

Airworthiness Directive

AD No.: 2022-0240R1

Issued: 15 December 2022

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

This AD is issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I Part M.A.301, or Annex Vb Part ML.A.301, as applicable, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [Regulation (EU) 1321/2014 Annex I Part M.A.303, or Annex Vb Part ML.A.303, as applicable] or agreed with the Authority of the State of Registry [Regulation (EU) 2018/1139, Article 71 exemption].

Design Approval Holder's Name:

AUSTRO ENGINE GmbH

Type/Model designation(s):

E4 and E4P engines

Effective Date: 20 December 2022 (same as original issue)

TCDS Number(s): EASA.E.200

Foreign AD: Not applicable

Revision: This AD revises EASA AD 2022-0240 dated 06 December 2022.

ATA 72 – Engine – Pistons – Oil Analysis / Replacement

Manufacturer(s):

Austro Engine GmbH

Applicability:

Model E4 and E4P engines, all serial numbers (s/n) listed in Table 1, 2, 3 and 4 of the MSB.

These engines are known to be installed on, but not limited to, Diamond Aircraft Industries DA 40 NG, DA 42 NG, DA 42 M-NG and DA 62 aeroplanes.

Definitions:

For the purpose of this AD, the following definitions apply:

The MSB: Austro Engine Mandatory Service Bulletin (MSB) MSB-E4-039.

Groups:

Group 1 are engines having a s/n listed in Table 1 of the MSB.

Group 2 are engines having a s/n listed in Table 2 of the MSB.

Group 3 are engines having a s/n listed in Table 3 of the MSB.

Group 4 are engines having a s/n listed in Table 4 of the MSB.

Group 1 and Group 3 are model E4 engines in configuration “-A”, installed on single engine aeroplanes. Group 2 and 4 are model E4 engines in configuration “-B” or “-C” and model E4P engines, installed on twin-engine aeroplanes.

Reason:

Occurrences were reported of piston failures. Subsequent investigation determined that certain batches of pistons were manufactured with a dimensional deviation in the piston pin bore and in the piston diameter.

This condition, if not detected and corrected, could lead to piston failure, with consequent oil loss and engine power loss, possibly resulting in reduced control of the aeroplane.

To address this potential unsafe condition, Austro Engine published the MSB, as defined in this AD, to provide instructions for oil analysis and part replacement. Consequently, EASA issued AD 2022-0240 to require repetitive oil analyses and replacement of certain engine parts or, as an alternative, replacement of the engine core. That AD also prohibited release to service of an aeroplane until receipt of the results for each oil analysis.

Since that AD was issued, it was determined that aluminium levels outside the limits would be found during the first oil analysis, and are unlikely to be found during subsequent oil analyses.

For the reason described above, this AD is revised to allow, for the second and subsequent oil analyses, release to service of the aeroplane for a limited number of flight hours immediately after the sample is taken. For the first oil analysis, the result must still be awaited before aeroplane release to service. This AD also provides more precise information on part replacement.

Required Action(s) and Compliance Time(s):

Required as indicated, unless accomplished previously:

Oil Analyses:

- (1) Within the compliance time and, thereafter, at intervals as specified in Table 1 of this AD, as applicable, accomplish an oil analysis in accordance with the instructions of the MSB (see Note 1 of this AD).

Table 1 – Oil Analysis

Engine Group	Compliance Time (after the effective date of this AD)	Interval
Groups 1 and 3	Within 15 flight hours (FH)	50 FH
Groups 2 and 4	Within 25 FH	100 FH

Note 1: Following the first oil analysis as required by paragraph (1) of this AD, the aeroplane may be released to service only after receipt of the oil analysis result, provided that the aluminium content is within the limit specified in the MSB. Following each subsequent oil analysis as required by paragraph (1) of this AD, the aeroplane may be released to service for 50 FH (Groups 1 and 3) or 100 FH (Groups 2 and 4) until receipt of the oil analysis result.



Corrective Action(s):

- (2) If, during any oil analysis as required by paragraph (1) of this AD, the aluminium content is outside the limit as specified in the MSB, before next flight after receipt of the oil analysis result (see Note 1 of this AD), replace the pistons, the piston rings, the con-rods assembly and the crankcase, or replace the engine core, in accordance with the instructions of the MSB.

Credit:

- (3) An oil analysis, accomplished on a Group 1 or Group 3 engine during the last 50 FH before the effective date of this AD, or on a Group 2 or Group 4 engine during the last 100 FH before the effective date of this AD, is acceptable to comply with the initial oil analysis as required by paragraph (1) of this AD for that engine, provided the aluminium content was within the limit as specified in the MSB, or corrective action(s) have been accomplished as required by paragraph (2) of this AD.

Replacement:

- (4) For Group 3 and Group 4 engines: Within the compliance time as specified in Table 2 of this AD, as applicable, replace the pistons, the piston rings and the con-rods assembly, or replace the engine core, in accordance with the instructions of the MSB.

Table 2 – Replacement (see Note 2 of this AD)

Engine Group	Compliance Time (whichever occurs later)
Group 3	Before exceeding 900 FH, or within 15 FH after the effective date of this AD
Group 4	Before exceeding 1 000 FH, or within 25 FH after the effective date of this AD

Note 2: Unless specified otherwise, the FH in Table 2 of this AD are those accumulated by the engine since first installation on an aeroplane, or since last overhaul.

Terminating Action:

- (5) Replacement of parts on an engine as required by paragraph (2) or (4) of this AD, or as specified in paragraph (3) of this AD, as applicable, constitutes terminating action for the requirements of paragraph (1) of this AD for that engine.
- (6) For Group 1 and Group 2 engines: Accomplishment on an engine of the next scheduled overhaul constitutes terminating action for the requirements of paragraph (1) of this AD for that engine.

Ref. Publications:

Austro Engine MSB-E4-039 original issue dated 24 October 2022.

The use of later approved revisions of the above-mentioned document is acceptable for compliance with the requirements of this AD.



Remarks:

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this AD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.
5. For any question concerning the technical content of the requirements in this AD, please contact: Austro Engine GmbH, Rudolf-Diesel-Str. 11, 2700 Wiener Neustadt, Austria, Telephone +43-2622-23000-2525, E-mail support@austroengine.at.

