



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-4878; Directorate Identifier 2016-CE-001-AD; Amendment 39-18551; AD 2016-12-02]

RIN 2120-AA64

Airworthiness Directives; Various Aircraft Equipped with BRP-Powertrain GmbH & Co KG 912 A Series Engine

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

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for various aircraft equipped with a BRP-Powertrain GmbH & Co KG (formerly Rotax Aircraft Engines) 912 A series engine. 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 a design change of the engine cylinder head temperature sensor without a concurrent revision of the engine model designation, the engine part number, or the cockpit indication to the pilot. We are issuing this AD to require actions 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 a certain publication listed in the AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4878; 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 BRP-Powertrain GmbH & Co. KG, Welser Strasse 32, A-4623 Gunskirchen, Austria; phone: +43 7246 601 0; fax: +43 7246 601 9130; Internet: www.rotax-aircraft-engines.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-2016-4878.

FOR FURTHER INFORMATION CONTACT: Jim Rutherford, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4165; fax: (816) 329-4090; email: jim.rutherford@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 various aircraft equipped with a BRP-Powertrain GmbH & Co KG (formerly Rotax Aircraft Engines) 912 A series engine. The NPRM was published in the *Federal Register* on March 28, 2016 (81 FR 17109). 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 MCAI states:

A design change of the engine cylinder heads was introduced by BRP-Powertrain in March 2013 which modifies the engine/aircraft interfaces by substituting the previous cylinder head temperature (CHT) measurement (limit temperature 135°C/150°C) with a coolant temperature (CT) measurement (limit temperature 120°C). The design change was communicated on 15 May 2013 by BRP-Powertrain Service Instruction (SI) 912-020R7/914-022R7 (single document) but was not identified by a change of the engine model designation or of the engine P/N, but only through the cylinder head P/N and the position of the temperature sensor.

Consequently, engines with the new cylinder heads (installed during production or replaced in-service during maintenance) may be installed on an aircraft without concurrent modification of that aircraft, instructions for which should be provided by the Type Certificate (TC) holder or Supplemental Type Certificate (STC) holder, as applicable. In this case, the coolant temperature with a maximum engine operating limit of 120°C (valid for engines operated with water diluted glycol coolant) is displayed on a CHT indicator with a typical limit marking (red radial/range) of more than 120°C.

This condition, if not detected and corrected, will prevent the pilot to identify coolant limit exceedances, with subsequent loss of coolant (120°C is the boiling temperature of the coolant), which could lead to engine in-flight shut-down, possibly resulting in a forced landing, with consequent damage to the aircraft and injury to occupants.

BRP-Powertrain published revised SI-912-020R8/914-022R8 to clarify that, on the new cylinder heads, the coolant temperature, instead of the cylinder head temperature in the aluminum, is measured. EASA issued SIB 2014-34 to raise awareness that installation of affected engines and spare parts, without concurrent incorporation of aircraft TC/STC holder approved modifications, and even if unintended and unnoticed by production or maintenance, constitutes an unapproved aircraft modification.

Since EASA published the SIB, further investigation has finally determined that sufficient reason exists to warrant AD action.

For the reason stated above, this AD requires a one-time inspection to determine the actual engine configuration and, depending on findings, engine reidentification and (depending on TC or STC holder installation) modification of the affected aircraft. This also affects engines that are operated with waterless coolant.

The MCAI can be found in the AD docket on the Internet at

<https://www.regulations.gov/#!documentDetail;D=FAA-2016-4878-0002>.

Comments

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM (81 FR 17109, March 28, 2016) 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 the AD as proposed except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (81 FR 17109, March 28, 2016) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (81 FR 17109, March 28, 2016).

Related Service Information under 1 CFR part 51

We reviewed BRP-Powertrain GmbH & CO KG issued Rotax Aircraft Engines BRP Service Bulletin SB-912-068 and SB-914-049 (co-published as one document), dated April 16, 2015. The service information describes procedures for re-identifying the engine that has new cylinder heads, part numbers 413235 and 413236 installed. 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 the AD.

Costs of Compliance

We estimate that this AD will affect 65 products of U.S. registry.

We also estimate that it will take about 1 work-hour per product to comply with the engine re-identification requirement of this AD. The average labor rate is \$85 per work-hour.

Based on these figures, we estimate the cost of this portion of this AD on U.S. operators to be \$5,525, or \$85 per product.

We also estimate that it will take about 1 work-hour per product to comply with the engine installation modification to indicate a Maximum Coolant Temperature requirement of this AD. The average labor rate is \$85 per work-hour.

Based on these figures, we estimate the cost of this portion of this AD on U.S. operators to be \$5,525, or \$85 per product.

We also estimate that it will take about 1.5 work-hours per product to comply with the cylinder head replacement option of this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$2,500 to replace a single engine cylinder head.

Based on these figures, we estimate the cost of this portion of this AD on U.S. operators to be \$2,627.50 per engine cylinder head.

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.

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:

2016-12-02 **Various Aircraft:** Amendment 39-18551; Docket No. FAA-2016-4878; Directorate Identifier 2016-CE-001-AD.

(a) Effective Date

This airworthiness directive (AD) becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all serial numbers of the airplanes listed in table 1 of paragraph (c) of this AD, that are:

(1) equipped with a BRP-Powertrain GmbH & Co KG (formerly Rotax Aircraft Engines) 912 A series engine with a part number (P/N) 413235 or 413236 cylinder head installed in position 2 or 3; and

(2) certificated in any category.

Table 1 of Paragraph (c) – Affected Airplanes

Type Certificate Holder	Aircraft Model	Engine Model
Aeromot-Indústria Mecânico-Metalúrgica Ltda	AMT-200	912 A2
Diamond Aircraft Industries	HK 36 R “SUPER DIMONA”	912 A
DIAMOND AIRCRAFT INDUSTRIES GmbH	HK 36 TS and HK 36 TC	912 A3
Diamond Aircraft Industries Inc.	DA20-A1	912 A3
HOAC-Austria	DV 20 KATANA	912 A3
Iniziativa Industriali Italiane S.p.A.	Sky Arrow 650 TC	912 A2
SCHEIBE-Flugzeugbau GmbH	SF 25C	912 A2, 912 A3

(d) Subject

Air Transport Association of America (ATA) Code 72: Engine – Reciprocating.

(e) Reason

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. This AD was prompted by design change of the engine cylinder head temperature sensor without a concurrent revision of the engine model designation, the engine part number, or the cockpit indication to the pilot. The sensor

now measures the coolant temperature rather than the cylinder head temperature. If the engine coolant temperature with a maximum engine operating limit of 120°C is displayed on a Cylinder Head Temperature indicator with a typical limit marking greater than 120°C, the pilot will be unable to identify coolant temperature limit exceedances. This could result in loss of coolant, which could cause an inflight engine shutdown and forced landing.

(f) Actions and Compliance

Unless already done, do the following actions:

(1) Within 6 months after [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), for engines with cylinder heads listed in paragraph (c)(1) of this AD installed on both position 2 and position 3, change the engine model designation on the engine type data plate to include a “-01” suffix following paragraph 3.1.1) of the Accomplishment/Instructions in Rotax Aircraft Engines BRP Service Bulletin SB-912-068 and SB-914-049 (co-published as one document), dated April 16, 2015.

(2) Within 6 months after [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), for engines with only one cylinder head listed paragraph (c)(1) of this AD installed in a position 2 or 3, in order to keep such cylinder installed, you must replace the cylinder head installed on the unchanged position (2 or 3, as applicable) with a cylinder head having a P/N listed in paragraph (c)(1) of this AD, and change the engine model designation on the engine type data plate to include a “-01” suffix following paragraph 3.1.1) of the Accomplishment/Instructions in Rotax Aircraft Engines BRP Service Bulletin SB-912-068 and SB-914-049 (co-published as one document), dated April 16, 2015.

(3) Before further flight after doing the required actions in paragraphs (f)(1) or (f)(2) of this AD as applicable, modify the aircraft and related documentation to indicate a Maximum Coolant Temperature limit of 120°C using FAA-approved procedures.

(i) Such procedures can be found by contacting your aircraft type certificate holder or the FAA contact specified in paragraph (g)(1) of this AD. The service documents referenced in paragraph (h) of this AD are examples of FAA-approved procedures for the applicable aircraft.

(ii) These re-identified engines remain eligible for installation on approved aircraft-engine combinations.

(4) As of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), do not install any other P/N cylinder head unless that installation is done following approved instructions provided by BRP-Powertrain at the address provided in paragraph (i)(3) of this AD.

(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: Jim Rutherford, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4165; fax: (816) 329-4090; email: jim.rutherford@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.

(h) Related Information

Refer to MCAI European Aviation Safety Agency (EASA) AD No.: 2015-0240, dated December 18, 2015; Rotax Aircraft Engines BRP Service Bulletin SB-912-066 R1/SB-914-047 R1 (published as one document), Revision 1, dated April 23, 2015; Diamond Aircraft Industries GmbH Optional Service Bulletin OSB 36-111, dated September 17, 2015; Diamond Aircraft Industries GmbH Work Instruction WI-OSB 36-111, dated September 17, 2015; Diamond Aircraft Service Bulletin No.: DA20-72-04, dated January 22, 2015; Diamond Aircraft Industries GmbH Optional Service Bulletin OSB 20-066, dated September 17, 2015; Diamond Aircraft Industries GmbH Work Instruction WI-OSB 20-066, dated September 17, 2015; and Scheibe Aircraft GmbH Service Information 02 / 14-1, dated December 15, 2014, for related information. You may examine the MCAI on the Internet at <https://www.regulations.gov/#!documentDetail;D=FAA-2016-4878-0002>. For information on the availability of the service documents above, contact the FAA, Small Airplane Directorate, at 816-329-4148.

(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 the AD specifies otherwise.

(i) Rotax Aircraft Engines BRP Service Bulletin SB-912-068 and SB-914-049 (co-published as one document), dated April 16, 2015.

(ii) Reserved.

(3) For BRP-Powertrain GmbH & CO KG service information identified in this AD, contact BRP-Powertrain GmbH & Co. KG, Welser Strasse 32, A-4623 Gunskirchen, Austria; phone: +43 7246 601 0; fax: +43 7246 601 9130; Internet: www.rotax-aircraft-engines.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-2016-4878.

(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 June 1, 2016.

Pat Mullen,
Acting Manager, Small Airplane Directorate,
Aircraft Certification Service.

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