

# MANDATORY SERVICE BULLETIN

## No. MSB-E4-030/1 Supersedes MSB-E4-030

### 1. BASIC INFORMATION

#### 1.1. SUBJECT

Oil pump replacement

#### 1.2. ENGINES AFFECTED

Engine affected: E4 Series

Serial numbers affected:

E4-A-00011	E4-A-00263	E4-A-05030	E4-A-05073	E4-A-06007	E4-A-06035
E4-A-00020	E4-A-00265	E4-A-05034	E4-A-05074	E4-A-06008	E4-A-06036
E4-A-00026	E4-A-00266	E4-A-05040	E4-A-05075	E4-A-06009	E4-A-06037
E4-A-00028	E4-A-00268	E4-A-05046	E4-A-05076	E4-A-06010	E4-A-06038
E4-A-00037	E4-A-00269	E4-A-05047	E4-A-05077	E4-A-06011	E4-A-06039
E4-A-00038	E4-A-00274	E4-A-05048	E4-A-05078	E4-A-06012	E4-A-06040
E4-A-00042	E4-A-00276	E4-A-05049	E4-A-05082	E4-A-06013	E4-A-06043
E4-A-00046	E4-A-00278	E4-A-05050	E4-A-05083	E4-A-06014	E4-A-06044
E4-A-00076	E4-A-00280	E4-A-05051	E4-A-05084	E4-A-06015	
E4-A-00079	E4-A-00282	E4-A-05054	E4-A-05085	E4-A-06016	
E4-A-00100	E4-A-00286	E4-A-05055	E4-A-05086	E4-A-06017	
E4-A-00106	E4-A-00323	E4-A-05056	E4-A-05087	E4-A-06018	
E4-A-00107	E4-A-00336	E4-A-05057	E4-A-05088	E4-A-06019	
E4-A-00111	E4-A-00341	E4-A-05058	E4-A-05089	E4-A-06020	
E4-A-00116	E4-A-00397	E4-A-05059	E4-A-05090	E4-A-06021	
E4-A-00131	E4-A-00429	E4-A-05060	E4-A-05091	E4-A-06022	
E4-A-00133	E4-A-00434	E4-A-05061	E4-A-05092	E4-A-06023	
E4-A-00138	E4-A-00442	E4-A-05062	E4-A-05093	E4-A-06024	
E4-A-00163	E4-A-00456	E4-A-05063	E4-A-05094	E4-A-06025	
E4-A-00165	E4-A-00474	E4-A-05064	E4-A-05095	E4-A-06026	
E4-A-00166	E4-A-00484	E4-A-05065	E4-A-05096	E4-A-06027	
E4-A-00168	E4-A-00498	E4-A-05066	E4-A-05097	E4-A-06028	
E4-A-00169	E4-A-00509	E4-A-05067	E4-A-06001	E4-A-06029	
E4-A-00207	E4-A-05016	E4-A-05068	E4-A-06002	E4-A-06030	
E4-A-00219	E4-A-05017	E4-A-05069	E4-A-06003	E4-A-06031	
E4-A-00221	E4-A-05019	E4-A-05070	E4-A-06004	E4-A-06032	
E4-A-00232	E4-A-05028	E4-A-05071	E4-A-06005	E4-A-06033	
E4-A-00259	E4-A-05029	E4-A-05072	E4-A-06006	E4-A-06034	

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	1-16

E4-B-00028	E4-B-00131	E4-B-00173	E4-B-00536	E4-B-05002	E4-B-05009
E4-B-00031	E4-B-00136	E4-B-00208	E4-B-05001	E4-B-05003	E4-B-05010
E4-B-00039	E4-B-00140	E4-B-00209	E4-B-00297	E4-B-05004	E4-B-05011
E4-B-00060	E4-B-00145	E4-B-00216	E4-B-00379	E4-B-05005	E4-B-05012
E4-B-00099	E4-B-00147	E4-B-00231	E4-B-00417	E4-B-05006	
E4-B-00109	E4-B-00163	E4-B-00273	E4-B-00433	E4-B-05007	
E4-B-00110	E4-B-00164	E4-B-00282	E4-B-00487	E4-B-05008	

E4-C-00001	E4-C-00480	E4-C-05065	E4-C-05086	E4-C-05107	E4-C-06004
E4-C-00004	E4-C-05030	E4-C-05066	E4-C-05087	E4-C-05108	E4-C-06005
E4-C-00060	E4-C-05037	E4-C-05067	E4-C-05088	E4-C-05109	E4-C-06006
E4-C-00061	E4-C-05038	E4-C-05068	E4-C-05089	E4-C-05110	E4-C-06007
E4-C-00069	E4-C-05039	E4-C-05069	E4-C-05090	E4-C-05111	E4-C-06008
E4-C-00091	E4-C-05040	E4-C-05070	E4-C-05091	E4-C-05112	E4-C-06010
E4-C-00092	E4-C-05042	E4-C-05071	E4-C-05092	E4-C-05113	E4-C-06011
E4-C-00122	E4-C-05043	E4-C-05072	E4-C-05093	E4-C-05114	E4-C-06012
E4-C-00125	E4-C-05052	E4-C-05073	E4-C-05094	E4-C-05115	E4-C-06013
E4-C-00171	E4-C-05053	E4-C-05074	E4-C-05095	E4-C-05118	E4-C-06014
E4-C-00172	E4-C-05054	E4-C-05075	E4-C-05096	E4-C-05119	E4-C-06015
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E4-C-00263	E4-C-05058	E4-C-05079	E4-C-05100	E4-C-05123	E4-C-06019
E4-C-00266	E4-C-05059	E4-C-05080	E4-C-05101	E4-C-05124	E4-C-06020
E4-C-00279	E4-C-05060	E4-C-05081	E4-C-05102	E4-C-05125	E4-C-06021
E4-C-00282	E4-C-05061	E4-C-05082	E4-C-05103	E4-C-05126	E4-C-06022
E4-C-00301	E4-C-05062	E4-C-05083	E4-C-05104	E4-C-06001	E4-C-06025
E4-C-00309	E4-C-05063	E4-C-05084	E4-C-05105	E4-C-06002	E4-C-06026
E4-C-00349	E4-C-05064	E4-C-05085	E4-C-05106	E4-C-06003	E4-C-06027

E4P-B-05001	E4P-C-00020	E4P-C-05004	E4P-C-05011	E4P-C-06004	E4P-C-06011
E4P-B-05002	E4P-C-00023	E4P-C-05005	E4P-C-05012	E4P-C-06005	E4P-C-06012
E4P-B-05003	E4P-C-00051	E4P-C-05006	E4P-C-05013	E4P-C-06006	E4P-C-06013
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	E4P-C-05002	E4P-C-05009	E4P-C-06002	E4P-C-06009	
	E4P-C-05003	E4P-C-05010	E4P-C-06003	E4P-C-06010	

Part Affected: E4A-50-000-BHY, Oil Pump

Serial numbers affected:

0016	0088	0152	0216	0280	0359	0451
0021	0089	0153	0217	0282	0360	0452
0022	0090	0155	0218	0285	0361	0453
0023	0091	0156	0219	0287	0362	0454
0026	0092	0157	0220	0289	0363	0455
0027	0093	0159	0221	0290	0364	0456
0030	0094	0160	0222	0291	0365	0457
0031	0095	0161	0223	0292	0366	0458
0032	0096	0162	0226	0294	0368	0459

First Issue Date			Rev. No.		Revision Date		Page
18	Feb	2021	1	23	02	2021	2-16



Mandatory Service Bulletin  
No. MSB-E4-030/1

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0033	0087	0163	0227	0295	0369	0460
0034	0097	0164	0228	0298	0371	0461
0036	0098	0165	0229	0303	0387	0462
0037	0099	0166	0230	0305	0388	0463
0039	0100	0168	0231	0306	0390	0464
0042	0101	0169	0232	0308	0391	0465
0043	0102	0170	0233	0310	0392	0466
0046	0103	0171	0234	0315	0393	0469
0047	0104	0172	0236	0318	0394	0470
0048	0106	0174	0237	0319	0395	0472
0049	0108	0175	0238	0321	0396	0473
0050	0109	0176	0239	0322	0398	0474
0051	0110	0177	0240	0323	0399	0475
0056	0111	0179	0241	0324	0400	0479
0059	0112	0181	0242	0325	0401	0480
0060	0113	0182	0244	0326	0402	0481
00605	0114	0183	0245	0327	0403	0483
00608	0115	0184	0246	0328	0404	0484
00610	0119	0185	0248	0331	0406	0485
00614	0120	0186	0250	0332	0417	0486
00617	0121	0187	0251	0333	0418	0487
0062	0122	0188	0252	0334	0419	0489
00620	0123	0190	0254	0335	0421	0490
00623	0124	0192	0255	0336	0428	0491
00639	0126	0194	0256	0337	0431	0492
00646	0127	0195	0257	0339	0432	0493
00649	0128	0196	0258	0341	0434	0495
0065	0130	0199	0259	0342	0437	
0066	0131	0200	0260	0343	0438	
0067	0132	0201	0261	0344	0439	
00671	0133	0202	0262	0345	0440	
00674	0134	0203	0264	0346	0441	
0068	0136	0204	0265	0347	0442	
00682	0137	0205	0266	0349	0443	
00708	0138	0206	0267	0352	0444	
0071	0139	0207	0269	0353	0445	
00713	0140	0208	0270	0354	0446	
00718	0141	0209	0272	0355	0447	
00719	0143	0210	0273	0356	0448	
00720	0145	0211	0274	0357	0450	
00726	0147	0213	0275	0358		
0074	0148	0214	0276			
0075	0149	0215				
0076	0150					
00763	0151					
0077						
0078						
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0080						
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First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	3-16



Mandatory Service Bulletin  
No. MSB-E4-030/1

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### 1.3. REASON

Production casting deviation leading to a possible contamination of the oil system and thus blockage of the oil pump.

### 1.4. TIME OF COMPLIANCE

For all the Engines with less than 10 Flight Hours (FH), before the next flight (ferry fly to a maintenance service allowed). For the Engines having more than 10 FH:

Within 3 months from the effective date of the Service Bulletin Approval or

For E4A engines:

- With more than 10FH and less than 50 FH, before exceeding 70 FH or during the next maintenance check, whichever comes first
- With more than 50 FH, within the next 20 FH or during the next maintenance check, whichever comes first

For E4B/C/P engines:

- With more than 10FH, within the next 100 FH or during the next maintenance check, whichever comes first

### 1.5. CONCURRENT DOCUMENTS / REFERENCES

Maintenance Manual E4.08.04, latest revision

### 1.6. OTHER PUBLICATIONS AFFECTED

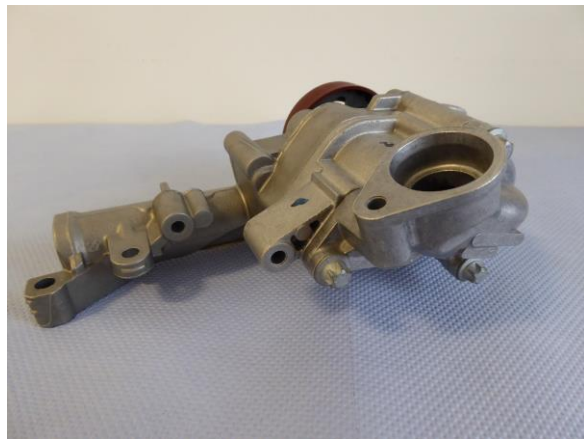
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First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	4-16

## 2. TECHNICAL DETAILS

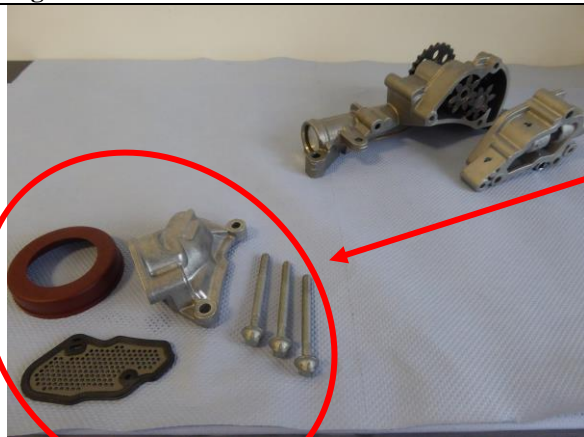
### 2.1. DELIVERY CONDITION

#### Delivery of the new oil pump



**Fig. 1**

Delivered oil pump



**Fig. 2**

Remove the following parts of the new oil pump:

- Cover of the chain gear
- Original oil suction pipe (including screws and oil strainer)

Note: Discard the removed parts.

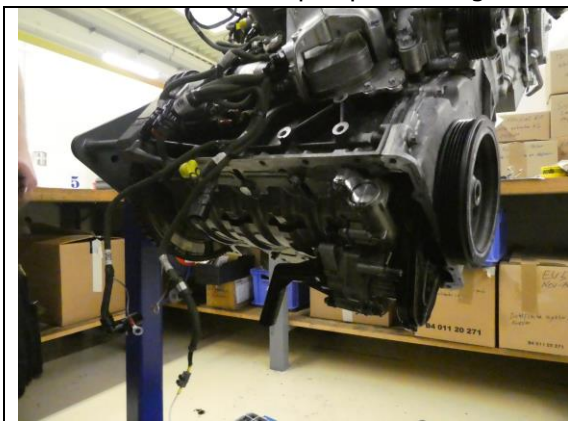
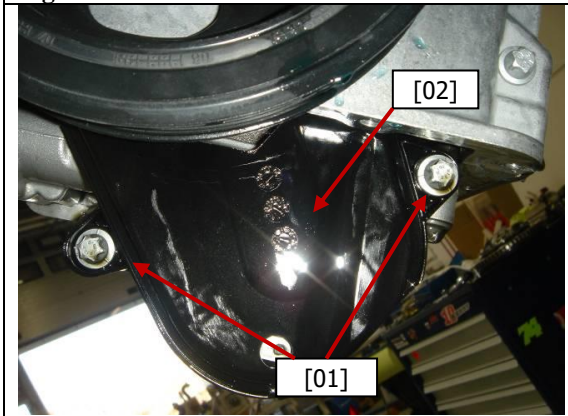
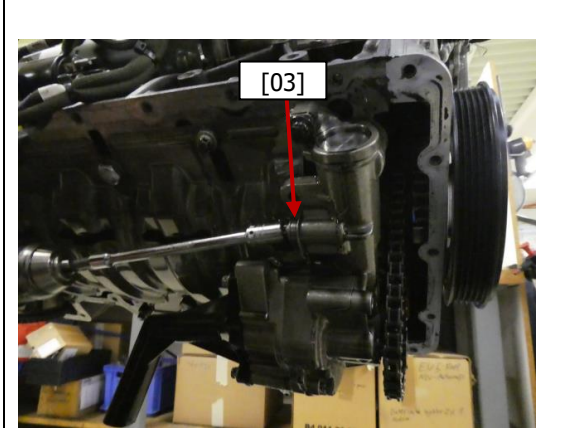
First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	5-16

## 2.2. ACCOMPLISHMENT / INSTRUCTIONS

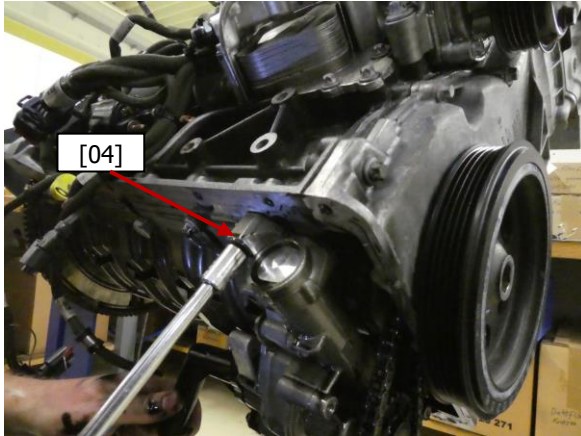
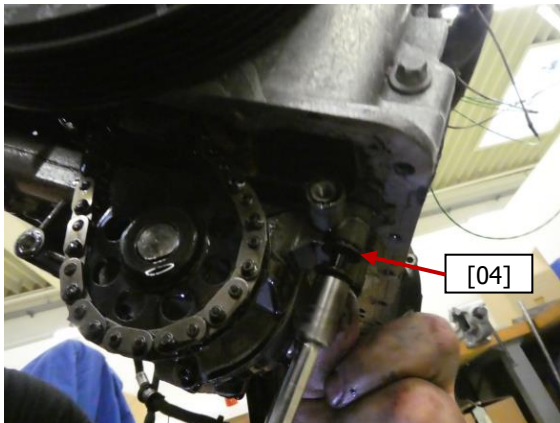
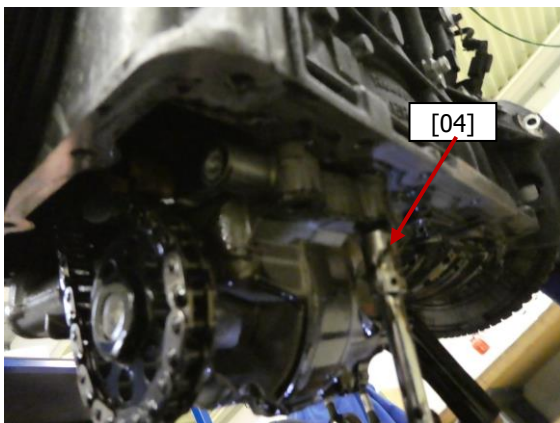


Make sure that the working area is clean.  
Use clean gloves.  
Make sure that no sand or dirt goes into the engine.

1. Remove the oil sump according to Maintenance Manual Ch.79, steps as required.
2. 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>
 <p><b>Fig. 5</b></p>	<p>Remove the screw [03] that attaches the oil pump to the oil repellent.</p>

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	6-16


**Fig. 6**

**Fig. 7**

**Fig. 8**

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

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	7-16


**Fig. 9**

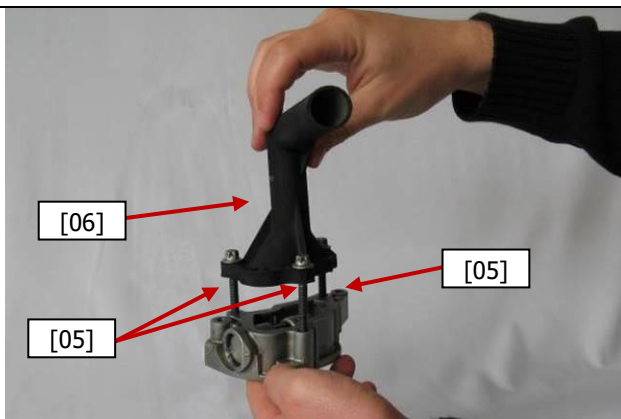
**Fig. 10**

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.

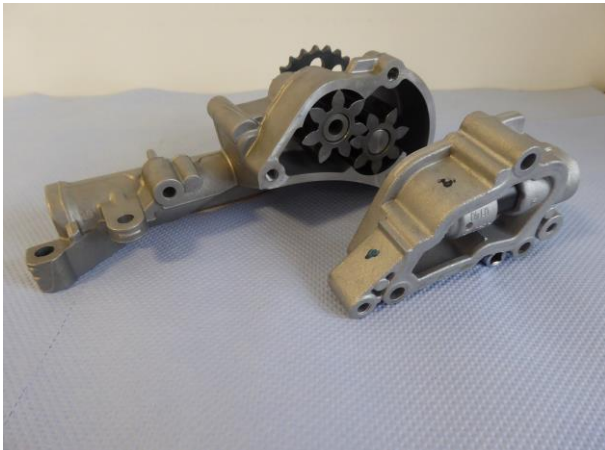

First Issue Date			Rev. No.		Revision Date		Page
18	Feb	2021	1	23	02	2021	8-16



**Re-used Parts:**

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

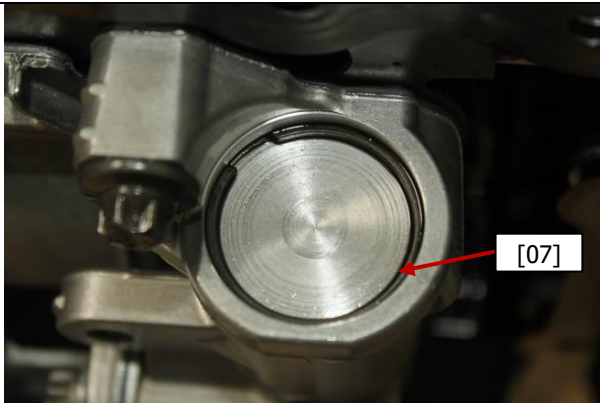
3. Clean the parts before re-installation. The parts must be free of adhesive or sealing residues.
4. Install the Oil Pump according to following steps:

	<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>

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	9-16

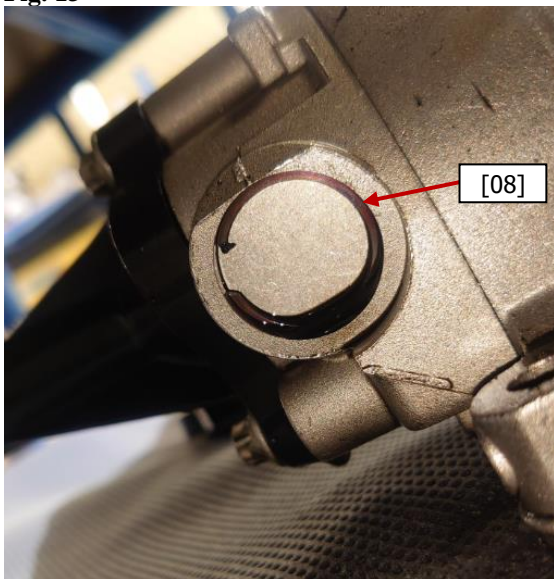


Apply Loctite 278 or Loctite 2701.  
Tighten the oil pump housing with 12 Nm.



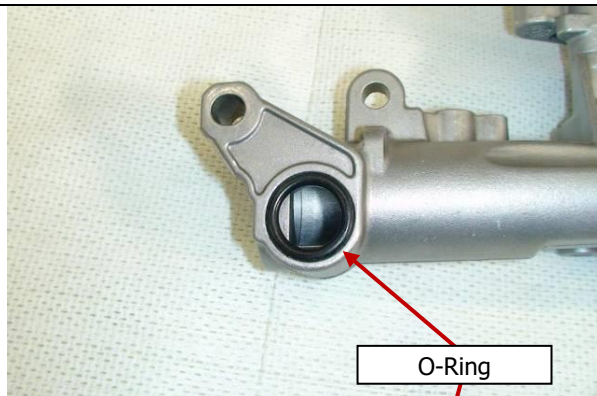
Make sure that the circlips [07] (E4A-50-300-801) [08] (E4A-50-400-801) used to secure both plugs on the oil pump is in the correct position.

**Fig. 13**



**Fig. 14**

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	10-16


**Fig. 15**

**Fig. 16**

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

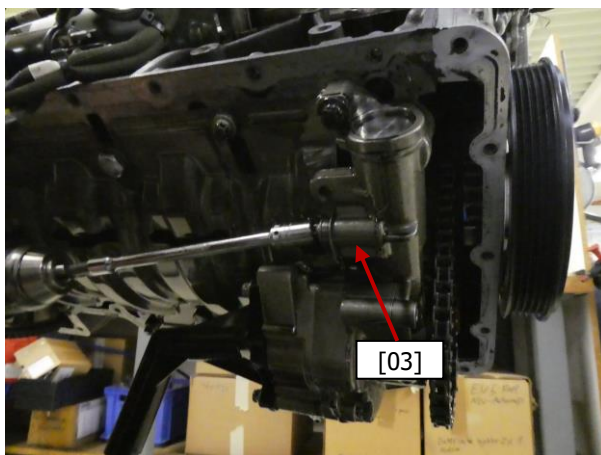
Install a new O-Ring.  
 Make sure it is correctly fitted.


**Fig. 17**

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

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	11-16


**Fig. 18**

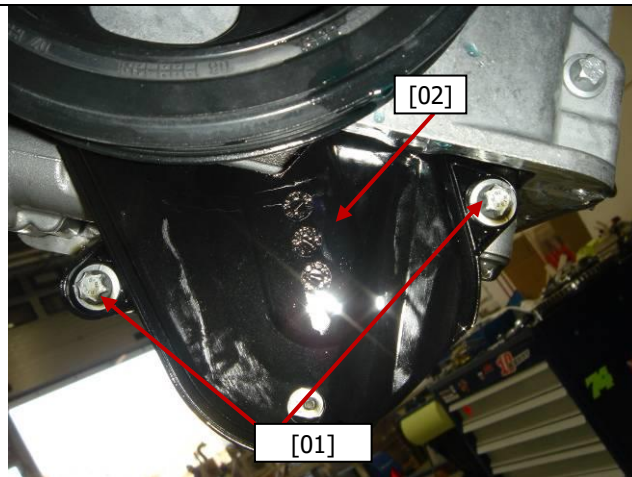
**Fig. 19**

**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.

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	12-16


**Fig. 21**

Install the oil pump chain cover

Put the chain cover [02] in place on the oil pump and tighten the screws [01] (ISO8102-M6x20-10.9) (x2) with 12 Nm.

5. Install the Oil Sump according to the Maintenance Manual, Ch.79.
6. 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.
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

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	13-16



### 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.

## 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

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	14-16



## 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

First Issue Date			Rev. No.	Revision Date			Page
18	Feb	2021	1	23	02	2021	15-16



Mandatory Service Bulletin  
No. MSB-E4-030/1

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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>
<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

First Issue Date			Rev. No.		Revision Date			Page
18	Feb	2021	1	23	02	2021	16-16	