



MANDATORY SERVICE BULLETIN

No. MSB-E4-030/2

Supersedes MSB-E4-030/1

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	

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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
E4-C-00210	E4-C-05055	E4-C-05076	E4-C-05097	E4-C-05120	E4-C-06016
E4-C-00218	E4-C-05056	E4-C-05077	E4-C-05098	E4-C-05121	E4-C-06017
E4-C-00233	E4-C-05057	E4-C-05078	E4-C-05099	E4-C-05122	E4-C-06018
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
E4P-B-05004	E4P-C-00224	E4P-C-05007	E4P-C-05014	E4P-C-06007	E4P-C-06014
	E4P-C-05001	E4P-C-05008	E4P-C-06001	E4P-C-06008	E4P-C-06017
	E4P-C-05002	E4P-C-05009	E4P-C-06002	E4P-C-06009	
	E4P-C-05003	E4P-C-05010	E4P-C-06003	E4P-C-06010	

Note: with the issue 2 of the Service Bulletin, not affected engine s/ns are removed. Removed engine s/ns are marked in grey and strikethrough (example).

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

Serial numbers affected:

0011	00512	0056	00609	00675	0081	0131	0179	0231	0281	0337	0392	0457
0015	00513	00561	0061	00677	0082	0132	0181	0232	0282	0339	0393	0458
0016	00514	00562	00610	00678	0083	0133	0182	0233	0285	0340	0394	0459
0017	00515	00563	00611	00679	0087	0134	0183	0234	0287	0341	0395	0460
0019	00516	00564	00612	0068	0088	0135	0184	0236	0289	0342	0396	0461
0021	00517	00565	00613	00680	0089	0136	0185	0237	0290	0343	0397	0462
0022	00518	00566	00614	00681	0090	0137	0186	0238	0291	0344	0398	0463
0023	00519	00567	00617	00682	0091	0138	0187	0239	0292	0345	0399	0464
0024	0052	00569	00618	00684	0092	0139	0188	0240	0294	0346	0400	0465
0026	00520	0057	0062	00695	0093	0140	0190	0241	0295	0347	0401	0466
0027	00521	00570	00620	00697	0094	0141	0191	0242	0297	0349	0402	0467
0028	00522	00571	00621	00700	0095	0142	0192	0243	0298	0350	0403	0469
0030	00523	00572	00622	00701	0096	0143	0194	0244	0299	0351	0404	0470
0031	00525	00573	00623	00703	0097	0145	0195	0245	0300	0352	0405	0471
0032	00528	00574	00625	00705	0098	0146	0196	0246	0301	0353	0406	0472
0033	00529	00575	00628	00706	0099	0147	0199	0248	0302	0354	0417	0473
0034	00530	00576	00630	00707	0100	0148	0200	0250	0303	0355	0418	0474
0035	00531	00577	00631	00708	0101	0149	0201	0251	0304	0356	0419	0475
0036	00532	00578	00634	0071	0102	0150	0202	0252	0305	0357	0421	0476
0037	00534	00579	00639	00710	0103	0151	0203	0253	0306	0358	0428	0478
0039	00535	00580	0064	00711	0104	0152	0204	0254	0308	0359	0430	0479
0042	00536	00581	00646	00712	0105	0153	0205	0255	0310	0360	0431	0480
0043	00537	00584	00649	00713	0106	0154	0206	0256	0313	0361	0432	0481
0044	00538	00585	0065	00714	0107	0155	0207	0257	0314	0362	0433	0482
0045	00539	00586	00651	00715	0108	0156	0208	0258	0315	0363	0434	0483
0046	00540	00587	00654	00716	0109	0157	0209	0259	0316	0364	0437	0484
0047	00541	00588	00655	00718	0110	0159	0210	0260	0317	0365	0438	0485
0048	00542	00589	00656	00719	0111	0160	0211	0261	0318	0366	0439	0486
0049	00544	0059	00657	00720	0112	0161	0213	0262	0319	0368	0440	0487
00497	00545	00590	0066	00721	0113	0162	0214	0263	0321	0369	0441	0488
00498	00546	00591	00660	00724	0114	0163	0215	0264	0322	0370	0442	0489
0050	00547	00592	00661	00726	0115	0164	0216	0265	0323	0371	0443	0490
00500	00548	00593	00662	00727	0119	0165	0217	0266	0324	0373	0444	0491
00501	00549	00594	00664	00728	0120	0166	0218	0267	0325	0378	0445	0492
00502	00550	00595	00665	0074	0121	0168	0219	0269	0326	0379	0446	0493
00504	00551	00596	00666	0075	0122	0169	0220	0270	0327	0380	0447	0494
00505	00552	00597	00667	0076	0123	0170	0221	0272	0328	0383	0448	0495
00506	00553	00598	00668	00763	0124	0171	0222	0273	0330	0384	0450	
00507	00554	00599	00669	0077	0125	0172	0223	0274	0331	0386	0451	
00508	00555	0060	0067	00774	0126	0174	0226	0275	0332	0387	0452	
00509	00556	00603	00670	0078	0127	0175	0227	0276	0333	0388	0453	
0051	00557	00604	00671	00783	0128	0176	0228	0277	0334	0389	0454	
00510	00558	00605	00673	0079	0129	0177	0229	0279	0335	0390	0455	
00511	00559	00608	00674	0080	0130	0178	0230	0280	0336	0391	0456	

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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

None

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2. TECHNICAL DETAILS

2.1. DELIVERY CONDITION

Delivery of the new oil pump

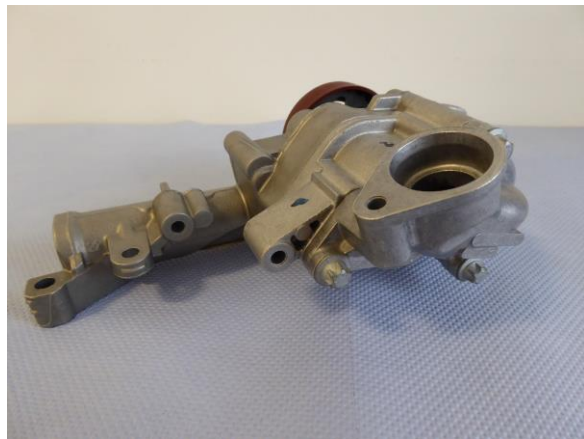


Fig. 1

Delivered oil pump

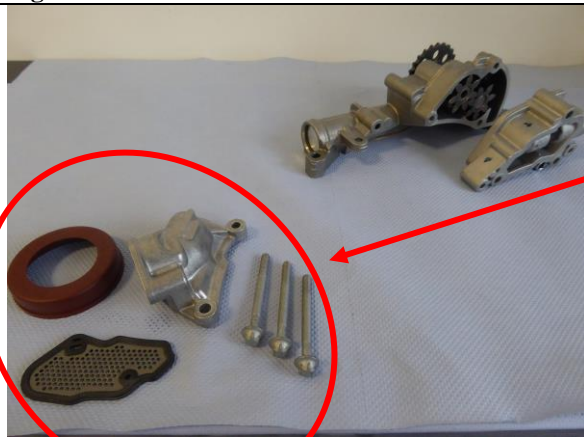


Fig. 2

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. The screws can be used as alternative (see step 4, figure 12).

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2.2. ACCOMPLISHMENT / INSTRUCTIONS

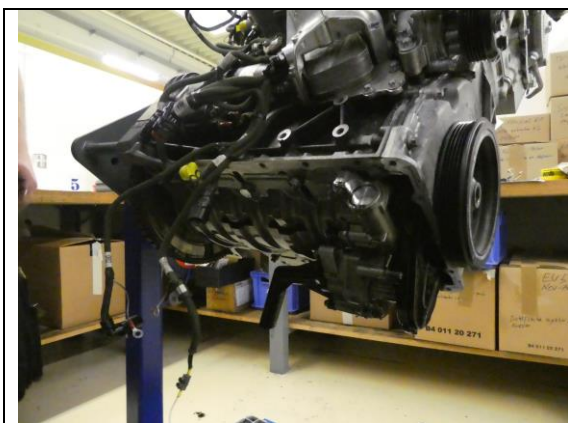
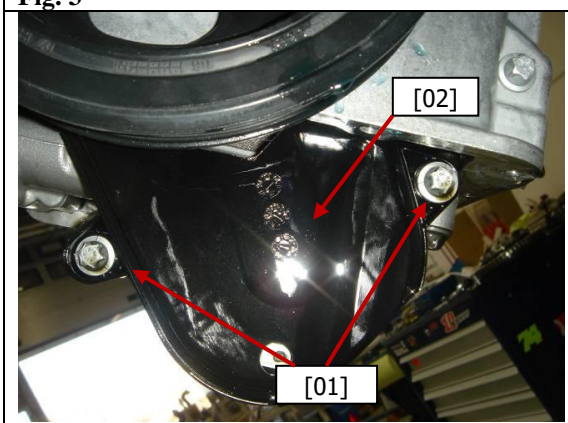


Make sure that the working area is clean.

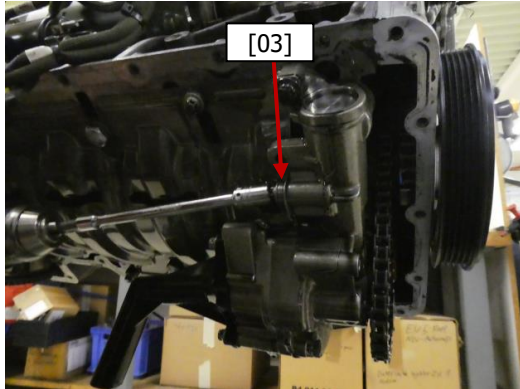
Use clean gloves.

Make sure that no sand or dirt goes into the engine.

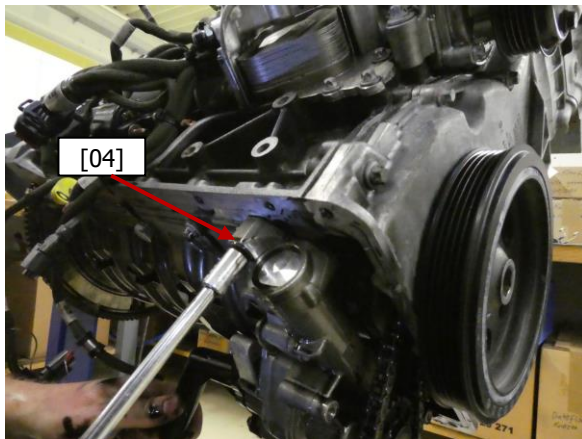
1. Replace the engine oil filter according to Maintenance Manual, Ch. 79. Visually examine the used Oil Filter for contamination and metal abrasion. If an abnormal condition is found (metal shavings exceeding 1.5 mm; concentration of particles; clogged filter), please contact Austro Engine for further 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>Fig. 3</p>	<p>After removal of the oil sump</p>
 <p>Fig. 4</p>	<p>Loosen two screws [01] that attach the chain cover [02] to the oil pump and remove the chain cover.</p>

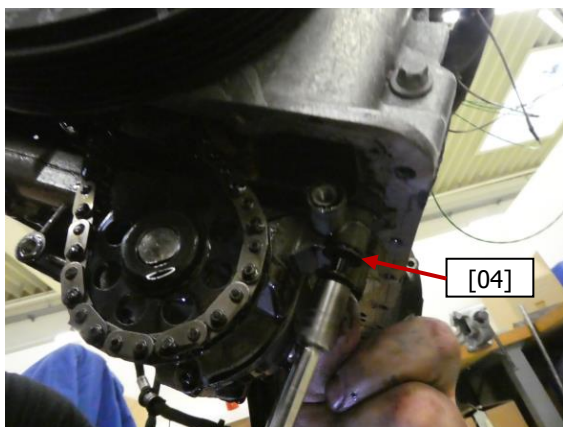
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Fig. 5

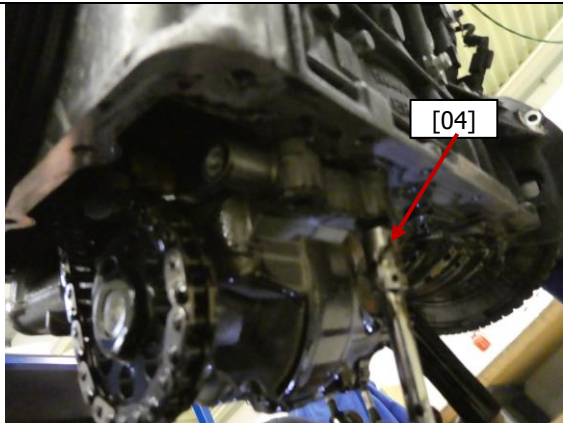
Remove the screw [03] that attaches the oil pump to the oil repellent.


Fig. 6

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


Fig. 7

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Fig. 8

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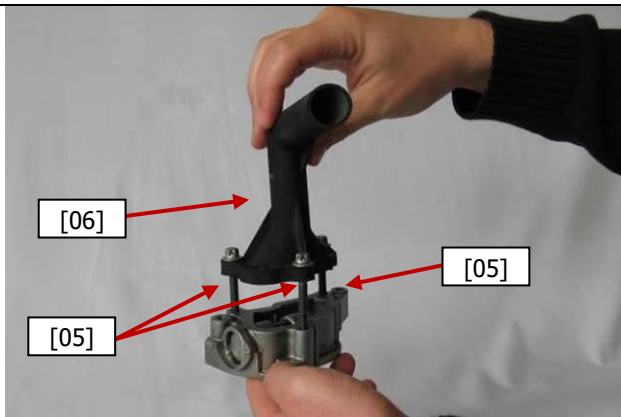

Fig. 9

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.

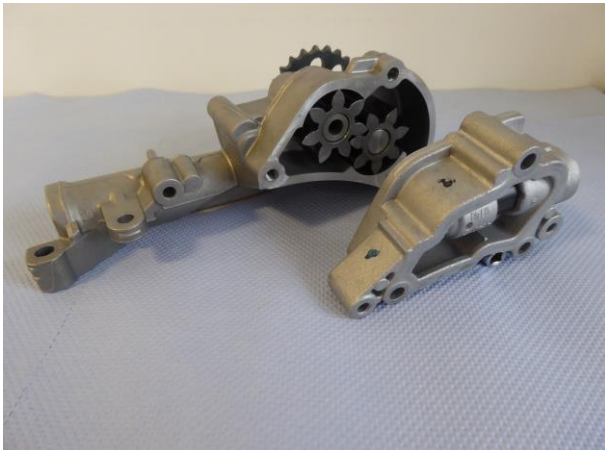

NOTE: Removed oil pump must be always returned to Austro Engine, including the engine flight hours recorded at the time of replacement.

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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)

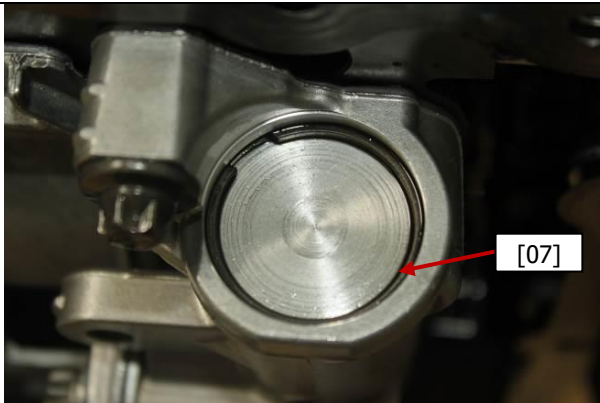
4. Clean the parts before re-installation. The parts must be free of adhesive or sealing residues.
5. Install the Oil Pump according to following steps:

	<p>New oil pump</p>
 <p>Fig. 12</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>

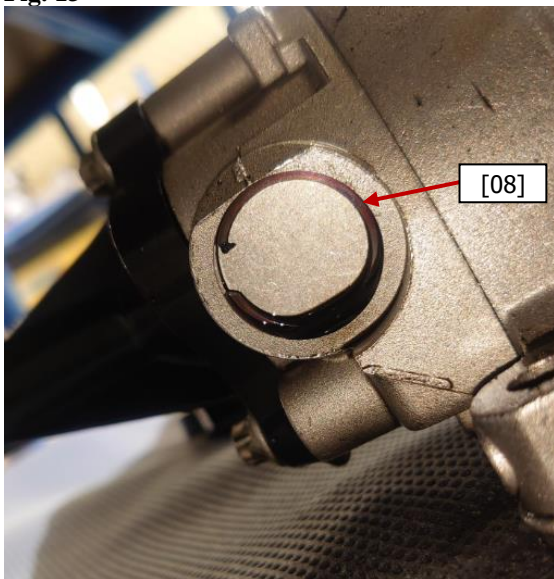
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Apply Loctite 278 or Loctite 2701.
Tighten the oil pump housing with 12 Nm.


Fig. 13

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. 14

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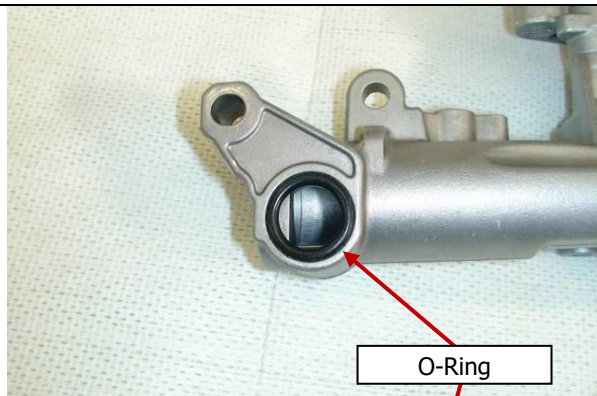

Fig. 15

Fig. 16

Discard the O-Ring (OR_16x3-ACM 70) between the oil pump and the crankshaft housing.

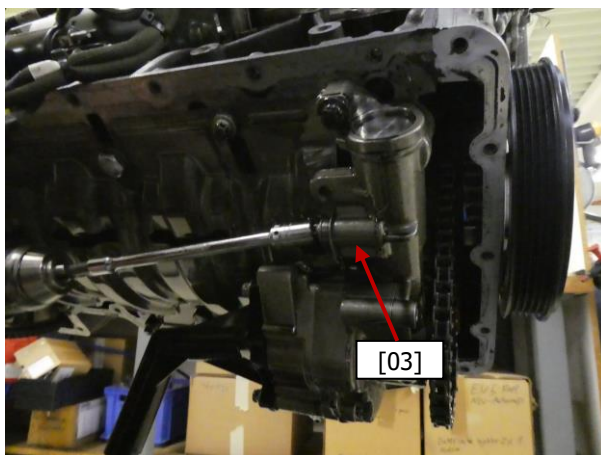
Install a new O-Ring.
 Make sure it is correctly fitted.


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

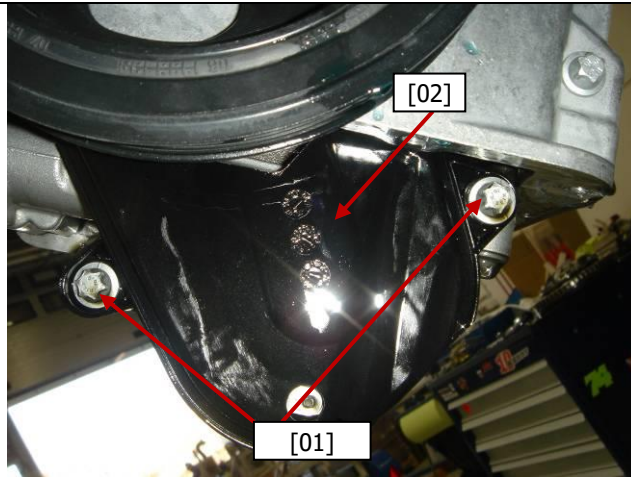
Fig. 19

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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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.

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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2.3. 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

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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; Tel: +43 2622 23000 2525).
- For credit information contact Austro Engine GmbH – After Sales Support (e-mail: 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>
<p>NOTE: A scanned version of this form must be provided to service@austroengine.at</p> <p>NOTE: 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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