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## **SERVICE INFORMATION LETTER NO. SI62-029**

NOTE: Service information letters (SILs) are used only:

1. To distribute information from Diamond Aircraft Industries Inc. to our customers.
2. To distribute applicable information/documents from our suppliers to our customers with additional information.

NOTE: Typically there is no revision service for SILs. Each new information or change will be sent along with a new SIL.

### **1. TECHNICAL DETAILS**

#### **1.1 Aircraft Affected**

DA 62 aircraft with engines having the serial numbers indicated in Austro Engine MSB-E4-031.

#### **1.2 Subject**

EASA AD 2021-0143-E and Austro Engine Mandatory Service Bulletin MSB-E4-031 - Oil Pump Replacement.

ATA-Code: 72-00

#### **1.3 Reason**

**WARNING: IT IS IMPERATIVE THAT OPERATORS COMPLY WITH MSB-E4-031. FAILURE TO COMPLY MAY LEAD TO ENGINE FAILURE.**

**WARNING: IF AN ENGINE HAS BEEN REWORKED UNDER MSB-E4-030, MAY STILL REQUIRE REWORK IN ACCORDANCE WITH MSB-E4-031. REFER TO MSB-E4-031 FOR APPLICABILITY.**

Austro Engine GmbH has issued Mandatory Service Bulletin No. MSB-E4-031 mandating the replacement of the oil pump. MSB-E4-031 has been made mandatory with EASA Emergency Airworthiness Directive 2021-0143-E.

#### **1.4 Information**

For detailed technical information, refer to EASA AD 2021-0143-E and Austro Engine MSB-E4-031, which are applicable without any further additions or restrictions.

EASA AD 2021-0143-E and Austro Engine MSB-E4-031 are attached to this SIL. In case of doubt, contact Austro Engine GmbH.

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**2. OTHER DETAILS**

To obtain satisfactory results, procedures specified in this service information letter must be accomplished in accordance with accepted methods and current government regulations. Diamond Aircraft Industries Inc. cannot be responsible for the quality of work performed in accomplishing the requirements of this service information letter. Diamond Aircraft reserves the right to void continued warranty coverage in the area affected by this service information letter if it is not incorporated. If you no longer own the aircraft to which this service information letter applies, please forward it to the current owner and send the name of the current owner to Diamond Aircraft Industries Inc. at the address below.

Diamond Aircraft Industries Inc.  
1560 Crumlin Sideroad, London, Ontario, Canada  
N5V 1S2

Customer Support  
Phone: (519) 457-4041, Fax: (519) 457-4045  
Email: [support-canada@diamondaircraft.com](mailto:support-canada@diamondaircraft.com)

Technical Publications  
Email: [Techpubs@diamondaircraft.com](mailto:Techpubs@diamondaircraft.com)



## Emergency Airworthiness Directive

**AD No.:** 2021-0143-E

**Issued:** 16 June 2021

Note: This Emergency 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, 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 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:** 18 June 2021

**TCDS Number(s):** EASA.E.200

**Foreign AD:** Not applicable

**Supersedure:** None

## ATA 72 – Engine – Oil Pump – Replacement

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### Manufacturer(s):

Austro Engine GmbH

### Applicability:

Model E4 and E4P engines, all serial numbers (s/n).

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 SB:** Austro Engine Service Bulletin (SB) MSB-E4-031.

**Affected part:** Oil pumps having Part Number E4A-50-000-BHY and having a s/n as listed in Table 2 and Table 3 of the SB, as defined in this AD.

**Serviceable part:** Any oil pump, eligible for installation, which is not an affected part.

**Groups:** Group 1 are Model E4 engines in configuration “-A”, installed on single engine aeroplanes, which have an affected part installed.



Group 2 are Model E4 engines in configuration “-B” or “-C” and Model E4P engines, installed on twin-engine aeroplanes, which have an affected part installed.

Group 3 engines are those that do not have an affected part installed (any Model/configuration)

**Reason:**

An occurrence was reported of oil pressure loss on an E4 engine. Subsequent investigation determined that a certain batch of oil pumps was produced with a dimensional deviation on the inner gear/shaft. The inner gear/shaft of those pumps may come into contact with the pump housing, which might create debris and cause jamming of the oil pump.

This condition, if not corrected, could lead to engine in-flight shut-down with consequent forced landing, possibly resulting in damage to the aeroplane and injury to occupants.

To address this potential unsafe condition, Austro Engine published the SB to provide instructions to replace the affected oil pumps.

For the reason described above, this AD requires replacement of affected parts with serviceable parts, as defined in this AD. This AD also prohibits (re)installation of affected parts on all engines.

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

Required as indicated, unless accomplished previously:

**Replacement:**

- (1) For Group 1 and Group 2 engines: Before next flight after the effective date of this AD, replace each affected part with a serviceable part in accordance with the instructions of the SB.

**Ferry Flight:**

- (2) For a twin-engine aeroplane that has one or two Group 2 engine(s) installed, a single ferry flight is allowed to position that aeroplane to a location where the actions required by this AD can be accomplished on the affected engine(s).

**Part(s) Installation:**

- (3) For Group 1, 2 and 3 engines: From the effective date of this AD, do not install an affected part on any engine.

**Ref. Publications:**

Austro Engine SB MSB-E4-031 original issue dated 14 June 2021.

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. The results of the safety assessment have indicated the need for immediate publication and notification, without the full consultation process.



3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto: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 [service@austroengine.at](mailto:service@austroengine.at).



# MANDATORY SERVICE BULLETIN

## No. MSB-E4-031/0

### 1. BASIC INFORMATION

#### 1.1. SUBJECT

Oil pump replacement

#### 1.2. ENGINES AFFECTED

Engine affected: E4 Series

Serial numbers affected:

E4-A-00075	E4-A-06073	E4-A-00215	E4-A-00192	E4-A-06081	E4-A-06084
E4-A-06057	E4-A-06074	E4-A-06076	E4-A-06083	E4-A-00239	E4-A-00428
E4-A-00485	E4-A-00279	E4-A-06079	E4-A-06082	E4-A-00603	E4-A-06086
E4-A-00350	E4-A-06077	E4-A-06078	E4-A-06094	E4-A-00115	E4-A-06097
E4-A-06070	E4-A-00441	E4-A-06067	E4-A-00214	E4-A-00142	E4-A-06088
E4-A-06069	E4-A-00244	E4-A-06080	E4-A-06092	E4-A-06085	E4-A-06089
E4-A-06071	E4-A-06075	E4-A-06068	E4-A-06093	E4-A-06095	
E4-A-06072	E4-A-00270	E4-A-00492	E4-A-00514	E4-A-06066	
E4-B-00143	E4-B-00382	E4-B-06001	E4-B-06002		
E4-C-06051	E4-C-06039	E4-C-06063	E4-C-06054	E4-C-06068	E4-C-06070
E4-C-06052	E4-C-06061	E4-C-06055	E4-C-06066	E4-C-06048	E4-C-06071
E4-C-00138	E4-C-06041	E4-C-06043	E4-C-06067	E4-C-06069	E4-C-06058
E4-C-06040	E4-C-00042	E4-C-00604	E4-C-00243	E4-C-06056	E4-C-06072
E4-C-06060	E4-C-06062	E4-C-06064	E4-C-06065	E4-C-06057	E4-C-00344
E4P-C-06036	E4P-C-06039	E4P-C-06038	E4P-C-06044	E4P-C-06047	E4P-C-06049
E4P-C-06053	E4P-C-06037	E4P-C-06042	E4P-C-06046	E4P-C-06050	
E4P-C-06035	E4P-C-06040	E4P-C-06041	E4P-C-06045	E4P-C-06051	

**Table 1 - Affected engine S/Ns**

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Part affected: **E4A-50-000-BHY**, Oil Pump

Affected oil pump serial numbers installed on new or overhauled engines having S/N listed in Table 1:

00001	00014	00049	00072	00089	00103	00113	00128	00139	00155
00004	00019	00050	00074	00090	00104	00115	00129	00140	00157
00005	00028	00055	00077	00091	00105	00116	00130	00141	00158
00006	00038	00059	00078	00092	00106	00117	00131	00143	00160
00007	00039	00060	00081	00093	00107	00119	00132	00145	00162
00008	00041	00061	00082	00094	00108	00120	00134	00146	00163
00009	00045	00064	00084	00095	00109	00123	00135	00147	
00011	00046	00065	00086	00096	00110	00124	00136	00148	
00012	00047	00069	00087	00097	00111	00125	00137	00149	
00013	00048	00071	00088	00098	00112	00127	00138	00150	

**Table 2 - Affected oil pump S/Ns installed on new or overhauled engines**

Affected oil pump serial numbers that are provided in the field as spare part for the accomplishment instructions of the **MSB-E4-030**:


00010	00026	00043	00063	00083
00015	00027	00044	00066	00085
00016	00029	00051	00067	00101
00018	00030	00052	00068	00102
00020	00031	00053	00070	00114
00021	00033	00054	00073	00118
00022	00034	00056	00075	00121
00023	00036	00057	00076	00133
00024	00037	00058	00079	00165
00025	00042	00062	00080	00166

**Table 3 - Affected oil pump S/Ns provided as spare parts**

**NOTE:**

In case the **MSB-E4-030** is also applicable to the engine and:

<b><u>Has been conducted</u></b>	<b><u>Has not been conducted</u></b>
<p>Check the maintenance documentation for the serial number of the re-installed oil pump. If the serial number of the re-installed oil pump is listed in Table 3, then a mandatory replacement of the oil pump in accordance with <b>MSB-E4-031 is required.</b></p>	<p>Check the spare part number and serial number, against the criteria of Section 1.2 of this Service Bulletin. Do not install any spare part having the serial number listed in Table 3, then contact Austro Engine to obtain a serviceable part. Engines that comply with MSB-E4-030 and have a serviceable part installed, <b>do not need to comply with the instruction of the MSB-E4-031.</b></p>

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### 1.3. REASON

Deviation of the oil pump inner gear leading to premature wear was discovered, resulting into oil system contamination with possible jamming of the oil pump.

### 1.4. TIME OF COMPLIANCE

For E4A engines:                 - Before the next flight

For E4B/C/P engines:         - Before the next flight (ferry fly to a maintenance service allowed)

### 1.5. CONCURRENT DOCUMENTS / REFERENCES

Maintenance Manual E4.08.04, latest revision

### 1.6. OTHER PUBLICATIONS AFFECTED

None



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## 2. TECHNICAL DETAILS

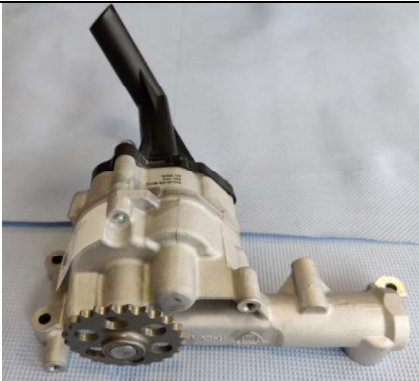
### 2.1. DELIVERY CONDITION

#### Delivery of the new oil pump E4A-50-000-AHY

	Delivered oil pump
	Remove the following parts of the new oil pump: - Cover of the chain gear - Original oil suction pipe (including screws and oil strainer)  <u>Note:</u> Discard the removed parts. The screws can be used as alternative (see step 4, figure 12).

#### Or as alternative:

#### Delivery of the new oil pump p/n E4A-50-000-BHY

	Delivered oil pump
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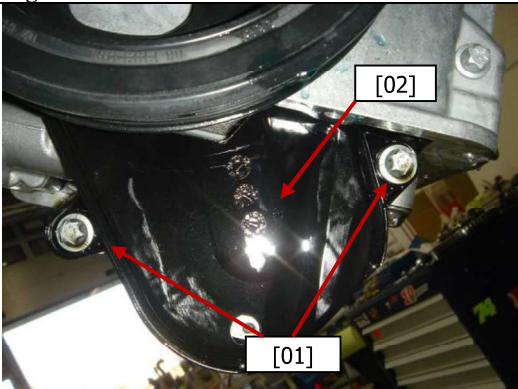
## 2.2. ACCOMPLISHMENT / INSTRUCTIONS

### 2.2.1 Accomplishment Instruction for pump E4A-50-000-AHY

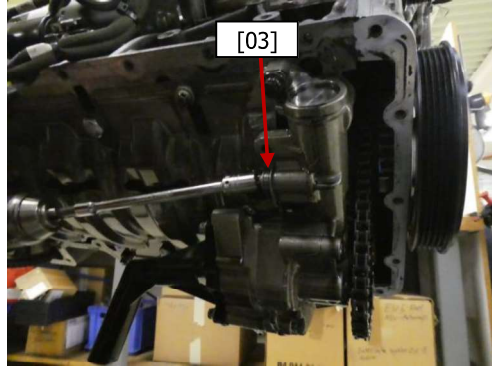


Make sure that the working area is clean.  
Use clean gloves.  
Make sure that no sand or dirt goes into the engine.

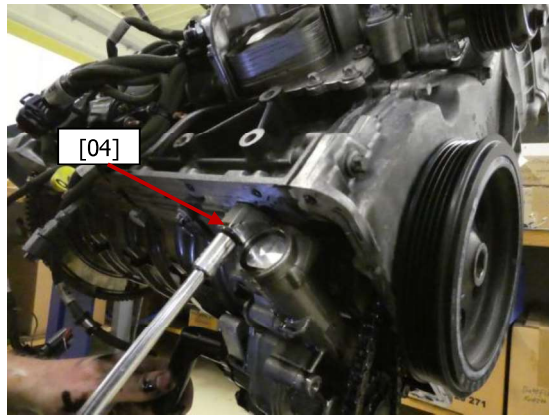
1. Replace the engine oil filter according to Maintenance Manual, Ch. 79. Visually examine the used Oil Filter for contamination and metal abrasion. If an abnormal condition is found (metal shavings exceeding 1.5 mm; concentration of particles; clogged filter), please contact Austro Engine for further instructions.
2. Remove the oil sump according to Maintenance Manual Ch.79, steps as required.
3. Remove the oil pump according to following steps:

 <p><b>Fig. 3</b></p>	<p>After removal of the oil sump</p>
 <p><b>Fig. 4</b></p>	<p>Loosen two screws [01] that attach the chain cover [02] to the oil pump and remove the chain cover.</p>

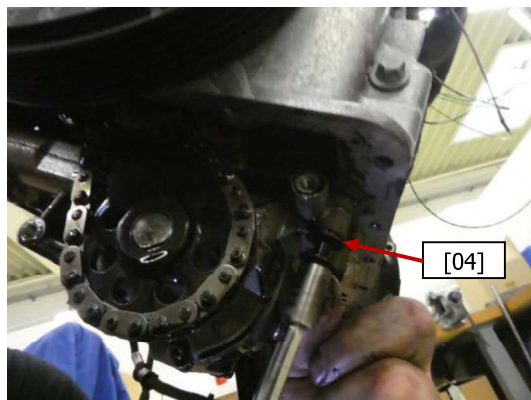
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**Fig. 5**

Remove the screw [03] that attaches the oil pump to the oil repellent.


**Fig. 6**

Remove three screws [04] that attach the oil pump to the crankcase.

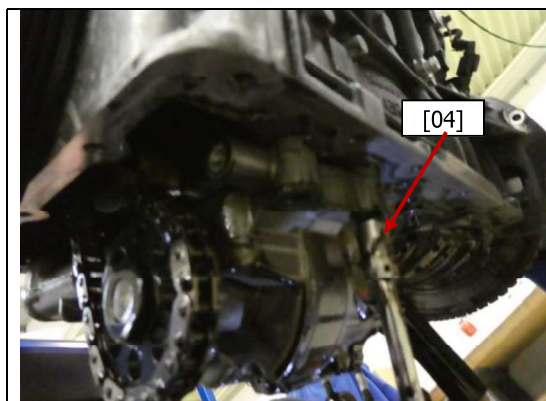

**Fig. 7**

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Austro Engine GmbH  
Rudolf-Diesel-Strasse 11  
A-2700 Wiener Neustadt  
Tel: +43 2622 23000  
FAX: +43 2622 23000-2711



**Fig. 8**

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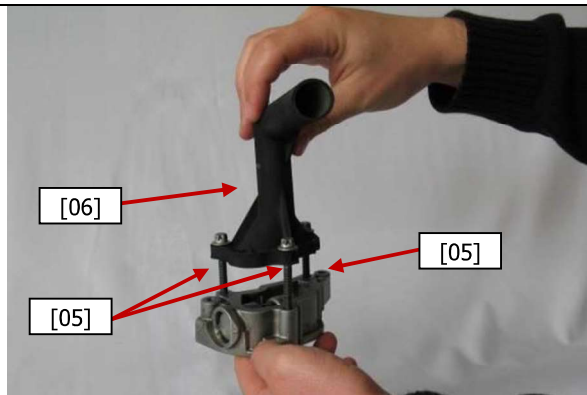

**Fig. 9**

**Fig. 10**

Loosen the oil pump chain gear from the oil pump chain.  
 Remove the oil pump.

Examine the oil pump for blockage.  
 Make sure that the pump gears move freely when turned by hand.

Removed oil pump (E4A-50-000-BHY)


**Fig. 11**

Loosen three screws [05] of the oil pump and remove the oil suction pipe with the integrated oil strainer [06] (E4A-50-100-BHY) from the old oil pump.

Note: The oil suction pipe with oil strainer and the screws [05] must be reused for the new oil pump installation.


After removal of the oil suction pipe, examine the oil pump gears for damage.



**In case of a blocked, and/or partially blocked, and/or damaged oil pump, please contact Austro Engine for further instructions.**

**NOTE:** Removed oil pump must be always returned to Austro Engine, including the engine flight hours recorded at the time of replacement.

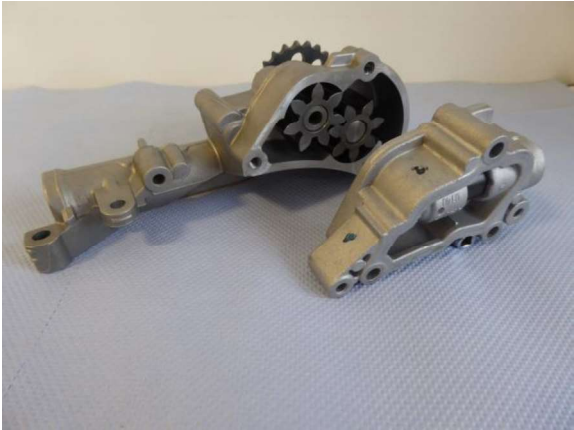

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**Re-used Parts:**

- Oil suction pipe with oil strainer (E4A-50-100-BHY)
- All screws
- Chain cover (E4A-50-200-000)

4. Clean the parts before re-installation. The parts must be free of adhesive or sealing residues.
5. Install the Oil Pump according to following steps:

	<p>New oil pump</p>
 <p><b>Fig. 12</b></p>	<p>Fit the oil suction pipe [06] (E4A-50-100-BHY / re-used from the old oil pump) in place on the valve housing (E4A-50-520-000) and then insert the three hexagon screws [05] (ISO_4014-M6xM60-10.9 with washers ISO_7089-6 / alternative MBN 10 143-M6x63-10.9) through the holes.</p>

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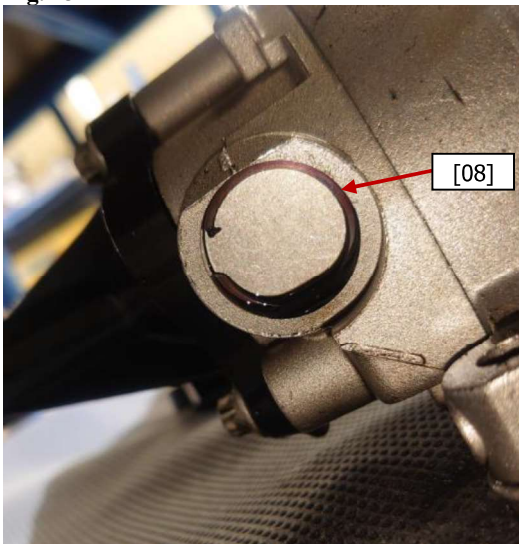


Apply Loctite 278 or Loctite 2701.  
 Tighten the oil pump housing with 12 Nm.



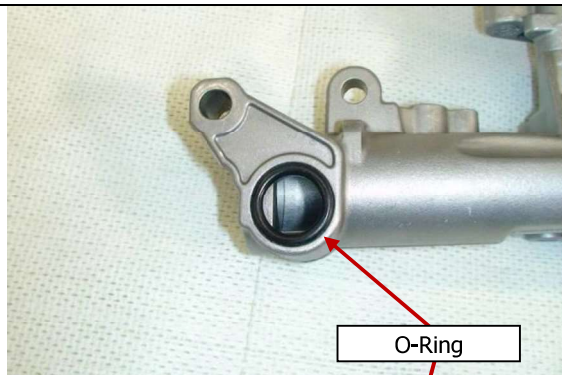
Make sure that the circlips [07] (E4A-50-300-801) [08] (E4A-50-400-801) used to secure both plugs on the oil pump is in the correct position.

**Fig. 13**



**Fig. 14**

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**Fig. 15**

**Fig. 16**

Discard the O-Ring (OR\_16x3-ACM 70) between the oil pump and the crankshaft housing.

Install a new O-Ring.  
 Make sure it is correctly fitted.

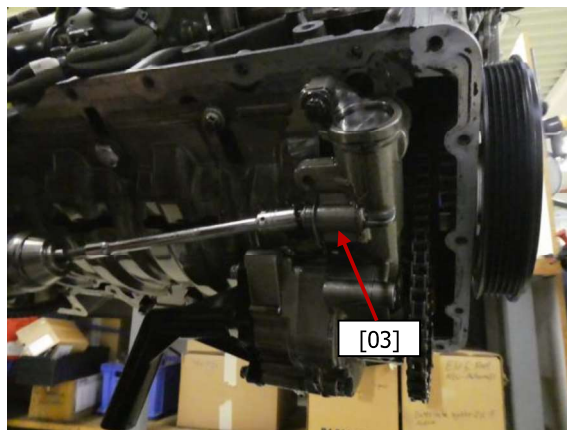

**Fig. 17**

Install the oil pump chain.  
 Apply some approved engine oil (refer to the MM) on the chain before installation.

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**Fig. 18**


**Fig. 19**

**Fig. 20**

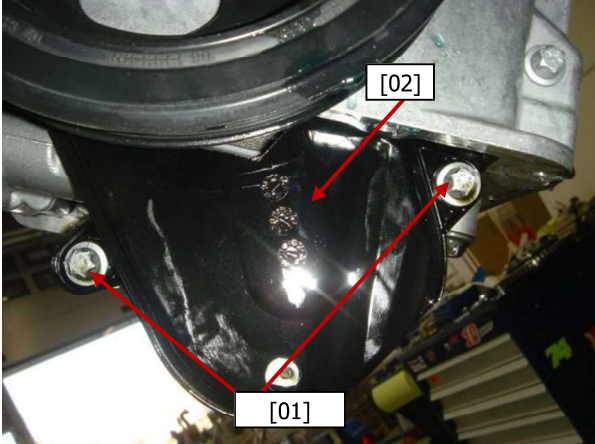
Install the oil pump with O-Ring and three screws [04] (M7x27 – 8.8 – DBL 9400.40) on the crankcase.

Apply Loctite 2701 or 278 on the thread and tighten with a torque of 14 Nm.

Install the screw [03] that attaches the oil pump to the oil repellent. Apply with Loctite 243 and torque it with 12 Nm.

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 <p><b>Fig. 21</b></p>	<p>Install the oil pump chain cover</p> <p>Put the chain cover [02] in place on the oil pump and tighten the screws [01] (ISO8102-M6x20-10.9) (x2) with 12 Nm.</p>
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6. Install the Oil Sump according to the Maintenance Manual, Ch.79.
7. Replace the engine oil according to Maintenance Manual, Ch. 79.
8. Clean the working area.
9. Perform an Engine Ground Run. Refer to the Maintenance Manual, Ch.71.
10. Fill the completion form, §6 "Appendix" of the Service Bulletin


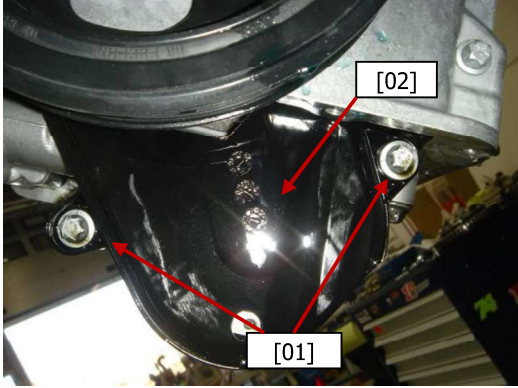
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## 2.2.2 Accomplishment Instruction for p/n E4A-50-000-BHY

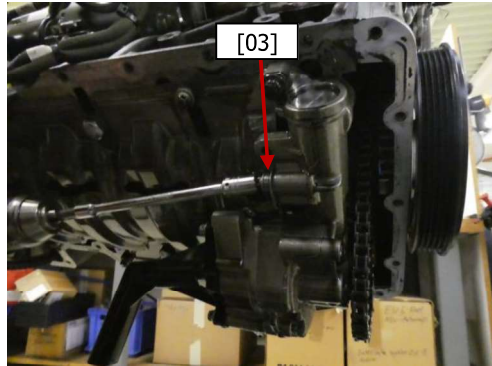


Make sure that the working area is clean.  
Use clean gloves.  
Make sure that no sand or dirt goes into the engine.

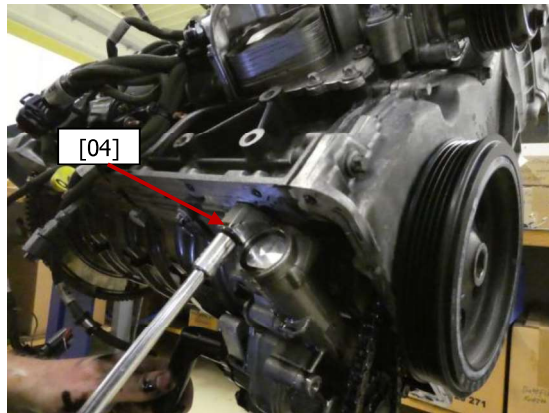
1. Replace the engine oil filter according to Maintenance Manual, Ch. 79. Visually examine the used Oil Filter for contamination and metal abrasion. If an abnormal condition is found (metal shavings exceeding 1.5 mm; concentration of particles; clogged filter), please contact Austro Engine for further instructions.
2. Remove the oil sump according to Maintenance Manual Ch.79, steps as required.
3. Remove the oil pump according to following steps:

 <p><b>Fig. 3B</b></p>	<p>After removal of the oil sump</p>
 <p><b>Fig. 4B</b></p>	<p>Loosen two screws [01] that attach the chain cover [02] to the oil pump and remove the chain cover.</p>

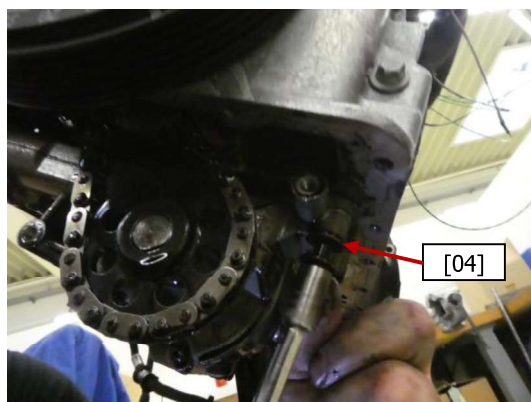
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**Fig. 5B**

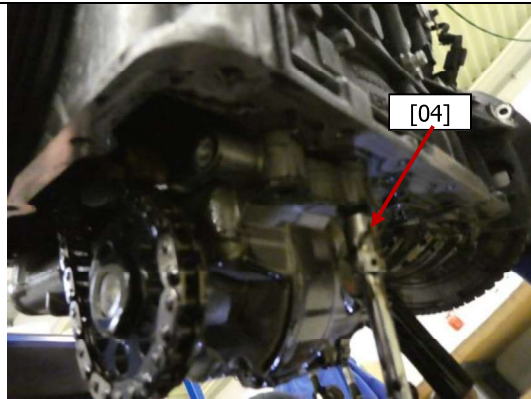
Remove the screw [03] that attaches the oil pump to the oil repellent.


**Fig. 6B**

Remove three screws [04] that attach the oil pump to the crankcase.


**Fig. 7B**

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**Fig. 8B**

**Fig. 9B**

**Fig. 10B**

Loosen the oil pump chain gear from the oil pump chain.  
 Remove the oil pump.

Examine the oil pump for blockage.  
 Make sure that the pump gears move freely when turned by hand.

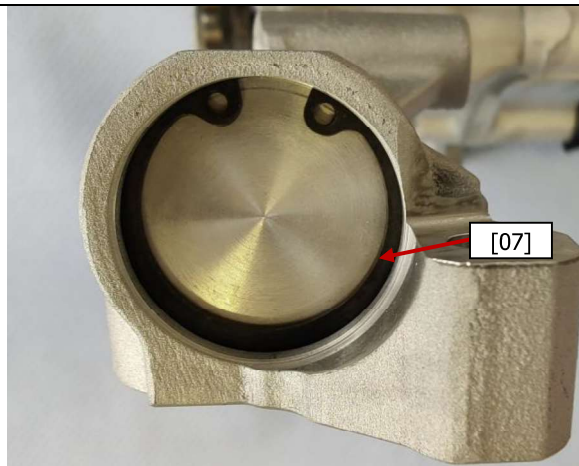
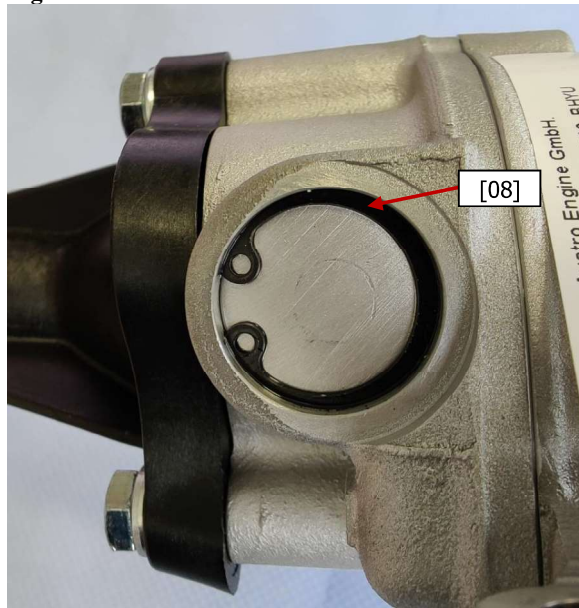
Removed oil pump (E4A-50-000-BHY)



**In case of a blocked, and/or partially blocked, and/or damaged oil pump, please contact Austro Engine for further instructions.**

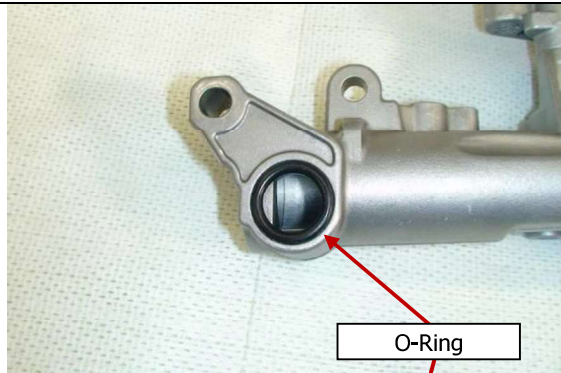
**NOTE: Removed oil pump must be always returned to Austro Engine, including the engine flight hours recorded at the time of replacement.**

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**Fig. 11B**

**Fig. 12B**

Make sure that the circlips [07] (E4A-50-300-801) [08] (E4A-50-400-801) used to secure both plugs on the oil pump is in the correct position.

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**Fig. 13B**

**Fig. 14B**

Discard the O-Ring (OR\_16x3-ACM 70) between the oil pump and the crankshaft housing.

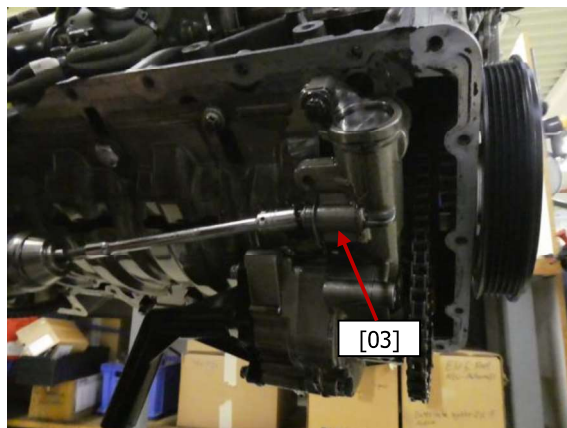
Install a new O-Ring.  
 Make sure it is correctly fitted.


**Fig. 15B**

Install the oil pump chain.  
 Apply some approved engine oil (refer to the MM) on the chain before installation.

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**Fig. 16B**

**Fig. 17B**

**Fig. 18B**

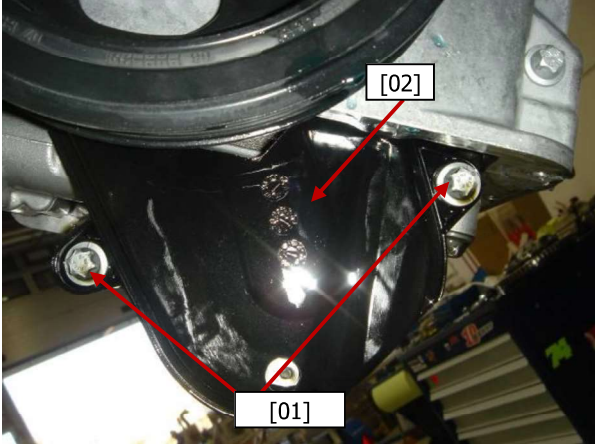
Install the oil pump with O-Ring and three screws [04] (M7x27 – 8.8 – DBL 9400.40) on the crankcase.

Apply Loctite 2701 or 278 on the thread and tighten with a torque of 14 Nm.

Install the screw [03] that attaches the oil pump to the oil repellent. Apply with Loctite 243 and torque it with 12 Nm.

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 <p><b>Fig. 19B</b></p>	<p>Install the oil pump chain cover</p> <p>Put the chain cover [02] in place on the oil pump and tighten the screws [01] (ISO8102-M6x20-10.9) (x2) with 12 Nm.</p>
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1. Install the Oil Sump according to the Maintenance Manual, Ch.79.
2. Replace the engine oil according to Maintenance Manual, Ch. 79.
3. Clean the working area.
4. Perform an Engine Ground Run. Refer to the Maintenance Manual, Ch.71.
5. Fill the completion form, §6 "Appendix" of the Service Bulletin

### 2.3. ILLUSTRATIONS

None.


### 2.4. MASS (WEIGHT)

Not affected.

### 2.5. APPROVAL STATEMENT

The technical content of this document has been approved under the authority of DOA No. EASA.21J.399.

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### 3. PLANNING INFORMATION

#### 3.1. MATERIAL & AVAILABILITY

Quantity	Part Description p/n	Part Number
1	oil pump	SB Kit
1	oil filter	SB Kit
7.5 l	engine oil	-
1	O-Ring	(OR_16x3-ACM 70)
1	oil sump gasket	(E4A-05-000-002 or E4A-05-000-003 as alternative)

Note: Use only engine oil listed in the Operation Manual

Note: For the Consumable list, refer to the Maintenance Manual, Ch. 01.


#### 3.2. SPECIAL TOOLS

Number	Description	Dimensions
1	Engine stand	-
2	Wrench	-
3	Oil Filter Wrench	-
4	Oil Drain Pan	-
5	Oil Funnel	-
6	Socket tool set	-
7	Latex gloves	-
8	Container	min 8.5 l

#### 3.3. LABOR EFFORT

16 hours

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## 4. REMARKS

### **NOTE:**

- All measures must be carried out by a certified engine station and certified engine mechanics.
- The accomplishment of the instructions shown under Section 2.2 must be confirmed in the respective engine log book.
- The accomplishment of the instructions must be carried out within the time of compliance according chapter 1.
- In case of doubt please contact the Austro Engine GmbH – After Sales Support (e-mail: [service@austroengine.at](mailto:service@austroengine.at); Tel: +43 2622 23000 2525).
- For credit information contact Austro Engine GmbH – After Sales Support (e-mail: [service@austroengine.at](mailto:service@austroengine.at); Tel: +43 2622 23000 2525)

## 5. EXPLANATORY NOTES


### 5.1. SYMBOL EXPLANATION



**CAUTION:** Disregarding these special instructions and safety measures can cause damage to the engine or other components.

**NOTE:** Additional note or instruction for better understanding of an instruction

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## 6. APPENDIX


	Service Bulletin Completion Notification	Note:
Aircraft owner:		
Aircraft Operator:		<i>If different from the owner</i>
Aircraft:		
Aircraft Serial Number:		
Aircraft Marks:		
Engine (RH) S/N:		<i>For single engine a/c, fill only one row</i>
Engine (LH) S/N:		
Flight Hours:		
Service center:		<i>Company Name or reference of the person(s) performing the oil pump replacement</i>
Removed Oil pump S/N:		<i>Refer to the figure 1 to identify the correct serial number to be provided</i>
Re-installed Oil pump S/N:		
<hr/> Date, Name		<hr/> Signature
<p><b>NOTE:</b> A scanned version of this form must be provided to <a href="mailto:service@austroengine.at">service@austroengine.at</a></p>		
<p><b>NOTE:</b> The original filled version of this form, must be packed with the removed oil pump, and provided to Austro Engine</p>		



Figure 1

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