined that failure of the electrical connection to the PPRV could have contributed to some power loss events or in-flight shutdowns.

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

DATES: This AD becomes effective July 13, 2010. The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of July 13, 2010.

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: Tara Chaidez, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: tara.chaidez@faa.gov; telephone (781) 238-7773; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) and a supplemental 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 April 17, 2009 (74 FR 17795) and that supplemental NPRM was published in the Federal Register on February 23, 2010 (75 FR 7996). That supplemental NPRM proposed to correct an unsafe condition for the specified products. The MCAI states that:

Engine in-flight shutdown incidents have been reported on Diamond Aircraft Industries DA 42 airplanes equipped with TAE 125 engines. The investigations showed that it was mainly the result of failure of the Proportional Pressure Reducing Valve (PPRV) (also known as Propeller Control Valve) due to high vibrations. This condition, if not corrected, could lead to further cases of engine in-flight shutdown, possibly resulting in reduced control of the aircraft.

Since the release of European Aviation Safety Agency (EASA) AD 2008-0145, the engine gearbox has been identified as the primary source of vibrations for the PPRV, and it has also been determined that failure of the electrical connection to the PPRV could have contributed to some power loss events or in-flight shutdowns.

Comments

We gave the public the opportunity to participate in developing this AD. We received no comments on the supplemental NPRM or on the determination of the cost to the public.

Conclusion

We reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

Differences Between This AD and the MCAI or Service Information

We have reviewed the MCAIs and, in general, agree with their substance. But we have found it necessary to not reference the second paragraph of the unsafe condition from EASA AD 2009-0224. That sentence stated that the problem has only manifested itself on those Thielert engines installed on Diamond Aircraft Industries DA 42 aircraft. The affected engines which require a PPRV could be used on other make and model airplanes in the future.

We also did not incorporate the February 28, 2010 compliance date which is in EASA AD 2009-0193R1, or the January 31, 2010 compliance date which is in EASA AD 2009-0224.

Costs of Compliance

Based on the service information, we estimate that this AD will affect about 300 TAE 125-01 and TAE 125-02-99 reciprocating engines installed in Diamond Aircraft Industries Model DA 42 airplanes of U.S. registry. We also estimate that it will take about 0.25 work-hour per engine to replace a PPRV and install a vibration isolator to the gearbox assembly. The average labor rate is \$85 per work-hour. Required parts will cost about \$275 per product. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$88,875.

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, Incorporation by reference, 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:



2010-11-09 Thielert Aircraft Engines GmbH: Amendment 39-16314. Docket No. FAA-2009-0201; Directorate Identifier 2008-NE-47-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective July 13, 2010.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to Thielert Aircraft Engines GmbH (TAE) models TAE 125-01 and TAE 125-02-99 reciprocating engines designated with part number (P/N) 05-7200-K000301 or 02-7200-1401R1. The engines are installed on, but not limited to, Diamond Aircraft Industries Model DA 42 airplanes.

Reason

(d) Engine in-flight shutdown incidents have been reported on Diamond Aircraft Industries DA 42 airplanes equipped with TAE 125 engines. The investigations showed that it was mainly the result of failure of the Proportional Pressure Reducing Valve (PPRV) (also known as Propeller Control Valve) due to high vibrations. This condition, if not corrected, could lead to further cases of engine in-flight shutdown, possibly resulting in reduced control of the aircraft.

Since the release of European Aviation Safety Agency (EASA) AD 2008-0145, the engine gearbox has been identified as the primary source of vibrations for the PPRV, and it has also been determined that failure of the electrical connection to the PPRV could have contributed to some power loss events or in-flight shutdowns.

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

Actions and Compliance

- (e) Unless already done, do the following actions:

TAE 125-02-99 Reciprocating Engines

(1) For TAE 125-02-99 reciprocating engines with engine P/N 05-7200-K000301, within 55 flight hours after the effective date of this AD:

(i) Replace the existing PPRV with PPRV, P/N 05-7212-E002801. Use paragraphs A. through B. of Thielert Service Bulletin (SB) No. TM TAE 125-1007 P1, Revision 2, dated April 29, 2009, to do the replacement.

(ii) Install a vibration isolator, P/N 05-7212-K022302, to the gearbox assembly. Use paragraphs 1 through 20 of Thielert SB No. TM TAE 125-1009 P1, Revision 3, dated October 14, 2009, to do the installation.

Repetitive PPRV Replacements

(2) Thereafter, within every 300 flight hours, replace the PPRV, P/N 05-7212-E002801, with the same P/N PPRV.

TAE 125-01 Reciprocating Engines

(3) For TAE 125-01 reciprocating engines with engine P/N 02-7200-1401R1, within 55 flight hours after the effective date of this AD:

(i) Replace the existing PPRV with a PPRV, P/N NM-0000-0124501 or P/N 05-7212-K021401. Use paragraph 1 of Thielert SB No. TM TAE 125-0018, Revision 1, dated November 12, 2008, to do the replacement.

(ii) Inspect the electrical connectors of the PPRV and replace the connectors if damaged, and install a vibration isolator, P/N 05-7212-K023801, to the gearbox assembly. Use paragraphs 1 through 27 of Thielert SB No. TM TAE 125-0020, Revision 1, dated November 25, 2009, to do the inspection and installation.

Repetitive PPRV Replacements

(4) Thereafter, within every 300 flight hours, replace the PPRV with a PPRV, P/N NM-0000-0124501 or P/N 05-7212-K021401.

FAA Differences

(f) We have found it necessary to not reference the second paragraph of the unsafe condition from the MCAI EASA AD 2009-0224. That sentence stated that the problem has only manifested itself on those Thielert engines installed on Diamond Aircraft Industries DA 42 aircraft. The affected engines which require a PPRV could be used on other make and model airplanes in the future.

(g) We also did not reference the February 28, 2010 compliance date, which is in EASA AD 2009-0193R1, or the January 31, 2010 compliance date which is in EASA AD 2009-0224.

Alternative Methods of Compliance (AMOCs)

(h) 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

(i) Refer to EASA AD 2009-0224, dated October 20, 2009 (TAE 125-02-99), and EASA AD 2009-0193R1, dated December 1, 2009 (TAE 125-01), for related information.

(j) Contact Tara Chaidez, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: tara.chaidez@faa.gov; telephone (781) 238-7773; fax (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(k) You must use the service information specified in Table 1 of this AD to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Thielert Aircraft Engines GmbH, Platanenstrasse 14 D-09350, Lichtenstein, Germany, telephone: 37204-696-0; fax: 37204-696-2912; e-mail: info@centurion-engines.com.

(3) You may review copies at the FAA, New England Region, 12 New England Executive Park, Burlington, MA; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Table 1 – Material Incorporated by Reference

Thielert Service Bulletin No.	Page	Revision	Date
TM TAE 125-1007 P1 Total Pages: 4	ALL	2	April 29, 2009
TM TAE 125-1009 P1 Total Pages: 26	ALL	3	October 14, 2009
TM TAE 125-0018 Total Pages: 2	ALL	1	November 12, 2008
TM TAE 125-0020, including Annexes A and B Total Pages: TM TAE 125-0020, 42; Annex A, 3; Annex B, 4	ALL	1	November 25, 2009

Issued in Burlington, Massachusetts, on May 19, 2010.
Tracy Murphy,
Acting Manager, Engine and Propeller Directorate,
Aircraft Certification Service.