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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-9317; Directorate Identifier 2016-CE-029-AD; Amendment 39-18779; AD 2017-01-12]

RIN 2120-AA64

Airworthiness Directives; Diamond Aircraft Industries GmbH Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain Diamond Aircraft Industries GmbH Model DA 42 airplanes. 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 an uncommanded engine shutdown during flight due to failure of the propeller regulating valve caused by hot exhaust gases escaping from fractured engine exhaust pipes. We are issuing this AD to require actions to address the unsafe condition on these products.

DATES: This AD is effective February 22, 2017.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of February 22, 2017.

ADDRESSES: You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No.FAA-2016-9317; or in person at Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

For service information identified in this AD, contact Diamond Aircraft Industries GmbH, N.A. Otto-Straße 5, A-2700 Wiener Neustadt, Austria, telephone: +43 2622 26700; fax: +43 2622 26780; email: office@diamond-air.at; Internet: <http://www.diamondaircraft.com>. You may view this referenced service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148. It is also available on the Internet at <http://www.regulations.gov> by searching for Docket No. FAA-2016-9317.

FOR FURTHER INFORMATION CONTACT: Mike Kiesov, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4144; fax: (816) 329-4090; email: mike.kiesov@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Diamond Aircraft Industries GmbH Model DA 42 airplanes. The NPRM was published in the Federal Register on October 25, 2016 (81 FR 73360). The NPRM proposed to correct an unsafe condition for the specified products and was based on mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country. The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued AD No. 2016-0156R1, dated November 23, 2016 (referred to after this as "the MCAI"). The revised MCAI states:

Two cases were reported of uncommanded engine in-flight shutdown (IFSD) on DA 42 aeroplanes. Subsequent investigations identified these occurrences were due to failure of the propeller regulating valve, caused by hot exhaust gases coming from fractured engine exhaust pipes. The initiating cracks on the exhaust pipes were not detected during previous inspections, since those exhaust pipes are equipped with non-removable heat shields that do not allow inspection for certain sections of the exhaust pipe.

This condition, if not corrected, could lead to further cases of IFSD or overheat damage, possibly resulting in a forced landing, with consequent damage to the aeroplane and injury to occupants.

To address this potential unsafe condition, Diamond Aircraft Industries (DAI) developed an exhaust pipe without a directly attached integral heat shield that allows visual inspection over the entire exhaust pipe length. DAI issued Mandatory Service Bulletin (MSB) 42-120 and relevant Working Instruction (WI) WI-MSB 42-120, providing instructions to install the modified exhaust pipes. As an interim measure, an additional bracket was designed to hold the exhaust pipe in place in case of a pipe fracture.

Consequently, EASA issued AD 2016-0156, requiring replacement of the exhaust pipes with pipes having new design, and prohibiting (re)installation of the previous design pipes.

Since that AD was issued, cracks were identified on modified exhaust pipes during an inspection. Furthermore, it was determined that the additional brackets provide a level of safety equivalent to the modified exhaust pipes. Consequently, DAI revised MSB 42-120, allowing installation of the additional brackets as alternative to the installation of the modified exhaust pipes.

For the reasons described above, this AD is revised to reduce the Applicability, excluding certain post-mod aeroplanes, to allow only installation of the additional brackets as final solution and to remove the prohibition of reinstallation of unmodified exhaust pipes.

The MCAI can be found in the AD docket on the Internet at <https://www.regulations.gov/document?D=FAA-2016-9317-0002>.

Comments

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

Conclusion

We reviewed the relevant data and determined that air safety and the public interest require adopting this AD as proposed except for the changes discussed above. We have determined that these changes:

- Are consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

Related Service Information Under 1 CFR Part 51

We reviewed Diamond Aircraft Industries GmbH Mandatory Service Bulletin MSB 42-120, dated June 24, 2016, Mandatory Service Bulletin MSB 42-120/1, dated November 10, 2016, and Work Instruction WI-MSB 42-120, dated June 24, 2016. In combination, this service information describes procedures for replacing the exhaust pipes with exhaust pipes having a new design. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section of this AD.

Costs of Compliance

We estimate that this AD will affect 130 products of U.S. registry. We also estimate that it will take the following to comply with the requirements of this AD:

It will take about 1 work-hour per product to comply with the installation of additional exhaust clamps required by this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$125 per product.

Based on these figures, we estimate the cost of this AD on U.S. operators for the installation of additional exhaust clamps to be \$27,300, or \$210 per product.

It will take about 4 work-hours per product to comply with the exhaust pipe replacement required by this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$1,990 per product.

Based on these figures, we estimate the cost of this AD on U.S. operators for the exhaust pipe replacement requirement to be \$302,900, or \$2,330 per product.

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),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-9317; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains the NPRM, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (telephone (800) 647-5527) is 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:



2017-01-12 Diamond Aircraft Industries GmbH: Amendment 39-18779; Docket No. FAA-2016-9317; Directorate Identifier 2016-CE-029-AD.

(a) Effective Date

This airworthiness directive (AD) becomes effective February 22, 2017.

(b) Affected ADs

None.

(c) Applicability

This AD applies to Diamond Aircraft Industries GmbH DA 42 airplanes, serial numbers 42.004 through 42.427 and 42.AC001 through 42.AC151, that have a TAE 125-02-99 or TAE 125-02-114 engine installed, are equipped with an exhaust pipe, DAI part number (P/N) D60-9078-06-01, or Technify P/Ns 52-7810-H0001 02, 52-7810-H0001 03, or 52-7810-H0001 04, and are certificated in any category.

(d) Subject

Air Transport Association of America (ATA) Code 78: Engine Exhaust.

(e) Reason

This AD was prompted by mandatory continuing airworthiness information (MCAI) originated 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 an uncommanded engine shutdown during flight due to failure of the propeller regulating valve caused by hot exhaust gases escaping from fractured engine exhaust pipes. We are issuing this AD to prevent failure of the propeller regulating valve, which could result in forced landing with consequent damage to the airplane.

(f) Actions and Compliance

Unless already done, do one of the actions in either paragraph (f)(1) or (2) of this AD. For the purpose of this AD, if the flight hours accumulated since first installation of an affected exhaust pipe is not known, use the total hours time-in-service (TIS) accumulated on the airplane.

Note 1 to paragraph (f) of this AD: The NPRM for this AD proposed to require both the installation of clamps and the replacement of the exhaust pipes. This AD only requires one or the other.

(1) At the following compliance times, install additional exhaust pipe clamps following section III.2 of the INSTRUCTIONS section of Diamond Aircraft Industries GmbH Work Instruction WI-MSB 42-120, dated June 24, 2016, as specified in the Accomplishments/Instructions paragraph of

Diamond Aircraft Industries GmbH Mandatory Service Bulletin MSB 42-120, dated June 24, 2016, or Diamond Aircraft

Industries GmbH Mandatory Service Bulletin MSB 42-120/1, dated November 10, 2016.

(i) If the affected exhaust pipe has 1,300 hours TIS or less since first installed on an airplane as of February 22, 2017 (the effective date of this AD): Before or upon accumulating 1,500 hours TIS since the affected exhaust pipe was first installed on an airplane.

(ii) If the affected exhaust pipe has more than 1,300 hours TIS since first installed on an airplane as of February 22, 2017 (the effective date of this AD): Within the next 200 hours TIS after February 22, 2017 (the effective date of this AD) or within the next 12 months after February 22, 2017 (the effective date of this AD), whichever occurs first.

(2) At the following compliance times, replace the exhaust pipes listed in paragraph (c) of this AD with an exhaust pipe DAI P/N D60-9078-06-01_01 or Technify P/N 52-7810-H0014 01 following section III.1 of the INSTRUCTIONS section of Diamond Aircraft Industries GmbH Work Instruction WI-MSB 42-120, dated June 24, 2016, as specified in the Accomplishments/Instructions paragraph of Diamond Aircraft Industries GmbH Mandatory Service Bulletin MSB 42-120, dated June 24, 2016, or Diamond Aircraft Industries GmbH Mandatory Service Bulletin MSB 42-120/1, dated November 10, 2016.

(i) If the affected exhaust pipe has 1,300 hours TIS or less since first installed on an airplane as of February 22, 2017 (the effective date of this AD): Before or upon accumulating 1,500 hours TIS since the affected exhaust pipe was first installed on an airplane.

(ii) If the affected exhaust pipe has more than 1,300 hours TIS since first installed on an airplane as of February 22, 2017 (the effective date of this AD): Within the next 200 hours TIS after February 22, 2017 (the effective date of this AD) or within the next 12 months after February 22, 2017 (the effective date of this AD), whichever occurs first.

(g) Other FAA AD Provisions

The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, Standards Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Mike Kiesov, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4144; fax: (816) 329-4090; email: mike.kiesov@faa.gov. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

(2) Airworthy Product: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

(3) Reporting Requirements: For any reporting requirement in this AD, a federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW., Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

(h) Related Information

Refer to MCAI European Aviation Safety Agency (EASA) AD No. 2016-0156, dated August 2, 2016, for related information. You may examine the MCAI on the Internet at <https://www.regulations.gov/document?D=FAA-2016-9317-0002>.

(i) Material Incorporated by Reference

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

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) Diamond Aircraft Industries GmbH Mandatory Service Bulletin MSB 42-120, dated June 24, 2016.

(ii) Diamond Aircraft Industries GmbH Mandatory Service Bulletin MSB 42-120/1, dated November 10, 2016.

(iii) Diamond Aircraft Industries GmbH Work Instruction WI-MSB 42-120, dated June 24, 2016.

(3) For Diamond Aircraft Industries GmbH service information identified in this AD, contact Diamond Aircraft Industries GmbH, N.A. Otto-Straße 5, A-2700 Wiener Neustadt, Austria, telephone: +43 2622 26700; fax: +43 2622 26780; email: office@diamond-air.at; Internet: <http://www.diamondaircraft.com>.

(4) You may view this service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148. In addition, you can access this service information on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-9317.

(5) You may view this service information that is incorporated by reference 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>.

Issued in Kansas City, Missouri, on January 6, 2017.

Melvin Johnson,
Manager, Small Airplane Directorate,
Aircraft Certification Service.