[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-1138; Product Identifier 2017-NE-41-AD; Amendment 39-19381; AD 2018-18-02]

RIN 2120-AA64

Airworthiness Directives; Austro Engine GmbH Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain Austro Engine GmbH model E4 engines and for all model E4P engines. This AD was prompted by reports of considerable wear on the timing chain on these engines. This AD requires replacement of the timing chain and amending certain airplane flight manuals to limit the use of windmill restarts. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For Austro Engine GmbH service information identified in this final rule, contact Austro Engine GmbH, Rudolf-Diesel-Strasse 11, A-2700 Weiner Neustadt, Austria; phone +43 2622 23000; fax: +43 2622 23000-2711; Internet: www.austroengine.at. For Diamond Aircraft Industries service information in this final rule, contact Diamond Aircraft Industries, N. A., Otto-Straße 5, A-2700 Wiener Neustadt,

phone: +43 2622 26700, Fax: +43 2622 26780; Internet: www.diamondaircraft.com. You may view this service information at the FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA, 01803. For information on the availability of this material at the FAA, call 781-238-7759. It is also available on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2017-1138.

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-2017-1138; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information, the regulatory evaluation, any comments received, and other information. The address for Docket Operations (phone: 800-647-5527) is 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 FURTHER INFORMATION CONTACT: Barbara Caufield, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7146; fax: 781-238-7199; email: Barbara.Caufield@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 Austro Engine GmbH model E4 engines and all model E4P engines. The NPRM published in the Federal Register on June 1, 2018 (83 FR 25410). The NPRM was prompted by reports of considerable wear on the timing chain on these engines. The NPRM proposed to require replacement of the timing chain and amending certain airplane flight manuals to limit the use of windmill restarts. We are issuing this AD to address the unsafe condition on these products.

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2017-0103, dated June 14, 2017 (referred to after this as "the MCAI"), to address the unsafe condition on these products.

The MCAI states:

> Considerable wear of the timing chain has been detected on some engines. This may have been caused by windmilling restarts, which are known to cause high stress to the timing chain.
>
> This condition, if not detected and corrected, could lead to failure of the timing chain and consequent engine power loss, possibly resulting in reduced control of the aeroplane.
>
> To address this potential unsafe condition, Austro Engine included instructions in the engine maintenance manual to periodically inspect the condition of the timing chain and, depending on findings, to replace the timing chain and the chain wheel. The operation manual was updated to allow windmilling restart only as an emergency procedure.
>
> More recently, Austro Engines published Mandatory Service Bulletin (MSB) MSB-E4-017/2, providing instructions to replace the timing chain for engines with known windmilling restarts.
>
> For the reason described above, this [EASA] AD requires replacement of the timing chain for engines with known

windmilling restarts, and requires amendment of the applicable Aircraft Flight Manual (AFM).

You may obtain further information by examining the MCAI in the AD docket on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2017-1138.

Revision to Airplane Flight Manual

We revised this AD to allow affected Austro Engine GmbH model E4 engines installed on Diamond Aircraft Industries (DAI) model DA 42 NG and DA 42 M-NG airplanes and Austro Engine GbmH model E4P engines installed on DAI model DA 62 airplanes to comply with paragraph (g)(4) of this AD by adding, respectively, Airplane Flight Manual (AFM) Temporary Revision (TR) TR-MÄM-42-973, and AFM TR TR-MÄM-62-240, both dated August 12, 2016. These actions are equivalent to inserting the information in figure (1) to paragraph (g)(4) of this AD into the respective airplane flight manuals.

Comments

We gave the public the opportunity to participate in developing this final rule. 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 final rule as proposed.

Related Service Information under 1 CFR part 51

We reviewed Austro Engine MSB No. MSB–E4–017/2, Revision 2, dated December 2, 2016. The MSB describes procedures for replacement of the timing chain.

We reviewed AFM TR TR-MÄM-42-973, dated August 12, 2016, for DA 42 NG and DA 42 M-NG airplanes, and AFM TR TR- MÄM-62-240, dated August 12, 2016, for DA 62 airplanes. These Temporary Revisions define the removal of the normal

operation procedure for windmilling restart for the respective airplanes. 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.

Costs of Compliance

We estimate that this AD affects 211 engines installed on airplanes of U.S. registry. We estimate the following costs to comply with this AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Amend AFM	1 work hour X $85 per hour = $85	$0	$85	$17,935
Remove and replace timing chain	8 work hours X $85 per hour = $680	$775	$1,455	$307,005

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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to engines, propellers, and associated appliances to the Manager, Engine and Propeller Standards Branch, Policy and Innovation Division.

Regulatory Findings

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 that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Is not a "significant rule" under 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.

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.

SECTION 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

AD 2018-18-02; **Austro Engine GmbH Engines:** Amendment 39-19381; Docket No. FAA–2017–1138; Product Identifier 2017–NE–41–AD.

(a) Effective Date

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected Ads

None.

(c) Applicability

This AD applies to Austro Engine GmbH model E4 engines with serial numbers that have a ‘‘–B’’ or ‘‘–C’’ configuration and to model E4P engines, all serial numbers.

(d) Subject

Joint Aircraft System Component (JASC) Code 8520, Reciprocating Engine Power Section.

(e) Unsafe Condition

This AD was prompted by reports of considerable wear on the timing chain on these engines. We are issuing this AD to prevent failure of the engine timing chain. The unsafe condition, if not addressed, could result in failure of the engine timing chain, loss of engine thrust control, and reduced control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) Determine whether the engine is a Group 1 or Group 2 engine as follows.

(i) A Group 1 engine is an engine equipped with a timing chain that was installed on an engine that experienced a windmill restart, or an engine in which it cannot be determined if the engine experienced any windmilling restarts.

(ii) A Group 2 engine is an engine that is equipped with a timing chain that has not experienced any windmilling restarts.

(2) For Group 1 engines: Before the affected timing chain exceeds 945 engine flight hours (EFHs) since installation on an engine, or within 110 EFHs after the effective date of this AD, whichever occurs later, replace the timing chain in accordance with the instructions in Technical Details, paragraph 2, in Austro Engine Mandatory Service Bulletin (MSB) No. MSB–E4–017/2, Revision 2, dated December 2, 2016.

(3) For Group 1 and Group 2 engines: After the effective date of this AD, following each windmill restart of an engine, before the timing chain of that engine exceeds 945 EFHs since first installation on an engine, or within 110 EFHs after that windmilling restart, whichever occurs later, replace the timing chain in accordance with the instructions in Technical Details, paragraph 2, in Austro Engine MSB No. MSB–E4–017/2, Revision 2, dated December 2, 2016.

(4) For Group 1 and Group 2 engines: Within 30 days after the effective date of this AD, amend the applicable airplane flight manual under emergency procedures by adding the information in figure 1 to paragraph (g)(4) of this AD to limit the use of a windmilling restart to only an emergency procedure.

Figure 1 to Paragraph (g)(4) 0f this AD – *Restart In-Flight by Windmilling*

Restart In-Flight by Windmilling

In case of an engine malfunction determine the root cause and only continue in case a safe restart is possible.

1. Max. demonstrated altitude for immediate restart by windmilling: 15,000ft.
2. Max. demonstrated altitude for restart after 10 min. and ambient air temperature higher than ISA by windmilling: 10,000ft.
3. Max. demonstrated altitude for restart after 5 min. and ambient air temperature between ISA and ISA minute 10°C by windmilling: 10,000ft.
4. Max. demonstrated altitude for restart after 2 min. and ambient air temperature below ISA minute 10°C by windmilling: 10,000ft.
5. Airspeed: see applicable Aircraft Flight Manual.
6. Power Levers – "IDLE".
7. Engine Master – "ON".

Move power lever slightly forward to a power rating assuring that the referring engine is delivering thrust as a rotating propeller is not a guarantee for a running engine.

(5) For affected Austro Engine GmbH model E4 engines installed on Diamond Aircraft Industries (DAI) model DA 42 NG and DA 42 M-NG airplanes and for Austro Engine GbmH model E4P engines installed on DAI model DA 62 airplanes, using Airplane Flight Manual (AFM) Temporary Revision (TR) TR-MÄM-42-973, and AFM TR TR-MÄM-62-240, both dated August 12, 2016, respectively, to update the applicable AFM is an acceptable method to comply with paragraph (g)(4) of this AD.

(h) Alternative Methods of Compliance (AMOCs)

(1) The manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with

14 CFR 39.19, send your request to your principal inspector or local flight standards district office, as appropriate. If sending information directly to the manager of the ECO Branch, send it to the attention of the person identified in paragraph (i)(1) of this AD. You may email your request to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office or certificate holding district office.

(i) Related Information

(1) For more information about this AD, contact Barbara Caufield, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7146; fax: 781-238-7199; email: Barbara.Caufield@faa.gov.

(2) Refer to EASA AD 2017–0103, dated June 14, 2017, for more information. You may examine the EASA AD in the AD docket on the internet at http://www.regulations.gov by searching for and locating it in Docket No. FAA-2017-1138.

(j) 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 the AD specifies otherwise.

(i) Austro Engine Mandatory Service Bulletin No. MSB–E4–017/2, Revision 2, dated December 2, 2016.

(ii) Diamond Aircraft Airplane Flight Manual (AFM) Temporary Revision (TR) TR-MÄM-42-973, dated August 12, 2016.

(iii) Diamond Aircraft AFM TR TR-MÄM-62-240, dated August 12, 2016.

(3) For Austro Engine GmbH service information identified in this AD, contact Austro Engine GmbH, Rudolf-Diesel-Strasse 11, A-2700 Weiner Neustadt, Austria; phone +43 2622 23000; fax: +43 2622 23000-2711; Internet: www.austroengine.at. For Diamond Aircraft Industries service information in this AD, contact Diamond Aircraft Industries, N. A., Otto-Straße 5, A-2700 Wiener Neustadt, phone: +43 2622 26700, Fax: +43 2622 26780; Internet: www.diamondaircraft.com.

(4) You may view this service information at FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA, 01803. For information on the availability of this material at the FAA, call 781–238–7759.

(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 Burlington, Massachusetts, on October 19, 2018.

Karen M. Grant,
Acting Manager, Engine and Propeller Standards Branch,
Aircraft Certification Service.
[FR Doc. 2018-23186 Filed: 10/24/2018 8:45 am; Publication Date: 10/25/2018]