

# SERVICE INFORMATION

## NO. SI 42NG-121

**NOTE:** SI's are used only:  
1) To distribute information from DAI to our customers.  
2) To distribute applicable information/documents from our suppliers to our customers with additional information.  
Typically there is no revision service for SI's. Each new information or change of that will be sent along with a new SI.

### I. TECHNICAL DETAILS

#### 1.1 Airplanes affected:

All DA 42 NG and DA 42 M-NG airplanes

#### 1.2 Subject:

Austro Engine Mandatory Service Bulletin No. MSB-E4-036  
ATA-Code: 73-00

#### 1.3 Reason:

Austro Engine issued the Mandatory Service Bulletin No. MSB-E4-036 prescribing the inspection and replacement of the High Pressure Pump Gear.

#### 1.4 Information:

For detailed technical information refer to Austro Engine Mandatory Service Bulletin No. MSB-E4-036 which is applicable without any further additions or restrictions.

### II. OTHERS

Austro Engine Mandatory Service Bulletin No. MSB-E4-036 is attached to this Service Information.

In case of doubt contact Austro Engine GmbH.

# MANDATORY SERVICE BULLETIN

**No. MSB-E4-036**

**Supersedes MSB-E4-035 and MSB-E4-034**

|               |            |
|---------------|------------|
| Distribution: | Portal     |
| Date:         | 01.12.2021 |

## 1. Basic information

### 1.1. Subject

High Pressure Pump (HPP) Inspection and Replacement

### 1.2. Record of revisions

| Rev. | Date       | Reason          |
|------|------------|-----------------|
| 0    | 30.11.2021 | Initial release |

### 1.3. Definitions and Acronyms


For the purpose of this Service Bulletin, the following definitions and acronyms apply:


|                          |   |
|--------------------------|---|
| <b>CH:</b>               | Cylinder Head   |
| <b>FH:</b>               | Flight Hours  |
| <b>HPP:</b>              | High Pressure Pump  |
| <b>n/a:</b>              | Not applicable  |
| <b>p/n or p/ns:</b>      | Part number or Part Numbers   |
| <b>SB:</b>               | Service Bulletin  |
| <b>s/n or s/ns:</b>      | Serial Number or Serial Numbers   |
| <b>Group 1 engines:</b>  | Model E4 engines in configuration “-A”, installed on single engine aeroplanes                             |
| <b>Group 2 engines:</b>  | Model E4 engines in configuration “-B” or “-C” and Model E4P engines, installed on twin-engine aeroplanes |
| <b>Serviceable part:</b> | Any HPP driving gear, eligible for installation, which is not an affected part                            |


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## 1.4. Engines affected

|                                 |   |
|---------------------------------|---|
| <b>Engine affected:</b>         | E4 Series   |
| <b>Serial numbers affected:</b> | All E4/E4P engine s/ns having an affected CH installed<br>All E4/E4P engine s/ns having an affected HPP gear installed            |
| <b>Affected HPP gear:</b>       | HPP driving gear p/n E4A-30-000-201 having s/n listed in the following Table 1  |
| <b>Affected cylinder head:</b>  | CH p/n E4A-12-500-000, installed in combination with a HPP gear p/n E4A-30-000-601 (any revision) or p/n E4A-30-000-201 rev. AB.1 |

 **Note:** Table 1 lists the s/ns of the affected driving gears installed on certain batches of HPP p/n E4A-30-000-000 and E4A-30-000-BHY. To determine if an affected part is installed, s/ns of the HPP on which an affected part is installed and the engine s/n on which such HPP is installed are provided. Where the engine s/n is not indicated, the HPP was provided as a spare part. Please note that only the gear s/ns identify an affected part, engine and HPP s/ns are provided for reference only

 **Note:** To identify the cylinder head installed, refer to the maintenance manual E4.08.04 chapter 85. Additional Cylinder Head identification methods are provided in the Service Instruction no. SI-E4-016

 **Note:** In respect of the Service Bulletin no. MSB-E4-034, engines and parts were reworked by Austro Engine pending approval of the initial release. To ease the identification, removed s/ns are marked in grey and strikethrough (example)

 **Note:** For these engines where the MSB-034 or/and MSB-035 were performed, refer to the paragraph 1.9 for compliance credits

**Table 1 – Affected HPP driving gear serial numbers**

| High Pressure Pump S/N | Gear S/N | Engine S/N  | High Pressure Pump S/N | Gear S/N | Engine S/N  | High Pressure Pump S/N       | Gear S/N | Engine S/N |
|------------------------|----------|-------------|------------------------|----------|-------------|------------------------------|----------|------------|
| 19-09-11-02-01162      | 0246     |             | 20-06-18-02-00889      | 1049     |             | 20-10-26-02-00628            | 1950     |            |
| 19-09-11-02-01167      | 0414     | E4-C-05107  | 20-06-18-02-00890      | 1051     |             | <del>20-10-26-02-00629</del> | 1968     |            |
| 19-09-11-02-01168      | 0270     | E4P-C-05003 | 20-06-18-02-00891      | 1001     |             | 20-10-26-02-00630            | 1775     |            |
| 19-09-11-02-01169      | 0240     |             | 20-06-18-02-00893      | 1028     | E4-A-00198  | 20-10-26-02-00631            | 1773     |            |
| 19-09-11-02-01170      | 0410     | E4P-C-05005 | 20-06-18-02-00894      | 0550     |             | 20-10-26-02-00632            | 1903     |            |
| 19-09-11-02-01171      | 0412     | E4-A-00232  | 20-06-18-02-00895      | 1041     | E4-C-06042  | 20-10-26-02-00633            | 1211     |            |
| 19-09-11-02-01172      | 0415     | E4-C-05109  | 20-06-18-02-00896      | 1048     | E4-C-06031  | 20-10-26-02-00634            | 1233     |            |
| 19-09-11-02-01189      | 0382     |             | 20-06-18-02-00897      | 1030     |             | 20-10-26-02-00635            | 1363     | E4-A-06082 |
| 19-09-11-02-01190      | 0267     |             | 20-06-18-02-00898      | 1027     |             | 20-10-26-02-00637            | 1785     |            |
| 19-09-11-02-01191      | 0258     |             | 20-06-18-02-00899      | 1056     | E4P-C-06027 | 20-10-26-02-00638            | 1958     |            |
| 19-09-11-02-01192      | 0256     |             | 20-06-18-02-00900      | 0664     | E4-A-06021  | <del>20-10-26-02-00639</del> | 1887     |            |
| 19-09-11-02-01193      | 0261     |             | 20-06-18-02-00901      | 1114     |             | 20-10-26-02-00640            | 1982     |            |
| 19-09-11-02-01194      | 0257     |             | 20-06-18-02-00902      | 0979     |             | 20-10-26-02-00641            | 1953     |            |
| 19-09-11-02-01195      | 0264     |             | 20-06-18-02-00903      | 1061     |             | 20-10-26-02-00642            | 1811     |            |
| 19-09-11-02-01196      | 0255     |             | 20-06-18-02-00904      | 0762     |             | 20-10-26-02-00643            | 1818     |            |
| 19-09-11-02-01197      | 0274     |             | 20-06-18-02-00905      | 0756     |             | 20-10-26-02-00644            | 1890     |            |
| 19-09-11-02-01198      | 0408     |             | 20-06-18-02-00906      | 1060     | E4-A-00475  | 20-10-26-02-00645            | 1781     |            |
| 19-09-11-02-01199      | 0272     |             | 20-06-18-02-00907      | 1023     | E4-A-00408  | 20-12-14-02-00002            | 1955     |            |
| 19-09-11-02-01200      | 0333     |             | 20-06-18-02-00908      | 1073     |             | 20-12-14-02-00003            | 1449     | E4-A-06088 |

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| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 19-09-11-02-01201      | 0332     |             |
| 19-09-11-02-01202      | 0244     |             |
| 19-09-11-02-01203      | 0330     |             |
| 19-09-11-02-01204      | 0383     |             |
| 19-09-11-02-01205      | 0254     |             |
| 19-09-11-02-01206      | 0324     |             |
| 19-09-11-02-01207      | 0262     |             |
| 19-09-11-02-01208      | 0237     |             |
| 19-09-11-02-01209      | 0329     |             |
| 19-09-11-02-01210      | 0386     |             |
| 19-09-11-02-01211      | 0265     |             |
| 19-10-01-02-00755      | 0233     |             |
| 19-10-01-02-00756      | 0224     | E4-B-05006  |
| 19-10-01-02-00760      | 0226     | E4-B-05004  |
| 19-10-01-02-00763      | 0241     | E4-B-05001  |
| 19-10-01-02-00764      | 0416     |             |
| 19-10-01-02-00768      | 0260     |             |
| 19-10-01-02-00772      | 0268     | E4-A-05086  |
| 19-10-01-02-00775      | 0248     |             |
| 19-10-01-02-00779      | 0370     |             |
| 19-10-01-02-00784      | 0231     |             |
| 19-10-01-02-00786      | 0242     |             |
| 19-10-01-02-00788      | 0235     |             |
| 19-10-01-02-00790      | 0266     |             |
| 19-10-01-02-00796      | 0131     | E4-C-05106  |
| 19-10-01-02-00804      | 0228     | E4-B-05002  |
| 19-10-01-02-00809      | 0227     | E4-A-05085  |
| 19-10-14-02-00404      | 0222     |             |
| 19-10-14-02-00405      | 0247     | E4-C-05110  |
| 19-10-14-02-00409      | 0364     | E4-A-05084  |
| 19-10-14-02-00410      | 0253     |             |
| 19-10-14-02-00415      | 0365     | E4-C-05105  |
| 19-10-14-02-00416      | 0232     |             |
| 19-10-14-02-00420      | 0236     |             |
| 19-10-14-02-00432      | 0229     | E4-B-05008  |
| 19-10-14-02-00437      | 0411     | E4-A-05075  |
| 19-10-14-02-00438      | 0239     | E4-B-05005  |
| 19-10-14-02-00446      | 0374     | E4-A-05087  |
| 19-10-14-02-00454      | 0193     | E4P-B-05004 |
| 19-10-14-02-00457      | 0251     | E4-C-05108  |
| 19-12-12-02-00002      | 0195     | E4-A-05081  |
| 19-12-12-02-00004      | 0366     |             |
| 19-12-12-02-00005      | 0169     |             |
| 19-12-12-02-00009      | 0363     |             |
| 19-12-12-02-00011      | 0358     |             |
| 19-12-12-02-00015      | 0190     |             |
| 19-12-12-02-00016      | 0376     |             |
| 19-12-12-02-00017      | 0369     | E4-A-05079  |
| 19-12-12-02-00020      | 0146     |             |
| 19-12-12-02-00023      | 0225     |             |
| 19-12-12-02-00029      | 0361     | E4P-C-05001 |
| 19-12-12-02-00031      | 0372     | E4P-C-05004 |
| 19-12-12-02-00032      | 0127     |             |
| 19-12-12-02-00033      | 0177     |             |
| 19-12-12-02-00034      | 0179     |             |
| 19-12-12-02-00035      | 0118     |             |
| 19-12-12-02-00039      | 0223     |             |
| 19-12-12-02-00046      | 0367     | E4-C-05111  |
| 19-12-12-02-00047      | 0120     | E4P-B-05003 |
| 19-12-12-02-00048      | 0362     |             |
| 19-12-12-02-00049      | 0197     |             |
| 19-12-12-02-00057      | 0122     |             |
| 19-12-12-02-00058      | 0155     |             |
| 19-12-12-02-00064      | 0205     |             |
| 19-12-12-02-00065      | 0119     | E4P-C-05002 |

| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 20-06-18-02-00909      | 1042     |             |
| 20-06-18-02-00910      | 1066     | E4-C-06043  |
| 20-06-18-02-00911      | 0766     |             |
| 20-06-18-02-00912      | 1046     |             |
| 20-06-18-02-00913      | 1044     |             |
| 20-06-18-02-00914      | 1103     | E4-C-06032  |
| 20-06-18-02-00915      | 1128     | E4-B-00112  |
| 20-06-18-02-00916      | 0699     |             |
| 20-06-18-02-00917      | 1026     | E4-A-00214  |
| 20-06-18-02-00918      | 1100     |             |
| 20-06-18-02-00919      | 1069     |             |
| 20-06-18-02-00920      | 0723     | E4-A-06025  |
| 20-06-18-02-00921      | 1127     |             |
| 20-06-18-02-00922      | 1034     | E4-A-00367  |
| 20-06-18-02-00923      | 1032     |             |
| 20-06-18-02-00924      | 1036     |             |
| 20-06-18-02-00925      | 1094     |             |
| 20-06-18-02-00926      | 1011     | E4-A-06061  |
| 20-06-18-02-00927      | 1038     |             |
| 20-06-18-02-00928      | 1031     | E4-C-00041  |
| 20-06-18-02-00929      | 1037     |             |
| 20-06-18-02-00930      | 1015     | E4-A-00604  |
| 20-06-18-02-00931      | 0632     | E4-A-06024  |
| 20-06-18-02-00932      | 1082     |             |
| 20-06-18-02-00933      | 1024     | E4-A-06060  |
| 20-06-18-02-00934      | 0833     | E4-A-00456  |
| 20-06-18-02-00935      | 1012     |             |
| 20-06-18-02-00936      | 1006     |             |
| 20-06-18-02-00937      | 1021     |             |
| 20-06-18-02-00938      | 1004     |             |
| 20-06-18-02-00939      | 0622     |             |
| 20-06-18-02-00940      | 0729     |             |
| 20-06-18-02-00941      | 0585     |             |
| 20-06-18-02-00942      | 0769     |             |
| 20-06-18-02-00943      | 0830     |             |
| 20-06-18-02-00944      | 0849     |             |
| 20-06-18-02-00945      | 0820     |             |
| 20-06-18-02-00946      | 0571     |             |
| 20-06-18-02-00947      | 0825     | E4-A-06030  |
| 20-06-18-02-00948      | 0683     | E4-A-06013  |
| 20-06-18-02-00949      | 0734     |             |
| 20-06-18-02-00950      | 0738     |             |
| 20-06-18-02-00951      | 1081     |             |
| 20-06-18-02-00952      | 0690     |             |
| 20-06-18-02-00953      | 0827     |             |
| 20-06-18-02-00954      | 0641     |             |
| 20-06-18-02-00955      | 0805     |             |
| 20-06-18-02-00956      | 0625     |             |
| 20-06-18-02-00957      | 0792     |             |
| 20-06-18-02-00958      | 0815     |             |
| 20-06-18-02-00959      | 0840     |             |
| 20-06-18-02-00960      | 0839     |             |
| 20-06-18-02-00961      | 0644     | E4P-C-06008 |
| 20-06-18-02-00962      | 0802     | E4-A-00323  |
| 20-06-18-02-00963      | 0810     | E4-C-00091  |
| 20-06-18-02-00964      | 0793     |             |
| 20-06-18-02-00965      | 0966     |             |
| 20-06-18-02-00966      | 0783     |             |
| 20-06-18-02-00967      | 0848     |             |
| 20-06-18-02-00968      | 0974     |             |
| 20-06-18-02-00970      | 0736     |             |
| 20-06-18-02-00971      | 0856     |             |
| 20-06-18-02-00972      | 1079     | E4-A-00507  |
| 20-06-18-02-00973      | 0732     |             |
| 20-06-18-02-00974      | 0674     |             |

| High Pressure Pump S/N | Gear S/N | Engine S/N            |
|------------------------|----------|-----------------------|
| 20-12-14-02-00004      | 1976     |                       |
| 20-12-14-02-00005      | 1938     |                       |
| 20-12-14-02-00006      | 1816     |                       |
| 20-12-14-02-00007      | 1947     |                       |
| 20-12-14-02-00009      | 1929     |                       |
| 20-12-14-02-00010      | 1988     |                       |
| 20-12-14-02-00011      | 1799     |                       |
| 20-12-14-02-00012      | 1986     |                       |
| 20-12-14-02-00013      | 1936     |                       |
| 20-12-14-02-00014      | 1368     |                       |
| 20-12-14-02-00017      | 1940     |                       |
| 20-12-14-02-00020      | 1422     | E4-A-06080            |
| 20-12-14-02-00021      | 1941     |                       |
| 20-12-14-02-00024      | 1779     |                       |
| 20-12-14-02-00025      | 1946     |                       |
| 20-12-14-02-00026      | 1974     |                       |
| 20-12-14-02-00028      | 1969     |                       |
| 20-12-14-02-00035      | 1921     |                       |
| 20-12-14-02-00036      | 1817     |                       |
| 20-12-14-02-00038      | 1881     |                       |
| 20-12-14-02-00039      | 1346     |                       |
| 20-12-14-02-00043      | 1830     |                       |
| 20-12-14-02-00048      | 1178     |                       |
| 20-12-14-02-00052      | 1350     | E4-C-00604            |
| 20-12-14-02-00053      | 1437     |                       |
| 20-12-14-02-00059      | 1167     |                       |
| 20-12-14-02-00064      | 1405     |                       |
| 20-12-14-02-00065      | 1331     | <del>E4-A-06076</del> |
| 20-12-14-02-00069      | 1434     | E4-A-06087            |
| 20-12-14-02-00073      | 1375     |                       |
| 20-12-14-02-00074      | 1389     | E4-A-06092            |
| 20-12-14-02-00075      | 1403     | E4-C-06057            |
| 20-12-14-02-00079      | 1342     |                       |
| 20-12-14-02-00080      | 1380     |                       |
| 20-12-14-02-00081      | 1343     | E4-A-06068            |
| 20-12-14-02-00086      | 1400     | E4P-C-06049           |
| 21-02-08-02-00002      | 1349     |                       |
| 21-02-08-02-00003      | 1446     |                       |
| 21-02-08-02-00004      | 1319     | E4-A-00115            |
| 21-02-08-02-00005      | 1340     | E4-B-00541            |
| 21-02-08-02-00006      | 1439     | E4P-C-06056           |
| 21-02-08-02-00007      | 1402     |                       |
| 21-02-08-02-00008      | 1384     |                       |
| 21-02-08-02-00009      | 1412     |                       |
| 21-02-08-02-00010      | 1372     |                       |
| 21-02-08-02-00011      | 1355     | E4-A-06095            |
| 21-02-08-02-00013      | 1163     | E4-C-06055            |
| 21-02-08-02-00015      | 1479     |                       |
| 21-02-08-02-00016      | 1432     |                       |
| 21-02-08-02-00017      | 1360     |                       |
| 21-02-08-02-00018      | 1383     |                       |
| 21-02-08-02-00019      | 1329     |                       |
| 21-02-08-02-00020      | 1330     | E4-A-06085            |
| 21-02-08-02-00021      | 1435     |                       |
| 21-02-08-02-00022      | 1410     |                       |
| 21-02-08-02-00023      | 1373     | E4-C-00344            |
| 21-02-08-02-00024      | 1395     |                       |
| 21-02-08-02-00025      | 1367     | E4-C-06068            |
| 21-02-08-02-00026      | 1320     |                       |
| 21-02-08-02-00027      | 1414     |                       |
| 21-02-08-02-00028      | 1392     |                       |
| 21-02-08-02-00029      | 1431     |                       |
| 21-02-08-02-00030      | 1333     | E4-A-00504            |
| 21-02-08-02-00031      | 1493     |                       |
| 21-02-08-02-00032      | 1376     |                       |

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| High Pressure Pump S/N | Gear S/N | Engine S/N   |
|------------------------|----------|--------------|
| 19-12-12-02-00066      | 0407     | E4-C-05112   |
| 19-12-12-02-00068      | 0263     | E4-B-05012   |
| 19-12-12-02-00070      | 0371     | E4-A-05083   |
| 19-12-12-02-00071      | 0238     | E4-C-05117   |
| 19-12-12-02-00072      | 0413     | E4-B-05007   |
| 19-12-12-02-00076      | 0117     |              |
| 19-12-12-02-00077      | 0249     |              |
| 19-12-12-02-00079      | 0245     | E4-C-05116   |
| 19-12-12-02-00080      | 0409     | E4-B-05010   |
| 20-01-15-02-00861      | 0271     | E4P-C-05008  |
| 20-01-15-02-00864      | 0348     |              |
| 20-01-15-02-00888      | 0425     |              |
| 20-01-15-02-00912      | 0288     | E4-C-00001   |
| 20-01-15-02-00926      | 0315     | E4P-C-005011 |
| 20-01-15-02-00929      | 0385     |              |
| 20-01-15-02-00933      | 0375     |              |
| 20-01-15-02-00934      | 0180     | E4-C-05093   |
| 20-01-15-02-00938      | 0360     |              |
| 20-01-15-02-00939      | 0143     |              |
| 20-01-15-02-00940      | 0250     | E4-B-05003   |
| 20-01-15-02-00941      | 0147     |              |
| 20-01-15-02-00942      | 0230     | E4-A-05082   |
| 20-01-15-02-00943      | 0368     |              |
| 20-01-15-02-00944      | 0252     |              |
| 20-01-15-02-00945      | 0359     | E4-C-05094   |
| 20-02-13-02-01378      | 0338     |              |
| 20-02-13-02-01379      | 0399     | E4P-C-05007  |
| 20-02-13-02-01380      | 0297     | E4-C-05119   |
| 20-02-13-02-01381      | 0351     | E4-A-05089   |
| 20-02-13-02-01382      | 0350     |              |
| 20-02-13-02-01383      | 0393     |              |
| 20-02-13-02-01384      | 0378     |              |
| 20-02-13-02-01385      | 0380     |              |
| 20-02-13-02-01386      | 0278     |              |
| 20-02-13-02-01387      | 0286     | E4-C-00263   |
| 20-02-13-02-01388      | 0273     |              |
| 20-02-13-02-01389      | 0443     |              |
| 20-02-13-02-01390      | 0284     | E4-B-05009   |
| 20-02-13-02-01391      | 0296     | E4-C-05115   |
| 20-02-13-02-01392      | 0419     | E4-A-05088   |
| 20-02-13-02-01393      | 0334     |              |
| 20-02-13-02-01394      | 0402     |              |
| 20-02-13-02-01395      | 0314     |              |
| 20-02-13-02-01396      | 0280     |              |
| 20-02-13-02-01397      | 0381     |              |
| 20-02-13-02-01398      | 0421     |              |
| 20-02-13-02-01399      | 0319     | E4-A-00487   |
| 20-02-13-02-01400      | 0259     |              |
| 20-02-13-02-01401      | 0384     |              |
| 20-02-13-02-01402      | 0377     |              |
| 20-02-13-02-01403      | 0331     |              |
| 20-02-13-02-01404      | 0345     |              |
| 20-02-13-02-01405      | 0276     |              |
| 20-02-13-02-01406      | 0275     |              |
| 20-02-13-02-01407      | 0304     |              |
| 20-02-13-02-01408      | 0355     | E4-C-05113   |
| 20-02-13-02-01409      | 0279     | E4-B-05011   |
| 20-02-13-02-01410      | 0341     |              |
| 20-02-13-02-01411      | 0282     |              |
| 20-02-13-02-01412      | 0404     |              |
| 20-02-13-02-01413      | 0306     | E4-C-05126   |
| 20-02-13-02-01414      | 0283     |              |
| 20-02-13-02-01415      | 0356     |              |
| 20-02-13-02-01416      | 0269     | E4P-C-05009  |
| 20-02-13-02-01417      | 0298     |              |

| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 20-06-18-02-00975      | 1050     |             |
| 20-06-18-02-00976      | 0671     |             |
| 20-06-18-02-00977      | 0647     |             |
| 20-06-18-02-00978      | 1101     | E4-B-00061  |
| 20-06-18-02-00979      | 1105     | E4-C-06036  |
| 20-06-18-02-00980      | 0844     |             |
| 20-06-18-02-00981      | 0743     |             |
| 20-06-18-02-00982      | 0841     |             |
| 20-06-18-02-00983      | 1043     | E4P-C-06019 |
| 20-06-18-02-00984      | 1116     |             |
| 20-06-18-02-00985      | 1047     |             |
| 20-06-18-02-00986      | 0752     |             |
| 20-06-18-02-00987      | 0789     |             |
| 20-06-18-02-00988      | 0661     |             |
| 20-06-18-02-00989      | 1045     | E4-A-06047  |
| 20-06-18-02-00990      | 1093     | E4-C-06033  |
| 20-06-18-02-00991      | 1059     |             |
| 20-06-18-02-00992      | 1106     |             |
| 20-06-18-02-00993      | 0895     |             |
| 20-06-18-02-00994      | 1065     |             |
| 20-06-18-02-00995      | 1022     |             |
| 20-06-18-02-00997      | 1039     |             |
| 20-06-18-02-00998      | 1013     |             |
| 20-06-18-02-01000      | 1089     | E4-B-00050  |
| 20-06-18-02-01001      | 1064     |             |
| 20-06-18-02-01003      | 1067     |             |
| 20-06-18-02-01004      | 1070     |             |
| 20-06-18-02-01005      | 1017     | E4-A-06046  |
| 20-06-18-02-01006      | 1035     |             |
| 20-06-18-02-01007      | 1080     | E4-A-00508  |
| 20-06-18-02-01008      | 1075     |             |
| 20-06-18-02-01009      | 1052     | E4P-C-06020 |
| 20-06-18-02-01010      | 1115     |             |
| 20-06-18-02-01011      | 1074     | E4-C-06029  |
| 20-06-18-02-01012      | 1018     | E4-C-06024  |
| 20-06-18-02-01013      | 1072     |             |
| 20-06-18-02-01014      | 1033     |             |
| 20-06-18-02-01015      | 1062     |             |
| 20-06-18-02-01016      | 1020     |             |
| 20-06-18-02-01017      | 1029     |             |
| 20-07-10-02-00002      | 0698     |             |
| 20-07-10-02-00003      | 1309     | E4P-C-06038 |
| 20-07-10-02-00004      | 0861     | E4P-C-06011 |
| 20-07-10-02-00005      | 0898     |             |
| 20-07-10-02-00006      | 0854     |             |
| 20-07-10-02-00007      | 0741     |             |
| 20-07-10-02-00008      | 0889     |             |
| 20-07-10-02-00009      | 0867     | E4-A-00207  |
| 20-07-10-02-00010      | 0697     |             |
| 20-07-10-02-00011      | 0748     |             |
| 20-07-10-02-00012      | 0711     |             |
| 20-07-10-02-00013      | 0862     |             |
| 20-07-10-02-00015      | 0912     | E4P-C-06010 |
| 20-07-10-02-00016      | 0864     | E4-C-06018  |
| 20-07-10-02-00017      | 1154     |             |
| 20-07-10-02-00018      | 0946     | E4-B-00039  |
| 20-07-10-02-00019      | 0750     |             |
| 20-07-10-02-00020      | 0704     |             |
| 20-07-10-02-00021      | 0911     |             |
| 20-07-10-02-00022      | 0803     |             |
| 20-07-10-02-00023      | 0885     | E4-A-06031  |
| 20-07-10-02-00024      | 0710     | E4-A-05091  |
| 20-07-10-02-00025      | 0910     | E4P-Z-06002 |
| 20-07-10-02-00026      | 0836     |             |
| 20-07-10-02-00027      | 0852     | E4-A-05092  |

| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 21-02-08-02-00033      | 1317     |             |
| 21-02-08-02-00034      | 1409     | E4-A-06079  |
| 21-02-08-02-00035      | 1377     |             |
| 21-02-08-02-00036      | 1394     |             |
| 21-02-08-02-00037      | 1345     | E4-A-06093  |
| 21-02-08-02-00038      | 1454     |             |
| 21-02-08-02-00040      | 1335     | E4P-C-06048 |
| 21-02-08-02-00041      | 1406     |             |
| 21-02-08-02-00042      | 1420     |             |
| 21-02-08-02-00043      | 1404     |             |
| 21-02-08-02-00044      | 1387     |             |
| 21-02-08-02-00045      | 1452     | E4P-C-06050 |
| 21-02-08-02-00047      | 1353     |             |
| 21-02-08-02-00048      | 1322     | E4-C-06067  |
| 21-02-08-02-00049      | 1430     | E4-C-06058  |
| 21-02-08-02-00050      | 1397     |             |
| 21-02-08-02-00051      | 1448     | E4P-C-00067 |
| 21-02-08-02-00052      | 1168     | E4-A-06084  |
| 21-02-08-02-00053      | 1464     |             |
| 21-02-08-02-00054      | 1433     | E4-C-06064  |
| 21-02-08-02-00055      | 1341     | E4-A-00270  |
| 21-02-08-02-00056      | 1374     |             |
| 21-02-08-02-00057      | 1423     |             |
| 21-02-08-02-00059      | 1166     |             |
| 21-02-08-02-00060      | 1407     | E4-B-00382  |
| 21-02-08-02-00061      | 1323     | E4-A-00492  |
| 21-02-08-02-00062      | 1445     | E4-A-06090  |
| 21-02-08-02-00063      | 1165     | E4-B-00143  |
| 21-02-08-02-00064      | 1413     |             |
| 21-02-08-02-00065      | 1386     | E4-A-00428  |
| 21-02-08-02-00066      | 1356     | E4-C-06059  |
| 21-02-08-02-00067      | 1382     | E4-C-06054  |
| 21-02-08-02-00068      | 1436     |             |
| 21-02-08-02-00069      | 1450     | E4-B-00540  |
| 21-02-08-02-00070      | 1344     |             |
| 21-02-08-02-00071      | 1324     |             |
| 21-02-08-02-00072      | 1357     |             |
| 21-02-08-02-00073      | 1460     | E4-C-00008  |
| 21-02-08-02-00074      | 1461     |             |
| 21-02-08-02-00075      | 1408     | E4-A-06081  |
| 21-02-08-02-00076      | 1339     |             |
| 21-02-08-02-00077      | 1326     |             |
| 21-02-08-02-00078      | 1337     |             |
| 21-02-08-02-00079      | 1371     |             |
| 21-02-08-02-00080      | 1458     | E4-C-06079  |
| 21-02-08-02-00081      | 1532     |             |
| 21-02-08-02-00082      | 1421     | E4-C-06056  |
| 21-02-08-02-00083      | 1459     |             |
| 21-02-08-02-00084      | 1318     |             |
| 21-02-08-02-00085      | 1327     | E4-B-06002  |
| 21-02-08-02-00086      | 1393     | E4-A-06094  |
| 21-02-08-02-00087      | 1418     | E4P-C-06047 |
| 21-02-08-02-00088      | 1416     |             |
| 21-02-08-02-00089      | 1495     |             |
| 21-02-08-02-00091      | 1453     |             |
| 21-02-08-02-00092      | 1455     | E4-C-06072  |
| 21-02-08-02-00093      | 1465     |             |
| 21-02-08-02-00095      | 1425     |             |
| 21-02-08-02-00096      | 1472     |             |
| 21-02-08-02-00098      | 1359     | E4-A-06078  |
| 21-02-08-02-00099      | 1332     |             |
| 21-02-08-02-00100      | 1415     |             |
| 21-02-08-02-00101      | 1378     |             |
| 21-02-08-02-00102      | 1370     |             |
| 21-02-08-02-00103      | 1500     |             |

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| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 20-02-13-02-01418      | 0426     | E4-C-05125  |
| 20-02-13-02-01419      | 0405     |             |
| 20-02-13-02-01420      | 0310     |             |
| 20-02-13-02-01421      | 0318     | E4-A-05077  |
| 20-02-13-02-01422      | 0292     |             |
| 20-02-13-02-01423      | 0325     |             |
| 20-02-13-02-01424      | 0511     |             |
| 20-02-13-02-01425      | 0307     | E4-A-00397  |
| 20-02-13-02-01426      | 0527     |             |
| 20-02-13-02-01427      | 0302     | E4-C-05122  |
| 20-02-13-02-01428      | 0316     |             |
| 20-02-13-02-01429      | 0401     | E4-C-06001  |
| 20-02-13-02-01430      | 0347     | E4-C-00218  |
| 20-02-13-02-01431      | 0394     |             |
| 20-02-13-02-01432      | 0352     | E4-A-00037  |
| 20-02-13-02-01433      | 0285     |             |
| 20-02-13-02-01434      | 0289     |             |
| 20-02-13-02-01435      | 0301     | E4P-C-05010 |
| 20-02-13-02-01436      | 0388     |             |
| 20-02-13-02-01437      | 0295     |             |
| 20-02-13-02-01438      | 0397     | E4-C-05114  |
| 20-02-13-02-01439      | 0234     |             |
| 20-02-13-02-01440      | 0303     | E4P-C-05006 |
| 20-02-13-02-01441      | 0343     |             |
| 20-02-13-02-01442      | 0373     |             |
| 20-02-13-02-01443      | 0353     | E4-A-05090  |
| 20-02-13-02-01444      | 0320     | E4-C-05120  |
| 20-02-13-02-01445      | 0354     |             |
| 20-02-13-02-01446      | 0502     |             |
| 20-02-13-02-01447      | 0321     |             |
| 20-02-13-02-01448      | 0300     | E4-A-00266  |
| 20-02-13-02-01449      | 0337     |             |
| 20-02-13-02-01450      | 0281     |             |
| 20-02-13-02-01451      | 0396     | E4-A-05076  |
| 20-02-13-02-01452      | 0392     | E4-C-05121  |
| 20-02-13-02-01453      | 0507     |             |
| 20-02-13-02-01454      | 0328     |             |
| 20-02-13-02-01455      | 0290     |             |
| 20-02-13-02-01456      | 0349     | E4-A-00079  |
| 20-02-13-02-01457      | 0390     | E4-C-00233  |
| 20-02-13-02-01458      | 0294     |             |
| 20-02-13-02-01459      | 0339     |             |
| 20-02-13-02-01460      | 0441     |             |
| 20-02-13-02-01461      | 0291     |             |
| 20-02-13-02-01462      | 0336     |             |
| 20-02-13-02-01463      | 0277     | E4-B-00110  |
| 20-02-13-02-01464      | 0406     | E4P-C-05012 |
| 20-02-13-02-01465      | 0461     |             |
| 20-02-13-02-01466      | 0293     | E4-C-05118  |
| 20-02-13-02-01467      | 0503     |             |
| 20-02-13-02-01468      | 0530     |             |
| 20-02-13-02-01470      | 0379     |             |
| 20-02-13-02-01471      | 0299     | E4-C-05123  |
| 20-02-13-02-01472      | 0287     |             |
| 20-02-13-02-01473      | 0453     |             |
| 20-02-13-02-01474      | 0423     |             |
| 20-02-13-02-01475      | 0540     |             |
| 20-02-13-02-01476      | 0395     |             |
| 20-02-13-02-01477      | 0440     |             |
| 20-02-13-02-01478      | 0444     |             |
| 20-02-13-02-01479      | 0476     |             |
| 20-02-13-02-01480      | 0486     |             |
| 20-02-13-02-01481      | 0439     |             |
| 20-02-13-02-01482      | 0497     | E4-A-06008  |
| 20-02-13-02-01483      | 0449     |             |

| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 20-07-10-02-00028      | 0724     |             |
| 20-07-10-02-00029      | 0733     |             |
| 20-07-10-02-00030      | 0873     | E4P-C-00224 |
| 20-07-10-02-00031      | 1085     |             |
| 20-07-10-02-00032      | 0942     |             |
| 20-07-10-02-00033      | 1153     |             |
| 20-07-10-02-00034      | 0832     |             |
| 20-07-10-02-00035      | 0929     |             |
| 20-07-10-02-00036      | 0703     |             |
| 20-07-10-02-00037      | 0948     | E4-A-06036  |
| 20-07-10-02-00038      | 0860     | E4-C-00122  |
| 20-07-10-02-00039      | 0821     |             |
| 20-07-10-02-00040      | 1310     |             |
| 20-07-10-02-00041      | 1158     | E4-A-00066  |
| 20-07-10-02-00042      | 0930     |             |
| 20-07-10-02-00043      | 0877     |             |
| 20-07-10-02-00044      | 1151     |             |
| 20-07-10-02-00045      | 0917     | E4-A-00116  |
| 20-07-10-02-00046      | 0878     | E4P-C-05013 |
| 20-07-10-02-00047      | 0788     |             |
| 20-07-10-02-00048      | 1132     |             |
| 20-07-10-02-00049      | 1141     |             |
| 20-07-10-02-00050      | 1170     |             |
| 20-07-10-02-00051      | 1184     |             |
| 20-07-10-02-00052      | 1122     | E4-C-06044  |
| 20-07-10-02-00053      | 1109     |             |
| 20-07-10-02-00054      | 1155     |             |
| 20-07-10-02-00055      | 1058     |             |
| 20-07-10-02-00056      | 1147     |             |
| 20-07-10-02-00057      | 1144     |             |
| 20-07-10-02-00058      | 1121     |             |
| 20-07-10-02-00059      | 1126     | E4-A-00485  |
| 20-07-10-02-00060      | 1133     |             |
| 20-07-10-02-00061      | 1095     |             |
| 20-07-10-02-00062      | 1098     |             |
| 20-07-10-02-00063      | 1148     |             |
| 20-07-10-02-00064      | 1161     | E4-C-06035  |
| 20-07-10-02-00065      | 1136     |             |
| 20-07-10-02-00066      | 1130     |             |
| 20-07-10-02-00067      | 1125     | E4P-C-06026 |
| 20-07-10-02-00068      | 1152     |             |
| 20-07-10-02-00069      | 1096     | E4-A-06059  |
| 20-07-10-02-00070      | 1110     |             |
| 20-07-10-02-00071      | 1294     |             |
| 20-07-10-02-00072      | 1143     |             |
| 20-07-10-02-00073      | 1140     | E4-A-06065  |
| 20-07-10-02-00074      | 1173     |             |
| 20-07-10-02-00075      | 1138     |             |
| 20-07-10-02-00076      | 1171     |             |
| 20-07-10-02-00077      | 1040     |             |
| 20-07-10-02-00079      | 1119     | E4-A-06058  |
| 20-07-10-02-00080      | 1280     | E4-A-06057  |
| 20-07-10-02-00081      | 1118     |             |
| 20-07-10-02-00082      | 1088     |             |
| 20-07-10-02-00083      | 1188     |             |
| 20-07-10-02-00084      | 1305     |             |
| 20-07-10-02-00085      | 1102     |             |
| 20-07-10-02-00086      | 1181     | E4-C-06046  |
| 20-07-10-02-00088      | 1180     |             |
| 20-07-10-02-00090      | 1183     | E4-A-06052  |
| 20-07-10-02-00091      | 1304     | E4P-C-06031 |
| 20-08-21-02-00582      | 1149     |             |
| 20-08-21-02-00583      | 1162     |             |
| 20-08-21-02-00584      | 1123     |             |
| 20-08-21-02-00585      | 1150     |             |

| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 21-02-08-02-00104      | 1338     | E4-A-06086  |
| 21-02-08-02-00105      | 1398     | E4-A-06083  |
| 21-02-08-02-00106      | 1336     | E4-C-06065  |
| 21-02-08-02-00107      | 1419     | E4-B-06001  |
| 21-02-08-02-00108      | 1411     |             |
| 21-02-08-02-00109      | 1463     |             |
| 21-02-08-02-00110      | 1426     | E4-A-06077  |
| 21-02-08-02-00111      | 1399     |             |
| 21-02-08-02-00112      | 1328     |             |
| 21-02-08-02-00113      | 1427     |             |
| 21-02-08-02-00114      | 1523     | E4-C-00473  |
| 21-02-08-02-00115      | 1191     |             |
| 21-02-08-02-00116      | 1352     |             |
| 21-02-08-02-00117      | 1417     |             |
| 21-02-08-02-00118      | 1429     |             |
| 21-02-08-02-00119      | 1424     |             |
| 21-02-08-02-00120      | 1192     |             |
| 21-02-08-02-00121      | 1469     | E4-C-06070  |
| 21-02-08-02-00122      | 1447     |             |
| 21-02-08-02-00123      | 1484     |             |
| 21-02-08-02-00124      | 1177     |             |
| 21-02-08-02-00125      | 1364     |             |
| 21-02-08-02-00126      | 1396     | E4-A-00455  |
| 21-02-08-02-00127      | 1379     |             |
| 21-02-08-02-00128      | 1348     |             |
| 21-02-08-02-00129      | 1321     |             |
| 21-02-08-02-00130      | 1451     | E4-A-00532  |
| 21-02-08-02-01548      | 1179     |             |
| 21-02-08-02-01549      | 1477     |             |
| 21-02-08-02-01550      | 1515     |             |
| 21-02-08-08-00014      | 1476     | E4-C-06073  |
| 21-02-08-08-00090      | 1496     |             |
| 21-03-03-02-02275      | 1533     |             |
| 21-03-03-02-02276      | 1478     |             |
| 21-03-03-02-02277      | 1837     |             |
| 21-03-03-02-02278      | 1485     |             |
| 21-03-03-02-02279      | 1517     |             |
| 21-03-03-02-02280      | 1487     |             |
| 21-03-03-02-02281      | 1547     |             |
| 21-03-03-02-02282      | 1503     |             |
| 21-03-03-02-02283      | 1499     |             |
| 21-03-03-02-02284      | 1543     |             |
| 21-03-03-02-02285      | 1544     |             |
| 21-03-03-02-02286      | 1498     |             |
| 21-03-03-02-02287      | 1467     |             |
| 21-03-03-02-02288      | 1542     |             |
| 21-03-03-02-02289      | 1534     |             |
| 21-03-03-02-02290      | 1483     |             |
| 21-03-03-02-02291      | 1536     |             |
| 21-03-03-02-02292      | 1481     |             |
| 21-03-03-02-02293      | 1491     | E4-C-06071  |
| 21-03-03-02-02294      | 1504     |             |
| 21-03-03-02-02295      | 1501     |             |
| 21-03-03-02-02296      | 1525     |             |
| 21-03-03-02-02297      | 1490     |             |
| 21-03-03-02-02298      | 1518     |             |
| 21-03-03-02-02299      | 1521     | E4P-C-00066 |
| 21-03-03-02-02300      | 1497     |             |
| 21-03-03-02-02302      | 1751     |             |
| 21-03-03-02-02303      | 1699     |             |
| 21-03-03-02-02304      | 1527     | E4-C-00018  |
| 21-03-03-02-02305      | 1468     |             |
| 21-03-03-02-02306      | 1489     |             |
| 21-03-03-02-02307      | 1466     |             |
| 21-03-03-02-02308      | 1482     |             |

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| High Pressure Pump S/N | Gear S/N | Engine S/N  |
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| 20-02-13-02-01484      | 0542     |             |
| 20-02-13-02-01485      | 0450     |             |
| 20-02-13-02-01486      | 0446     |             |
| 20-02-13-02-01487      | 0462     |             |
| 20-02-13-02-01488      | 0536     |             |
| 20-02-13-02-01489      | 0454     |             |
| 20-02-13-02-01490      | 0531     |             |
| 20-02-13-02-01491      | 0445     |             |
| 20-02-13-02-01492      | 0428     |             |
| 20-02-13-02-01493      | 0524     |             |
| 20-02-13-02-01494      | 0491     |             |
| 20-02-13-02-01495      | 0504     |             |
| 20-02-13-02-01496      | 0547     |             |
| 20-02-13-02-01497      | 0520     |             |
| 20-02-13-02-01498      | 0455     | E4-A-06010  |
| 20-02-13-02-01499      | 0487     |             |
| 20-02-13-02-01500      | 0479     |             |
| 20-02-13-02-01501      | 0422     |             |
| 20-02-13-02-01502      | 0432     |             |
| 20-02-13-02-01503      | 0559     |             |
| 20-02-13-02-01504      | 0556     |             |
| 20-02-13-02-01505      | 0528     |             |
| 20-02-13-02-01506      | 0452     | E4-A-06006  |
| 20-02-13-02-01507      | 0489     |             |
| 20-02-13-02-01508      | 0317     |             |
| 20-02-13-02-01509      | 0529     | E4-A-06011  |
| 20-02-13-02-01510      | 0631     |             |
| 20-02-13-02-01511      | 0451     |             |
| 20-02-13-02-01512      | 0472     | E4-A-06009  |
| 20-02-13-02-01513      | 0600     |             |
| 20-02-14-02-00084      | 1494     | E4P-C-06051 |
| 20-03-04-02-00003      | 0563     |             |
| 20-03-04-02-00004      | 0460     |             |
| 20-03-04-02-00005      | 0435     |             |
| 20-03-04-02-00006      | 0538     |             |
| 20-03-04-02-00007      | 0434     |             |
| 20-03-04-02-00008      | 0311     |             |
| 20-03-04-02-00009      | 0463     |             |
| 20-03-04-02-00010      | 0344     |             |
| 20-03-04-02-00011      | 0346     | E4-C-06005  |
| 20-03-04-02-00012      | 0387     |             |
| 20-03-04-02-00013      | 0447     |             |
| 20-03-04-02-00014      | 0492     |             |
| 20-03-04-02-00015      | 0465     |             |
| 20-03-04-02-00016      | 0357     |             |
| 20-03-04-02-00017      | 0420     | E4-C-06003  |
| 20-03-04-02-00018      | 0433     |             |
| 20-03-04-02-00019      | 0309     |             |
| 20-03-04-02-00020      | 0391     |             |
| 20-03-04-02-00021      | 0424     | E4-C-06004  |
| 20-03-04-02-00022      | 0570     |             |
| 20-03-04-02-00023      | 0430     |             |
| 20-03-04-02-00024      | 0305     |             |
| 20-03-04-02-00025      | 0398     | E4-C-06006  |
| 20-03-04-02-00026      | 0322     |             |
| 20-03-04-02-00027      | 0484     |             |
| 20-03-04-02-00029      | 0323     | E4-C-06002  |
| 20-03-04-02-00030      | 0417     |             |
| 20-03-04-02-00031      | 0403     | E4-A-06001  |
| 20-03-04-02-00032      | 0490     |             |
| 20-03-04-02-00033      | 0096     |             |
| 20-03-04-02-00034      | 0313     |             |
| 20-03-04-02-00035      | 0342     |             |
| 20-03-04-02-00036      | 0308     |             |
| 20-03-04-02-00037      | 0418     |             |

| High Pressure Pump S/N | Gear S/N | Engine S/N  |
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| 20-08-21-02-00586      | 1104     |             |
| 20-08-21-02-00587      | 1366     | E4-C-06066  |
| 20-08-21-02-00588      | 1253     |             |
| 20-08-21-02-00589      | 1117     |             |
| 20-08-21-02-00590      | 1107     |             |
| 20-08-21-02-00591      | 1176     |             |
| 20-08-21-02-00592      | 0686     | E4-A-06014  |
| 20-08-21-02-00594      | 1203     |             |
| 20-08-21-02-00595      | 1189     |             |
| 20-08-21-02-00596      | 1083     |             |
| 20-08-21-02-00597      | 1137     |             |
| 20-08-21-02-00598      | 1124     |             |
| 20-08-21-02-00599      | 1175     |             |
| 20-08-21-02-00600      | 1160     |             |
| 20-08-21-02-00601      | 1142     |             |
| 20-08-21-02-00602      | 1185     |             |
| 20-08-21-02-00603      | 0779     |             |
| 20-08-21-02-00604      | 1084     |             |
| 20-08-21-02-00605      | 1135     |             |
| 20-08-21-02-00606      | 1187     |             |
| 20-08-21-02-00607      | 1156     |             |
| 20-08-21-02-00608      | 1241     | E4P-C-06029 |
| 20-08-21-02-00609      | 1129     |             |
| 20-08-21-02-00610      | 1097     |             |
| 20-08-21-02-00611      | 1157     |             |
| 20-08-21-02-00612      | 1086     |             |
| 20-08-21-02-00613      | 1146     |             |
| 20-08-21-02-00614      | 1145     |             |
| 20-08-21-02-00615      | 1120     |             |
| 20-08-21-02-00616      | 1174     |             |
| 20-08-21-02-00617      | 1139     |             |
| 20-08-21-02-00618      | 1087     |             |
| 20-08-21-02-00619      | 1099     |             |
| 20-08-21-02-00620      | 1131     |             |
| 20-08-21-02-00621      | 1186     | E4-C-00182  |
| 20-08-21-02-00622      | 1223     | E4-A-00216  |
| 20-08-21-02-00623      | 1108     |             |
| 20-08-21-02-00624      | 1306     | E4-C-06037  |
| 20-08-21-02-00625      | 1200     |             |
| 20-08-21-02-00626      | 1182     | E4-C-06047  |
| 20-08-21-02-00627      | 1245     | E4-C-06041  |
| 20-08-21-02-00628      | 1312     |             |
| 20-08-21-02-00629      | 1071     |             |
| 20-08-21-02-00630      | 1159     |             |
| 20-08-21-02-00631      | 1172     | E4-A-06050  |
| 20-08-21-02-00632      | 1134     |             |
| 20-08-21-02-00633      | 1239     |             |
| 20-08-21-02-00634      | 1365     | E4-A-00603  |
| 20-08-21-02-00635      | 1444     |             |
| 20-08-21-02-00636      | 0814     |             |
| 20-08-21-02-00637      | 1266     |             |
| 20-08-21-02-00638      | 1164     |             |
| 20-08-21-02-00639      | 1248     | E4-C-06048  |
| 20-08-21-02-00640      | 1232     | E4P-C-06044 |
| 20-08-21-02-00641      | 1218     |             |
| 20-08-21-02-00642      | 1197     | E4-C-00042  |
| 20-08-21-02-00643      | 1438     | E4P-C-00069 |
| 20-08-21-02-00644      | 1195     |             |
| 20-08-21-02-00645      | 1262     | E4-A-00491  |
| 20-08-21-02-00646      | 1257     |             |
| 20-08-21-02-00647      | 0834     |             |
| 20-08-21-02-00648      | 1231     |             |
| 20-08-21-02-00649      | 1267     | E4-A-06053  |
| 20-08-21-02-00650      | 1212     |             |
| 20-08-21-02-00651      | 1235     |             |

| High Pressure Pump S/N       | Gear S/N | Engine S/N            |
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| 21-03-03-02-02309            | 1505     |                       |
| 21-03-03-02-02310            | 1522     |                       |
| <del>21-03-03-02-02311</del> | 1519     | <del>E4-A-06102</del> |
| 21-03-03-02-02312            | 1539     |                       |
| 21-03-03-02-02313            | 1725     |                       |
| 21-03-03-02-02314            | 1492     |                       |
| 21-03-03-02-02315            | 1546     |                       |
| 21-03-03-02-02316            | 1524     |                       |
| 21-03-03-02-02317            | 1502     |                       |
| 21-03-03-02-02318            | 1516     |                       |
| 21-03-03-02-02319            | 1510     |                       |
| 21-03-03-02-02320            | 1475     |                       |
| 21-03-03-02-02321            | 1701     |                       |
| 21-03-03-02-02322            | 1443     |                       |
| 21-03-03-02-02323            | 1512     | E4-C-00119            |
| 21-03-03-02-02325            | 1538     | E4-A-00660            |
| 21-03-03-02-02326            | 1514     |                       |
| 21-03-03-02-02327            | 1526     | E4-B-00063            |
| 21-03-03-02-02328            | 1700     |                       |
| 21-03-03-02-02329            | 1545     |                       |
| 21-03-03-02-02330            | 1556     |                       |
| 21-03-03-02-02331            | 1530     |                       |
| 21-03-03-02-02332            | 1509     | E4-A-00018            |
| 21-03-03-02-02333            | 1513     |                       |
| 21-03-03-02-02334            | 1508     |                       |
| 21-03-03-02-02335            | 1697     |                       |
| 21-03-03-02-02336            | 1520     |                       |
| <del>21-03-03-02-02337</del> | 1537     |                       |
| 21-03-03-02-02339            | 1528     |                       |
| 21-03-03-02-02340            | 1578     |                       |
| 21-03-03-02-02341            | 1548     |                       |
| 21-03-03-02-02342            | 1565     |                       |
| 21-03-03-02-02343            | 1726     |                       |
| 21-03-03-02-02344            | 1569     |                       |
| 21-03-03-02-02345            | 1571     |                       |
| 21-03-03-02-02346            | 1511     | E4-C-00088            |
| 21-03-03-02-02347            | 1665     |                       |
| 21-03-03-02-02349            | 1541     |                       |
| 21-03-03-02-02350            | 1550     | E4-A-06100            |
| 21-03-03-02-02351            | 1480     |                       |
| 21-03-03-02-02352            | 1748     |                       |
| 21-03-03-02-02353            | 1531     |                       |
| 21-03-03-02-02354            | 1554     |                       |
| 21-03-03-02-02355            | 1618     |                       |
| 21-03-03-02-02356            | 1576     |                       |
| 21-03-03-02-02357            | 1486     |                       |
| 21-03-03-02-02358            | 1568     |                       |
| 21-03-03-02-02359            | 1580     |                       |
| 21-03-03-02-02360            | 1507     |                       |
| 21-03-03-02-02361            | 1567     |                       |
| 21-03-03-02-02362            | 1638     |                       |
| 21-03-03-02-02363            | 1586     |                       |
| 21-03-03-02-02364            | 1470     |                       |
| 21-03-03-02-02365            | 1577     | E4-C-06077            |
| 21-03-03-02-02366            | 1473     |                       |
| 21-03-03-02-02367            | 1558     |                       |
| 21-03-03-02-02369            | 1555     |                       |
| 21-03-03-02-02370            | 1823     |                       |
| 21-03-03-02-02371            | 1559     |                       |
| 21-03-03-02-02372            | 1579     |                       |
| 21-03-03-02-02373            | 1440     | E4-A-06097            |
| 21-03-03-02-02374            | 1692     |                       |
| 21-03-03-02-02375            | 1573     |                       |
| 21-03-03-02-02376            | 1549     |                       |
| 21-03-03-02-02377            | 1647     |                       |

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| High Pressure Pump S/N | Gear S/N | Engine S/N  |
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| 20-03-04-02-00038      | 0400     | E4-C-05124  |
| 20-03-04-02-00039      | 0500     | E4P-C-06012 |
| 20-03-04-02-00040      | 0535     | E4P-C-06006 |
| 20-03-04-02-00041      | 0437     |             |
| 20-03-04-02-00042      | 0543     |             |
| 20-03-04-02-00043      | 0473     |             |
| 20-03-04-02-00044      | 0494     | E4-C-06007  |
| 20-03-04-02-00045      | 0340     |             |
| 20-03-04-02-00046      | 0515     |             |
| 20-03-04-02-00047      | 0498     |             |
| 20-03-04-02-00048      | 0588     |             |
| 20-03-04-02-00049      | 0478     |             |
| 20-03-04-02-00050      | 0541     |             |
| 20-03-04-02-00051      | 0448     | E4P-C-06002 |
| 20-03-04-02-00052      | 0519     | E4-A-06003  |
| 20-03-04-02-00053      | 0495     |             |
| 20-03-04-02-00054      | 0483     |             |
| 20-03-04-02-00055      | 0389     |             |
| 20-03-04-02-00057      | 0518     |             |
| 20-03-04-02-00058      | 0506     |             |
| 20-03-04-02-00059      | 0505     |             |
| 20-03-04-02-00060      | 0464     |             |
| 20-03-04-02-00061      | 0456     | E4-A-06005  |
| 20-03-04-02-00062      | 0499     |             |
| 20-03-04-02-00063      | 0532     |             |
| 20-03-04-02-00064      | 0436     | E4P-C-06003 |
| 20-03-04-02-00065      | 0427     |             |
| 20-03-04-02-00066      | 0493     | E4-A-06012  |
| 20-03-04-02-00068      | 0564     |             |
| 20-03-04-02-00071      | 0458     | E4P-C-06005 |
| 20-03-04-02-00072      | 0474     |             |
| 20-03-04-02-00073      | 0513     | E4-A-06007  |
| 20-03-04-02-00074      | 0534     |             |
| 20-03-04-02-00075      | 0533     | E4P-C-06004 |
| 20-03-04-02-00076      | 0508     | E4P-C-06001 |
| 20-03-04-02-00078      | 0501     |             |
| 20-03-04-02-00079      | 0610     | E4-A-06017  |
| 20-03-04-02-00081      | 0481     |             |
| 20-03-04-02-00082      | 0509     |             |
| 20-03-04-02-00083      | 0488     | E4-A-06002  |
| 20-03-04-02-00085      | 0438     |             |
| 20-03-04-02-00086      | 0517     | E4-A-06004  |
| 20-03-04-02-00088      | 0521     |             |
| 20-03-04-02-00089      | 0457     |             |
| 20-03-04-02-00091      | 0526     |             |
| 20-03-31-02-00182      | 0624     |             |
| 20-03-31-02-00183      | 0681     |             |
| 20-03-31-02-00184      | 0568     |             |
| 20-03-31-02-00185      | 0525     |             |
| 20-03-31-02-00186      | 0687     |             |
| 20-03-31-02-00187      | 0584     |             |
| 20-03-31-02-00188      | 0689     |             |
| 20-03-31-02-00189      | 0576     |             |
| 20-03-31-02-00190      | 0609     |             |
| 20-03-31-02-00191      | 0605     |             |
| 20-03-31-02-00192      | 0618     |             |
| 20-03-31-02-00193      | 0679     | E4P-C-06007 |
| 20-03-31-02-00194      | 0663     |             |
| 20-03-31-02-00195      | 0596     |             |
| 20-03-31-02-00196      | 0655     |             |
| 20-03-31-02-00197      | 0475     |             |
| 20-03-31-02-00198      | 0636     |             |
| 20-03-31-02-00199      | 0695     | E4-A-00498  |
| 20-03-31-02-00200      | 0551     |             |
| 20-03-31-02-00201      | 0552     | E4-A-06015  |

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| 20-08-21-02-00652      | 1226     | E4-A-00244            |
| 20-08-21-02-00653      | 1369     |                       |
| 20-08-21-02-00654      | 1351     | E4-C-00118            |
| 20-08-21-02-00655      | 1385     | E4-C-00243            |
| 20-08-21-02-00656      | 0747     |                       |
| 20-08-21-02-00657      | 1264     | E4-A-06064            |
| 20-08-21-02-00659      | 1222     | E4-C-06060            |
| 20-08-21-02-00660      | 1208     |                       |
| 20-08-21-02-00661      | 1390     | E4-C-06069            |
| 20-08-21-02-00662      | 1255     | E4-A-06072            |
| 20-08-21-02-00663      | 1388     | E4-A-00514            |
| 20-08-21-02-00664      | 1290     | E4-C-06051            |
| 20-08-21-02-00665      | 1225     | <del>E4-A-06074</del> |
| 20-08-21-02-00666      | 1391     | E4-A-00192            |
| 20-08-21-02-00667      | 1215     |                       |
| 20-08-21-02-00668      | 1299     | E4P-C-06036           |
| 20-08-21-02-00669      | 1193     |                       |
| 20-08-21-02-00670      | 1361     |                       |
| 20-08-21-02-00671      | 1300     | E4P-C-06037           |
| 20-08-21-02-00672      | 1219     |                       |
| 20-08-21-02-00673      | 1198     |                       |
| 20-08-21-02-00674      | 1213     | E4-C-06063            |
| 20-08-21-02-00675      | 1196     |                       |
| 20-08-21-02-00676      | 1362     | E4P-C-06045           |
| 20-08-21-02-00677      | 1354     |                       |
| 20-08-21-02-00678      | 1291     | E4-A-06056            |
| 20-08-21-02-00679      | 1249     |                       |
| 20-08-21-02-00680      | 1263     |                       |
| 20-08-21-02-00681      | 1313     |                       |
| 20-08-21-02-00682      | 1216     |                       |
| 20-08-21-02-00683      | 1347     |                       |
| 20-08-21-02-00684      | 1381     |                       |
| 20-08-21-02-00685      | 1259     | E4-C-06040            |
| 20-08-21-02-00686      | 1311     | E4-A-06066            |
| 20-08-21-02-00687      | 1227     | E4P-C-06043           |
| 20-08-21-02-00688      | 1281     |                       |
| 20-08-21-02-00689      | 1271     |                       |
| 20-08-21-02-00690      | 0581     |                       |
| 20-08-21-02-00691      | 1279     | E4-A-06063            |
| 20-08-21-02-00692      | 1254     | E4-C-06045            |
| 20-08-21-02-00693      | 1258     |                       |
| 20-08-21-02-00694      | 1283     |                       |
| 20-08-21-02-00695      | 1277     | E4-A-06070            |
| 20-08-21-02-00696      | 1238     | E4-C-00138            |
| 20-08-21-02-00697      | 1261     |                       |
| 20-08-21-02-00698      | 0824     |                       |
| 20-08-21-02-00699      | 1302     | E4P-C-06039           |
| 20-08-21-02-00700      | 1307     | E4-C-06039            |
| 20-08-21-02-00701      | 1284     | E4P-C-06035           |
| 20-08-21-02-00702      | 1252     | E4-B-00202            |
| 20-08-21-02-00703      | 1268     |                       |
| 20-08-21-02-00704      | 1244     | E4-A-06069            |
| 20-08-21-02-00705      | 1296     | E4-A-06071            |
| 20-08-21-02-00706      | 1276     |                       |
| 20-08-21-02-00707      | 1247     |                       |
| 20-08-21-02-00708      | 1240     |                       |
| 20-08-21-02-00709      | 1275     |                       |
| 20-08-21-02-00710      | 1251     |                       |
| 20-08-21-02-00711      | 1287     | E4-A-06062            |
| 20-08-21-02-00712      | 1272     |                       |
| 20-08-21-02-00713      | 1297     |                       |
| 20-08-21-02-00714      | 1242     |                       |
| 20-08-21-02-00715      | 1295     | E4-C-06038            |
| 20-08-21-02-00716      | 1289     |                       |
| 20-08-21-02-00717      | 0691     |                       |

| High Pressure Pump S/N       | Gear S/N | Engine S/N            |
|------------------------------|----------|-----------------------|
| 21-03-03-02-02379            | 1582     | E4P-C-06053           |
| 21-03-03-02-02380            | 1560     |                       |
| 21-03-03-02-02381            | 1428     | E4-A-06089            |
| 21-03-03-02-02382            | 1574     |                       |
| 21-03-03-02-02384            | 1563     |                       |
| 21-03-03-02-02385            | 1441     |                       |
| <del>21-03-03-02-02386</del> | 1358     | <del>E4-A-06098</del> |
| 21-03-03-02-02387            | 1506     |                       |
| 21-03-03-02-02388            | 1589     | E4-C-06075            |
| 21-03-03-02-02389            | 1572     | E4-C-06080            |
| 21-03-03-02-02390            | 1581     |                       |
| 21-03-03-02-02391            | 1551     |                       |
| 21-03-03-02-02392            | 1557     | E4P-C-06054           |
| 21-03-03-02-02393            | 1474     |                       |
| 21-03-03-02-02394            | 1564     | E4P-C-06052           |
| 21-03-03-02-02395            | 1540     |                       |
| 21-03-03-02-02396            | 1553     |                       |
| 21-03-03-02-02397            | 1561     |                       |
| 21-03-03-02-02398            | 1488     |                       |
| 21-03-03-02-02399            | 1456     |                       |
| 21-03-03-02-02400            | 1657     |                       |
| 21-03-03-02-02401            | 1706     |                       |
| 21-03-03-02-02402            | 1713     |                       |
| 21-03-03-02-02403            | 1840     |                       |
| 21-03-03-02-02404            | 1907     |                       |
| 21-03-03-02-02405            | 1810     |                       |
| 21-03-03-02-02406            | 1828     |                       |
| 21-03-03-02-02407            | 1752     |                       |
| 21-03-03-02-02408            | 1325     |                       |
| 21-03-03-02-02409            | 1829     |                       |
| 21-03-03-02-02410            | 1822     |                       |
| 21-03-03-02-02411            | 1707     |                       |
| 21-03-03-02-02412            | 1742     |                       |
| 21-03-03-02-02414            | 1850     |                       |
| 21-03-03-02-02415            | 1562     |                       |
| 21-03-03-02-02416            | 1841     |                       |
| 21-03-03-02-02417            | 1658     |                       |
| 21-03-03-02-02418            | 1629     |                       |
| 21-03-03-02-02419            | 1813     |                       |
| 21-04-08-02-00592            | 1722     |                       |
| 21-04-08-02-00593            | 1610     |                       |
| 21-04-08-02-00594            | 1671     |                       |
| 21-04-08-02-00595            | 1593     |                       |
| 21-04-08-02-00596            | 1591     |                       |
| 21-04-08-02-00597            | 1724     |                       |
| 21-04-08-02-00598            | 1769     |                       |
| 21-04-08-02-00599            | 1702     |                       |
| 21-04-08-02-00600            | 1597     |                       |
| 21-04-08-02-00601            | 1602     |                       |
| 21-04-08-02-00602            | 1603     |                       |
| 21-04-08-02-00603            | 1614     | E4-A-06104            |
| 21-04-08-02-00604            | 1672     |                       |
| 21-04-08-02-00605            | 1640     |                       |
| 21-04-08-02-00606            | 1599     |                       |
| 21-04-08-02-00607            | 1694     |                       |
| 21-04-08-02-00608            | 1595     |                       |
| 21-04-08-02-00609            | 1617     |                       |
| <del>21-04-08-02-00610</del> | 1611     |                       |
| 21-04-08-02-00611            | 1656     |                       |
| 21-04-08-02-00612            | 1728     |                       |
| 21-04-08-02-00613            | 1605     |                       |
| 21-04-08-02-00614            | 1757     |                       |
| 21-04-08-02-00615            | 1826     |                       |
| 21-04-08-02-00616            | 1649     |                       |
| 21-04-08-02-00617            | 1880     |                       |

|                  |      |      |          |     |     |     |               |     |     |      |      |  |
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| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 20-03-31-02-00202      | 0546     |             |
| 20-03-31-02-00203      | 0672     |             |
| 20-03-31-02-00204      | 0482     |             |
| 20-03-31-02-00205      | 0567     |             |
| 20-03-31-02-00206      | 0649     |             |
| 20-03-31-02-00207      | 0677     |             |
| 20-03-31-02-00208      | 0512     |             |
| 20-03-31-02-00209      | 0587     |             |
| 20-03-31-02-00210      | 0560     |             |
| 20-03-31-02-00211      | 0562     |             |
| 20-03-31-02-00212      | 0952     |             |
| 20-03-31-02-00213      | 0659     |             |
| 20-03-31-02-00214      | 0660     |             |
| 20-03-31-02-00216      | 0601     |             |
| 20-03-31-02-00217      | 0586     |             |
| 20-03-31-02-00218      | 0459     |             |
| 20-03-31-02-00219      | 0565     |             |
| 20-03-31-02-00220      | 0558     |             |
| 20-03-31-02-00221      | 0684     |             |
| 20-03-31-02-00222      | 0654     |             |
| 20-03-31-02-00223      | 0595     |             |
| 20-03-31-02-00224      | 0553     |             |
| 20-03-31-02-00225      | 0544     |             |
| 20-03-31-02-00226      | 0656     |             |
| 20-03-31-02-00227      | 0575     |             |
| 20-03-31-02-00228      | 0642     |             |
| 20-03-31-02-00229      | 0617     |             |
| 20-03-31-02-00230      | 0599     |             |
| 20-03-31-02-00231      | 0666     |             |
| 20-03-31-02-00232      | 0580     |             |
| 20-03-31-02-00233      | 0592     |             |
| 20-03-31-02-00234      | 0572     |             |
| 20-03-31-02-00235      | 0904     | E4P-C-06018 |
| 20-03-31-02-00236      | 0971     | E4-A-06041  |
| 20-03-31-02-00237      | 0549     |             |
| 20-03-31-02-00238      | 0594     |             |
| 20-03-31-02-00239      | 0569     |             |
| 20-03-31-02-00240      | 0668     |             |
| 20-03-31-02-00241      | 0692     |             |
| 20-03-31-02-00242      | 0496     |             |
| 20-03-31-02-00243      | 0676     |             |
| 20-03-31-02-00244      | 0693     |             |
| 20-03-31-02-00245      | 0566     |             |
| 20-03-31-02-00246      | 0593     | E4-A-00219  |
| 20-03-31-02-00248      | 0653     |             |
| 20-03-31-02-00249      | 0614     | E4-C-00069  |
| 20-03-31-02-00250      | 0619     | E4-C-00172  |
| 20-03-31-02-00251      | 0669     |             |
| 20-03-31-02-00252      | 0635     |             |
| 20-03-31-02-00253      | 0638     |             |
| 20-03-31-02-00254      | 0637     | E4-A-06022  |
| 20-03-31-02-00255      | 0608     |             |
| 20-03-31-02-00256      | 0442     |             |
| 20-03-31-02-00257      | 0645     | E4-A-00509  |
| 20-03-31-02-00258      | 0744     |             |
| 20-03-31-02-00259      | 0598     | E4-C-06014  |
| 20-03-31-02-00260      | 0634     |             |
| 20-03-31-02-00261      | 0688     |             |
| 20-03-31-02-00262      | 0555     | E4-A-06016  |
| 20-03-31-02-00263      | 0651     |             |
| 20-03-31-02-00264      | 0795     | E4-A-05097  |
| 20-03-31-02-00265      | 0658     |             |
| 20-03-31-02-00266      | 0611     |             |
| 20-03-31-02-00267      | 0602     | E4-C-06013  |
| 20-03-31-02-00268      | 0582     |             |

| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 20-08-21-02-00718      | 1303     | E4P-C-06034 |
| 20-08-21-02-00719      | 0799     |             |
| 20-08-21-02-00720      | 0818     |             |
| 20-08-21-02-00721      | 1314     | E4-C-06052  |
| 20-08-21-02-00722      | 0735     |             |
| 20-08-21-02-00723      | 0808     |             |
| 20-08-21-02-00724      | 0757     |             |
| 20-08-21-02-00725      | 0574     | E4P-C-00051 |
| 20-08-21-02-00726      | 0709     |             |
| 20-09-02-02-00424      | 0657     |             |
| 20-09-02-02-00425      | 0774     |             |
| 20-09-02-02-00426      | 0776     |             |
| 20-09-02-02-00427      | 0787     | E4-A-06029  |
| 20-09-02-02-00428      | 0590     |             |
| 20-09-02-02-00429      | 0620     | E4-A-06023  |
| 20-09-02-02-00430      | 0640     | E4-B-00297  |
| 20-09-02-02-00431      | 0578     | E4-A-00046  |
| 20-09-02-02-00433      | 0823     |             |
| 20-09-02-02-00434      | 0764     |             |
| 20-09-02-02-00435      | 0817     |             |
| 20-09-02-02-00436      | 0604     | E4-C-06011  |
| 20-09-02-02-00437      | 0665     |             |
| 20-09-02-02-00438      | 0648     | E4-A-06028  |
| 20-09-02-02-00439      | 1980     |             |
| 20-09-02-02-00440      | 0616     |             |
| 20-09-02-02-00441      | 0786     |             |
| 20-09-02-02-00442      | 0573     |             |
| 20-09-02-02-00443      | 0838     |             |
| 20-09-02-02-00444      | 0855     |             |
| 20-09-02-02-00445      | 0545     | E4-B-00433  |
| 20-09-02-02-00446      | 0628     |             |
| 20-09-02-02-00447      | 0615     | E4-B-00417  |
| 20-09-02-02-00448      | 0662     | E4-A-06026  |
| 20-09-02-02-00449      | 0591     | E4-C-00092  |
| 20-09-02-02-00450      | 0772     |             |
| 20-09-02-02-00451      | 0804     |             |
| 20-09-02-02-00452      | 0626     | E4-A-06019  |
| 20-09-02-02-00453      | 0740     |             |
| 20-09-02-02-00454      | 0742     |             |
| 20-09-02-02-00455      | 0554     | E4-A-06018  |
| 20-09-02-02-00456      | 0694     |             |
| 20-09-02-02-00457      | 0612     | E4-A-00111  |
| 20-09-02-02-00458      | 0763     |             |
| 20-09-02-02-00459      | 0579     | E4-C-06009  |
| 20-09-02-02-00460      | 0791     |             |
| 20-09-02-02-00461      | 0765     |             |
| 20-09-02-02-00462      | 0606     | E4-C-06012  |
| 20-09-02-02-00463      | 0607     | E4-A-06020  |
| 20-09-02-02-00464      | 0627     |             |
| 20-09-02-02-00465      | 0746     |             |
| 20-09-02-02-00466      | 0775     | E4-A-00484  |
| 20-09-02-02-00467      | 0767     |             |
| 20-09-02-02-00468      | 0623     | E4-C-00171  |
| 20-09-02-02-00469      | 0621     | E4-A-06027  |
| 20-09-02-02-00470      | 0597     |             |
| 20-09-02-02-00471      | 0603     |             |
| 20-09-02-02-00472      | 0646     | E4-A-00106  |
| 20-09-02-02-00473      | 0633     |             |
| 20-09-02-02-00474      | 0613     |             |
| 20-09-02-02-00475      | 0678     | E4-A-00107  |
| 20-09-02-02-00476      | 0745     |             |
| 20-09-02-02-00477      | 0753     |             |
| 20-09-02-02-00478      | 0800     |             |
| 20-09-02-02-00479      | 0630     |             |
| 20-09-02-02-00480      | 0847     |             |

| High Pressure Pump S/N       | Gear S/N | Engine S/N |
|------------------------------|----------|------------|
| <del>21-04-08-02-00618</del> | 1607     |            |
| 21-04-08-02-00619            | 1807     |            |
| 21-04-08-02-00620            | 1613     |            |
| 21-04-08-02-00621            | 1612     |            |
| 21-04-08-02-00622            | 1616     |            |
| 21-04-08-02-00623            | 1767     |            |
| 21-04-08-02-00624            | 1723     |            |
| 21-04-08-02-00625            | 1721     |            |
| 21-04-08-02-00626            | 1598     |            |
| 21-04-08-02-00627            | 1625     |            |
| 21-04-08-02-00628            | 1639     |            |
| 21-04-08-02-00629            | 1729     |            |
| 21-04-08-02-00630            | 1615     |            |
| 21-04-08-02-00631            | 1667     |            |
| 21-04-08-02-00632            | 1825     |            |
| 21-04-08-02-00633            | 1583     |            |
| 21-04-08-02-00634            | 1645     |            |
| 21-04-08-02-00635            | 1594     |            |
| 21-04-08-02-00636            | 1716     |            |
| 21-04-08-02-00637            | 1628     |            |
| 21-04-08-02-00638            | 1646     |            |
| 21-04-08-02-00639            | 1584     |            |
| 21-04-08-02-00640            | 1689     |            |
| 21-04-08-02-00641            | 1596     |            |
| 21-04-08-02-00644            | 1703     |            |
| 21-04-08-02-00645            | 1630     |            |
| 21-04-08-02-00646            | 1674     |            |
| 21-04-08-02-00647            | 1680     |            |
| 21-04-08-02-00648            | 1746     |            |
| 21-04-08-02-00649            | 1623     |            |
| 21-04-08-02-00650            | 1749     |            |
| 21-04-08-02-00652            | 1727     |            |
| 21-04-08-02-00653            | 1740     |            |
| 21-04-08-02-00654            | 1609     |            |
| 21-04-08-02-00655            | 1720     |            |
| 21-04-08-02-00656            | 1624     |            |
| 21-04-08-02-00657            | 1608     |            |
| 21-04-08-02-00658            | 1675     |            |
| 21-04-08-02-00659            | 1676     |            |
| 21-04-08-02-00660            | 1604     |            |
| 21-04-08-02-00661            | 1641     |            |
| 21-04-08-02-00662            | 1759     |            |
| 21-04-08-02-00663            | 1683     |            |
| 21-04-08-02-00664            | 1670     |            |
| 21-04-08-02-00665            | 1648     |            |
| 21-04-08-02-00666            | 1606     |            |
| 21-04-08-02-00667            | 1622     |            |
| 21-04-08-02-00668            | 1696     |            |
| 21-04-08-02-00669            | 1650     |            |
| 21-04-08-02-00670            | 1621     |            |
| 21-04-08-02-00671            | 1642     |            |
| 21-04-08-02-00672            | 1636     |            |
| 21-04-08-02-00673            | 1654     |            |
| 21-04-08-02-00674            | 1669     |            |
| 21-04-08-02-00675            | 1753     |            |
| 21-04-08-02-00676            | 1686     |            |
| 21-04-08-02-00677            | 1859     |            |
| 21-04-08-02-00678            | 1634     |            |
| 21-04-08-02-00679            | 1698     |            |
| 21-04-08-02-00680            | 1718     |            |
| 21-04-08-02-00681            | 1619     |            |
| 21-04-08-02-00682            | 1652     |            |
| 21-04-08-02-00683            | 1687     |            |
| 21-04-08-02-00684            | 1708     |            |
| 21-04-08-02-00685            | 1661     |            |

|                  |      |      |          |     |     |     |               |     |     |     |      |      |
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| High Pressure Pump S/N | Gear S/N | Engine S/N  |
|------------------------|----------|-------------|
| 20-03-31-02-00269      | 0675     | E4-C-06015  |
| 20-03-31-02-00270      | 0583     |             |
| 20-03-31-02-00271      | 0773     |             |
| 20-03-31-02-00272      | 0819     |             |
| 20-03-31-02-00273      | 0643     |             |
| 20-03-31-02-00274      | 0777     |             |
| 20-03-31-02-00275      | 0577     |             |
| 20-03-31-02-00276      | 0816     |             |
| 20-03-31-02-00277      | 0728     |             |
| 20-03-31-02-00278      | 0685     | E4-C-00480  |
| 20-03-31-02-00279      | 0831     |             |
| 20-03-31-02-00280      | 0794     |             |
| 20-03-31-02-00281      | 0811     |             |
| 20-03-31-02-00282      | 0845     |             |
| 20-03-31-02-00283      | 0731     |             |
| 20-03-31-02-00284      | 0771     |             |
| 20-03-31-02-00285      | 0707     |             |
| 20-03-31-02-00286      | 0727     |             |
| 20-03-31-02-00287      | 0790     |             |
| 20-03-31-02-00288      | 0853     |             |
| 20-03-31-02-00289      | 0696     | E4-A-05094  |
| 20-03-31-02-00290      | 0778     |             |
| 20-03-31-02-00291      | 0760     |             |
| 20-03-31-02-00292      | 0846     |             |
| 20-03-31-02-00293      | 0770     | E4-A-00028  |
| 20-03-31-02-00294      | 0751     |             |
| 20-03-31-02-00295      | 0761     |             |
| 20-03-31-02-00296      | 0759     |             |
| 20-03-31-02-00297      | 0755     |             |
| 20-03-31-02-00298      | 0725     |             |
| 20-03-31-02-00299      | 0812     |             |
| 20-03-31-02-00300      | 0797     |             |
| 20-03-31-02-00301      | 0851     |             |
| 20-03-31-02-00302      | 0737     |             |
| 20-03-31-02-00303      | 0828     |             |
| 20-03-31-02-00304      | 0705     |             |
| 20-03-31-02-00305      | 0739     |             |
| 20-03-31-02-00306      | 0842     |             |
| 20-03-31-02-00307      | 0822     | E4-B-00173  |
| 20-03-31-02-00308      | 0780     |             |
| 20-03-31-02-00309      | 0781     |             |
| 20-03-31-02-00310      | 0796     |             |
| 20-03-31-02-00311      | 0801     |             |
| 20-03-31-02-00312      | 0708     |             |
| 20-03-31-02-00313      | 0826     |             |
| 20-03-31-02-00314      | 0726     |             |
| 20-03-31-02-00315      | 0700     |             |
| 20-03-31-02-00316      | 0749     |             |
| 20-05-14-02-00002      | 0922     |             |
| 20-05-14-02-00003      | 0875     |             |
| 20-05-14-02-00004      | 0935     |             |
| 20-05-14-02-00005      | 0879     | E4-A-06043  |
| 20-05-14-02-00006      | 0905     | E4P-C-06016 |
| 20-05-14-02-00007      | 0934     |             |
| 20-05-14-02-00008      | 0933     |             |
| 20-05-14-02-00009      | 0965     |             |
| 20-05-14-02-00010      | 0884     | E4-A-06045  |
| 20-05-14-02-00011      | 0908     | E4-A-00239  |
| 20-05-14-02-00012      | 0949     | E4-C-06022  |
| 20-05-14-02-00013      | 0954     | E4-A-06037  |
| 20-05-14-02-00014      | 0928     | E4P-C-06015 |
| 20-05-14-02-00015      | 0962     |             |
| 20-05-14-02-00016      | 0955     |             |
| 20-05-14-02-00017      | 0959     |             |
| 20-05-14-02-00018      | 0932     |             |

| High Pressure Pump S/N       | Gear S/N | Engine S/N  |
|------------------------------|----------|-------------|
| 20-09-02-02-00481            | 0809     |             |
| 20-09-02-02-00482            | 0785     |             |
| 20-09-02-02-00483            | 0835     |             |
| 20-09-02-02-00484            | 0652     | E4-C-06008  |
| 20-09-02-02-00485            | 0667     |             |
| 20-09-02-02-00486            | 0670     |             |
| 20-09-02-02-00487            | 0706     |             |
| 20-09-02-02-00488            | 0650     |             |
| 20-09-02-02-00489            | 0768     |             |
| 20-09-02-02-00490            | 0680     |             |
| 20-09-02-02-00491            | 0673     |             |
| 20-09-02-02-00492            | 0589     | E4-C-06010  |
| 20-09-02-02-00493            | 0829     |             |
| 20-09-02-02-00494            | 0807     |             |
| 20-09-02-02-00495            | 0784     |             |
| 20-09-02-02-00496            | 0629     |             |
| 20-09-02-02-00497            | 0754     |             |
| 20-09-02-02-00498            | 0682     | E4-A-00166  |
| 20-09-02-02-00499            | 0782     |             |
| 20-10-19-02-00442            | 1853     |             |
| 20-10-19-02-00443            | 1814     |             |
| 20-10-19-02-00444            | 1878     |             |
| 20-10-19-02-00445            | 1872     |             |
| 20-10-19-02-00446            | 1875     |             |
| 20-10-19-02-00447            | 1918     |             |
| 20-10-19-02-00448            | 1780     |             |
| <del>20-10-19-02-00449</del> | 1815     |             |
| 20-10-19-02-00450            | 1787     |             |
| 20-10-19-02-00452            | 1793     |             |
| 20-10-19-02-00453            | 1889     |             |
| 20-10-19-02-00454            | 1854     |             |
| 20-10-19-02-00455            | 1792     |             |
| 20-10-19-02-00456            | 1809     |             |
| 20-10-19-02-00457            | 1796     |             |
| 20-10-19-02-00458            | 1778     |             |
| 20-10-19-02-00459            | 1827     |             |
| 20-10-19-02-00460            | 1926     |             |
| 20-10-19-02-00461            | 1979     |             |
| 20-10-19-02-00462            | 1777     |             |
| 20-10-19-02-00463            | 0919     |             |
| 20-10-19-02-00464            | 0940     | E4-A-00038  |
| 20-10-19-02-00465            | 1805     |             |
| 20-10-19-02-00466            | 1981     |             |
| 20-10-19-02-00467            | 1975     |             |
| 20-10-19-02-00468            | 1786     |             |
| 20-10-19-02-00469            | 1819     |             |
| 20-10-19-02-00470            | 1869     |             |
| 20-10-19-02-00471            | 1866     |             |
| 20-10-19-02-00472            | 1293     | E4P-C-06032 |
| 20-10-19-02-00473            | 1308     | E4-A-06054  |
| 20-10-19-02-00474            | 1199     |             |
| 20-10-19-02-00475            | 1800     |             |
| 20-10-19-02-00477            | 1915     |             |
| 20-10-19-02-00478            | 1906     |             |
| 20-10-19-02-00479            | 1863     |             |
| 20-10-19-02-00480            | 1782     |             |
| 20-10-19-02-00481            | 1860     |             |
| 20-10-19-02-00482            | 1939     |             |
| 20-10-19-02-00485            | 1808     |             |
| 20-10-19-02-00486            | 1798     |             |
| 20-10-19-02-00487            | 0881     |             |
| 20-10-19-02-00488            | 1774     |             |
| 20-10-19-02-00489            | 1943     |             |
| 20-10-19-02-00490            | 1995     |             |
| 20-10-19-02-00491            | 1884     |             |

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|------------------------|----------|------------|
| 21-04-08-02-00686      | 1803     |            |
| 21-04-08-02-00687      | 1693     |            |
| 21-04-08-02-00688      | 1704     |            |
| 21-04-08-02-00689      | 1750     |            |
| 21-04-08-02-00690      | 1651     |            |
| 21-04-08-02-00691      | 1865     |            |
| 21-04-08-02-00692      | 1802     |            |
| 21-04-08-02-00693      | 1856     |            |
| 21-04-08-02-00694      | 1643     |            |
| 21-04-08-02-00695      | 1644     |            |
| 21-04-08-02-00696      | 1710     |            |
| 21-04-08-02-00697      | 1620     |            |
| 21-04-08-02-00698      | 1715     |            |
| 21-04-08-02-00699      | 1673     |            |
| 21-04-08-02-00700      | 1601     |            |
| 21-04-08-02-00701      | 1758     |            |
| 21-04-08-02-00702      | 1679     |            |
| 21-04-08-02-00703      | 1877     |            |
| 21-04-08-02-00704      | 1668     |            |
| 21-04-08-02-00705      | 1739     |            |
| 21-04-08-02-00706      | 1886     |            |
| 21-04-08-02-00707      | 1868     |            |
| 21-04-08-02-00708      | 1632     |            |
| 21-04-08-02-00709      | 1627     |            |
| 21-04-08-02-00710      | 1754     |            |
| 21-04-08-02-00711      | 1660     |            |
| 21-04-08-02-00712      | 1705     |            |
| 21-04-08-02-00713      | 1631     |            |
| 21-04-08-02-00714      | 1857     |            |
| 21-04-08-02-00715      | 1685     |            |
| 21-04-08-02-00716      | 1653     |            |
| 21-04-08-02-00717      | 1677     |            |
| 21-04-08-02-00718      | 1760     |            |
| 21-04-08-02-00719      | 1678     |            |
| 21-04-08-02-00720      | 1862     |            |
| 21-04-08-02-00721      | 1695     |            |
| 21-04-08-02-00722      | 1908     |            |
| 21-04-08-02-00723      | 1911     |            |
| 21-04-08-02-00724      | 1794     |            |
| 21-04-08-02-00725      | 1684     |            |
| 21-04-08-02-00726      | 1633     |            |
| 21-04-08-02-00727      | 1784     |            |
| 21-04-08-02-00728      | 1883     |            |
| 21-04-08-02-00729      | 1871     |            |
| 21-04-08-02-00730      | 1804     |            |
| 21-04-08-02-00731      | 1783     |            |
| 21-04-08-02-00732      | 1768     |            |
| 21-04-08-02-00733      | 1682     |            |
| 21-04-08-02-00734      | 1776     |            |
| 21-04-08-02-00735      | 1788     |            |
| 21-04-08-02-00736      | 1655     |            |
| 21-05-10-02-00002      | 1711     |            |
| 21-05-10-02-00003      | 1876     |            |
| 21-05-10-02-00004      | 1712     |            |
| 21-05-10-02-00006      | 1719     |            |
| 21-05-10-02-00008      | 1761     |            |
| 21-05-10-02-00012      | 1663     |            |
| 21-05-10-02-00013      | 1893     |            |
| 21-05-10-02-00016      | 1833     |            |
| 21-05-10-02-00018      | 1900     |            |
| 21-05-10-02-00019      | 1662     |            |
| 21-05-10-02-00020      | 1894     |            |
| 21-05-10-02-00021      | 1842     |            |
| 21-05-10-02-00023      | 1836     |            |
| 21-05-10-02-00024      | 1896     |            |

|                  |      |      |          |     |     |     |               |     |     |     |      |      |
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|------------------------|----------|-------------|
| 20-05-14-02-00019      | 0906     | E4-C-06025  |
| 20-05-14-02-00020      | 0972     |             |
| 20-05-14-02-00021      | 0874     | E4-B-00434  |
| 20-05-14-02-00022      | 0920     | E4-A-06040  |
| 20-05-14-02-00023      | 0938     | E4P-C-06021 |
| 20-05-14-02-00024      | 0899     |             |
| 20-05-14-02-00025      | 0988     |             |
| 20-05-14-02-00026      | 0903     |             |
| 20-05-14-02-00027      | 0957     |             |
| 20-05-14-02-00028      | 0876     |             |
| 20-05-14-02-00029      | 0978     | E4-A-06042  |
| 20-05-14-02-00030      | 1005     |             |
| 20-05-14-02-00031      | 0951     |             |
| 20-05-14-02-00032      | 0969     | E4-C-06023  |
| 20-05-14-02-00033      | 0961     | E4-C-06028  |
| 20-05-14-02-00034      | 0950     |             |
| 20-05-14-02-00035      | 0909     | E4-C-00312  |
| 20-05-14-02-00036      | 0921     | E4-C-06021  |
| 20-05-14-02-00037      | 0897     |             |
| 20-05-14-02-00038      | 0943     | E4-A-00142  |
| 20-05-14-02-00039      | 0882     | E4-C-06020  |
| 20-05-14-02-00040      | 0902     | E4-A-06044  |
| 20-05-14-02-00041      | 0870     | E4-C-06026  |
| 20-05-14-02-00042      | 0982     |             |
| 20-05-14-02-00043      | 0953     | E4-A-06038  |
| 20-05-14-02-00044      | 0996     |             |
| 20-05-14-02-00045      | 0924     |             |
| 20-05-14-02-00046      | 0936     | E4-A-00350  |
| 20-05-14-02-00047      | 0923     |             |
| 20-05-14-02-00048      | 0958     | E4P-C-06022 |
| 20-05-14-02-00049      | 0892     | E4-A-00200  |
| 20-05-14-02-00050      | 0887     | E4-A-06039  |
| 20-05-14-02-00051      | 0973     |             |
| 20-05-14-02-00052      | 1009     |             |
| 20-05-14-02-00053      | 0956     | E4-B-00049  |
| 20-05-14-02-00054      | 0976     |             |
| 20-05-14-02-00055      | 0964     | E4-C-06027  |
| 20-05-14-02-00056      | 1068     |             |
| 20-05-14-02-00057      | 0992     |             |
| 20-05-14-02-00058      | 0900     | E4-B-00196  |
| 20-05-14-02-00059      | 0991     |             |
| 20-05-14-02-00060      | 1025     |             |
| 20-05-14-02-00061      | 1063     |             |
| 20-05-14-02-00062      | 0987     |             |
| 20-05-14-02-00063      | 0994     |             |
| 20-05-14-02-00064      | 0947     |             |
| 20-05-14-02-00065      | 1054     |             |
| 20-05-14-02-00066      | 1111     |             |
| 20-05-14-02-00067      | 0997     |             |
| 20-05-14-02-00068      | 1057     | E4-A-06048  |
| 20-05-14-02-00069      | 0984     |             |
| 20-05-14-02-00070      | 1055     |             |
| 20-05-14-02-00071      | 0981     |             |
| 20-05-14-02-00072      | 0980     |             |
| 20-05-14-02-00073      | 0977     | E4-A-06049  |
| 20-05-14-02-00074      | 0993     |             |
| 20-05-14-02-00075      | 0986     |             |
| 20-05-14-02-00076      | 1007     |             |
| 20-05-14-02-00077      | 0963     |             |
| 20-05-14-02-00078      | 0983     |             |
| 20-05-14-02-00079      | 1003     |             |
| 20-05-14-02-00080      | 1000     |             |
| 20-05-14-02-00081      | 0989     |             |
| 20-05-14-02-00082      | 0998     |             |
| 20-05-14-02-00083      | 1002     |             |

| High Pressure Pump S/N | Gear S/N | Engine S/N            |
|------------------------|----------|-----------------------|
| 20-10-19-02-00492      | 0883     | E4-A-00019            |
| 20-10-19-02-00493      | 0886     | E4-A-06032            |
| 20-10-19-02-00494      | 0888     |                       |
| 20-10-19-02-00495      | 0865     | E4-A-05096            |
| 20-10-19-02-00496      | 0926     |                       |
| 20-10-19-02-00497      | 0702     | E4-A-05095            |
| 20-10-19-02-00498      | 1948     |                       |
| 20-10-19-02-00499      | 0916     | E4-A-06034            |
| 20-10-19-02-00500      | 0915     | E4-A-00434            |
| 20-10-19-02-00501      | 0880     | E4P-C-06009           |
| 20-10-19-02-00502      | 0701     |                       |
| 20-10-19-02-00503      | 0872     |                       |
| 20-10-19-02-00504      | 0896     | E4-C-06017            |
| 20-10-19-02-00505      | 1789     |                       |
| 20-10-19-02-00506      | 0894     | E4P-C-06014           |
| 20-10-19-02-00507      | 0925     | E4P-C-06013           |
| 20-10-19-02-00508      | 0907     | E4-C-06016            |
| 20-10-19-02-00510      | 0939     | E4-B-00109            |
| 20-10-19-02-00511      | 1933     |                       |
| 20-10-19-02-00512      | 0868     |                       |
| 20-10-19-02-00513      | 0866     | E4-A-06033            |
| 20-10-19-02-00514      | 0945     |                       |
| 20-10-19-02-00515      | 0901     | E4-A-06035            |
| 20-10-19-02-00516      | 0857     | E4-A-00429            |
| 20-10-19-02-00517      | 0937     |                       |
| 20-10-19-02-00518      | 0871     | E4-C-00087            |
| 20-10-19-02-00519      | 0859     |                       |
| 20-10-19-02-00521      | 0944     | E4P-C-05014           |
| 20-10-19-02-00522      | 0913     |                       |
| 20-10-19-02-00523      | 0893     |                       |
| 20-10-19-02-00524      | 0869     | E4-C-06019            |
| 20-10-19-02-00525      | 0890     |                       |
| 20-10-19-02-00526      | 0806     |                       |
| 20-10-19-02-00527      | 0850     |                       |
| 20-10-19-02-00528      | 1315     | E4-C-06053            |
| 20-10-19-02-00529      | 0863     |                       |
| 20-10-19-02-00530      | 0914     |                       |
| 20-10-19-02-00531      | 1301     | <del>E4-A-06075</del> |
| 20-10-19-02-00532      | 0931     | E4-A-00215            |
| 20-10-19-02-00533      | 0758     | E4P-Z-06001           |
| 20-10-19-02-00534      | 0858     | E4-C-00125            |
| 20-10-19-02-00535      | 0730     | E4-A-05093            |
| 20-10-19-02-00536      | 0941     |                       |
| 20-10-19-02-00537      | 0843     |                       |
| 20-10-19-02-00538      | 0837     |                       |
| 20-10-19-02-00539      | 1274     | E4-C-00199            |
| 20-10-19-02-00540      | 1236     | E4-A-00075            |
| 20-10-19-02-00541      | 1278     | E4P-C-06033           |
| 20-10-19-02-00542      | 0798     |                       |
| 20-10-19-02-00544      | 1292     | E4P-C-06040           |
| 20-10-19-02-00545      | 1260     | E4-A-00279            |
| 20-10-19-02-00546      | 1269     |                       |
| 20-10-19-02-00547      | 1273     |                       |
| 20-10-19-02-00548      | 1214     |                       |
| 20-10-19-02-00549      | 1288     | E4-A-06067            |
| 20-10-19-02-00550      | 1270     | E4-A-06073            |
| 20-10-19-02-00551      | 1243     | E4-C-06049            |
| 20-10-19-02-00552      | 1217     |                       |
| 20-10-19-02-00553      | 1229     | E4-C-06062            |
| 20-10-19-02-00554      | 1256     |                       |
| 20-10-19-02-00555      | 1282     |                       |
| 20-10-19-02-00556      | 1246     |                       |
| 20-10-19-02-00558      | 1220     |                       |
| 20-10-19-02-00559      | 1207     | E4-A-00513            |
| 20-10-19-02-00560      | 1286     | E4-C-06050            |

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|------------------------|----------|------------|
| 21-05-10-02-00025      | 1905     |            |
| 21-05-10-02-00026      | 1897     |            |
| 21-05-10-02-00031      | 1892     |            |
| 21-05-10-02-00034      | 1795     |            |
| 21-05-10-02-00038      | 1912     |            |
| 21-05-10-02-00043      | 1763     |            |
| 21-05-10-02-00047      | 1831     |            |
| 21-05-10-02-00048      | 1733     |            |
| 21-05-10-02-00050      | 1744     |            |
| 21-05-10-02-00052      | 1635     |            |
| 21-05-10-02-00053      | 1910     |            |
| 21-05-10-02-00054      | 1891     |            |
| 21-05-10-02-00056      | 1709     |            |
| 21-05-10-02-00057      | 1824     |            |
| 21-05-10-02-00058      | 1770     |            |
| 21-05-10-02-00059      | 1755     |            |
| 21-05-10-02-00060      | 1681     |            |
| 21-05-10-02-00062      | 1747     |            |
| 21-05-10-02-00063      | 1843     |            |
| 21-05-10-02-00064      | 1731     |            |
| 21-05-10-02-00065      | 1844     |            |
| 21-05-10-02-00067      | 1771     |            |
| 21-05-10-02-00068      | 1812     |            |
| 21-05-10-02-00069      | 1902     |            |
| 21-05-10-02-00072      | 1821     |            |
| 21-05-10-02-00073      | 1839     |            |
| 21-05-10-02-00074      | 1870     |            |
| 21-05-10-02-00075      | 1895     |            |
| 21-05-10-02-00076      | 1882     |            |
| 21-05-10-02-00077      | 1879     |            |
| 21-05-10-02-00078      | 1848     |            |
| 21-05-10-02-00079      | 1717     |            |
| 21-05-10-02-00080      | 1874     |            |
| 21-05-10-02-00081      | 1790     |            |
| 21-05-10-02-00082      | 1835     |            |
| 21-05-10-02-00083      | 1909     |            |
| 21-05-10-02-00084      | 1765     |            |
| 21-05-10-02-00085      | 1834     |            |
| 21-05-10-02-00086      | 1847     |            |
| 21-05-10-02-00087      | 1626     |            |
| 21-05-10-02-00088      | 1913     |            |
| 21-05-10-02-00090      | 1888     |            |
| 21-05-10-02-00091      | 1691     |            |
| 21-05-10-02-00092      | 1917     |            |
| 21-05-10-02-00093      | 1690     |            |
| 21-05-10-02-00094      | 1849     |            |
| 21-05-10-02-00095      | 1914     |            |
| 21-05-10-02-00096      | 1756     |            |
| 21-05-10-02-00097      | 1820     |            |
| 21-05-10-02-00098      | 1838     |            |
| 21-05-10-02-00099      | 1743     |            |
| 21-05-10-02-00100      | 1801     |            |
| 21-05-10-02-00101      | 1851     |            |
| 21-05-10-02-00102      | 1688     |            |
| 21-05-10-02-00103      | 1735     |            |
| 21-05-10-02-00104      | 1885     |            |
| 21-05-10-02-00105      | 1899     |            |
| 21-05-10-02-00106      | 1858     |            |
| 21-05-10-02-00107      | 1736     |            |
| 21-05-10-02-00108      | 1772     |            |
| 21-05-10-02-00109      | 1764     |            |
| 21-05-10-02-00110      | 1867     |            |
| 21-05-10-02-00111      | 1855     |            |
| 21-05-10-02-00112      | 1734     |            |
| 21-05-10-02-00113      | 1762     |            |

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| High Pressure Pump S/N | Gear S/N | Engine S/N  | High Pressure Pump S/N | Gear S/N | Engine S/N  | High Pressure Pump S/N       | Gear S/N | Engine S/N |
|------------------------|----------|-------------|------------------------|----------|-------------|------------------------------|----------|------------|
| 20-05-14-02-00084      | 0995     |             | 20-10-19-02-00561      | 1228     |             | 21-05-10-02-00114            | 1852     |            |
| 20-05-14-02-00085      | 0960     |             | 20-10-19-02-00562      | 1401     |             | <del>21-05-10-02-00115</del> | 1832     |            |
| 20-05-15-02-00420      | 0548     |             | 20-10-19-02-00563      | 1298     | E4-A-06055  | 21-05-10-02-00116            | 1898     |            |
| 20-05-15-02-00421      | 1010     |             | 20-10-19-02-00564      | 1334     | E4P-C-06046 | 21-05-10-02-00117            | 1901     |            |
| 20-05-15-02-00422      | 0975     |             | 20-10-19-02-00565      | 1201     | E4-C-06061  | 21-05-10-02-00118            | 1659     |            |
| 20-05-15-02-00423      | 0990     |             | 20-10-19-02-00566      | 1237     | E4P-C-06030 | 21-05-10-02-00119            | 1864     |            |
| 20-05-15-02-00424      | 0999     |             | 20-10-19-02-00567      | 1234     |             | 21-05-10-02-00120            | 1919     |            |
| 20-05-15-02-00425      | 0970     |             | 20-10-19-02-00568      | 1190     |             | 21-05-10-02-00121            | 1730     |            |
| 20-05-15-02-00426      | 1008     |             | 20-10-19-02-00569      | 1285     | E4-A-06051  | 21-05-10-02-00122            | 1732     |            |
| 20-05-15-02-00430      | 0967     |             | 20-10-19-02-00570      | 1230     |             | 21-05-10-02-00123            | 1741     |            |
| 20-05-15-02-00432      | 0968     |             | 20-10-19-02-00571      | 1202     |             | 21-05-10-02-00124            | 1861     |            |
| 20-06-18-02-00879      | 1076     |             | 20-10-19-02-00572      | 1205     | E4P-C-06042 | 21-05-10-02-00125            | 1916     |            |
| 20-06-18-02-00880      | 0813     |             | 20-10-19-02-00573      | 1204     | E4-A-00441  | 21-05-10-02-00126            | 1845     |            |
| 20-06-18-02-00881      | 1014     | E4P-C-06023 | 20-10-19-02-00574      | 1194     |             | 21-05-10-02-00127            | 1766     |            |
| 20-06-18-02-00882      | 1078     | E4P-C-06024 | 20-10-19-02-00575      | 1206     |             | 21-05-10-02-00129            | 1738     |            |
| 20-06-18-02-00883      | 1092     | E4P-C-06025 | 20-10-26-02-00622      | 1791     |             | 21-05-10-02-00130            | 1714     |            |
| 20-06-18-02-00884      | 1090     |             | 20-10-26-02-00623      | 1959     |             | 21-05-10-02-00131            | 1737     |            |
| 20-06-18-02-00885      | 1019     | E4-C-06034  | 20-10-26-02-00624      | 1806     |             | 21-05-10-02-00132            | 1904     |            |
| 20-06-18-02-00886      | 1091     | E4-B-00383  | 20-10-26-02-00625      | 1797     |             | 21-05-10-02-00133            | 1745     |            |
| 20-06-18-02-00887      | 1077     |             | 20-10-26-02-00626      | 1934     |             | 21-05-10-02-00134            | 1920     |            |
| 20-06-18-02-00888      | 0639     |             | 20-10-26-02-00627      | 1210     |             | 21-05-10-02-00135            | 1873     |            |



**Note:**

A Cylinder Head p/n E4A-12-500-000 is an Affected Cylinder Head only when installed in combination with a HPP gear p/n E4A-30-000-601 (any revision) or p/n E4A-30-000-201 rev. AB.1. In case of doubt, contact Austro Engine.

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## 1.5. Reason

Occurrences were reported of HPP driving gear failure. Subsequent investigation determined that a certain batch of HPP driving gears was produced with a worn-out assembly tool P/N AE300T012-1. Those HPP driving gears may have been damaged during assembly.

Concurrently, it was determined that, for engines equipped with a certain cylinder head, a stack up of tolerances exists between the cylinder head, cylinder head cover, camshaft gear and HPP gear.

Cases of coloured HPP gears p/n E4A-30-000-601 or E4A-30-000-201 rev. AB.1 appeared after limited flight time on engines having CH p/n E4A-12-500-000 installed, for that reason an insufficient tolerance can only be avoided by installing, on such engines, gears p/n E4A-30-000-201 rev. AE.1. To correct the possible unsafe condition, this Mandatory Service Bulletin supersedes the MSB-E4-034 and MSB-E4-035 incorporating their requirements and prohibit the installation of HPP gears p/n E4A-30-000-601 or E4A-30-000-201 rev. AB.1 on an engine equipped with the CH p/n E4A-12-500-000.

These conditions, if not corrected, may cause premature failure of the high-pressure pump drive gear, resulting in rail pressure loss and engine shutdown.

## 1.6. Required Actions and Time of Compliance

|  |  |   |
|--|--|---|
| <b>E4A/B/C/P Engines</b><br>having an affected CH installed  | <b>Inspect and Replace the gear</b><br>with p/n E4A-30-000-201 rev. AE.1 | <b>Before the next flight<sup>(2)</sup></b> |
| <b>E4A/B/C/P Engines</b><br>having an affected CH <u>and</u> an<br>affected HPP driving gear installed | <b>Inspect and Replace the gear</b><br>with p/n E4A-30-000-201 rev. AE.1 | <b>Before the next flight<sup>(2)</sup></b> |

|  |                         |  |
|--|-------------------------|--|
| <b>E4A Engines</b><br>having an affected HPP driving<br>gear installed     | <b>Replace the gear</b> | <b>Before the total time in service of the affected<br/>driving gear reaches 40 FH<sup>(1)</sup> or<br/>during the next scheduled maintenance<br/>whichever occurs first</b> |
| <b>E4B/C/P Engines</b><br>having an affected HPP driving<br>gear installed | <b>Replace the gear</b> | <b>Before the total time in service of the affected<br/>driving gear reaches 80 FH<sup>(1)</sup> or<br/>during the next scheduled maintenance<br/>whichever occurs first</b> |



**Note<sup>(1)</sup>:**

Total time in service of the affected driving gear must be counted from the installation of such part on an engine. For example, if an affected part is installed on an E4A Engine having 480FH, the HPP driving gear must be replaced before reaching 520FH; if an affected part is installed on an E4B/C/P engine having 480FH, the HPP driving gear must be replaced before reaching 560FH.



**Note<sup>(2)</sup>:**

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 Service Bulletin can be accomplished on the affected engine(s).



**Note:**

Paragraph 1.9 provides Credits for these engines complying with MSB-E4-034 and MSB-E4-035

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## 1.7. Concurrent documents / references

**Note:** If not specified, the latest revision of the referenced documents applies.

- Maintenance Manual E4.08.04
- Service Instruction SI-E4-016
- Mandatory Service Bulletin MSB-E4-034 rev. 1 or subsequent approved revisions
- Mandatory Service Bulletin MSB-E4-035 rev. 0 or subsequent approved revisions

## 1.8. Other publications affected

None

## 1.9. Credits

For those engines having an affected HPP driving gear installed:

- Replacement of an affected HPP driving gear, accomplished before the effective date of this Mandatory Service Bulletin and in accordance with the instructions of Austro Engine MSB-E4-034 at Revision 1 or subsequent, is an acceptable method to comply with the requirements of the chapter 2 of this service bulletin.

For those engines having an affected CH installed, or an affected CH and an affected HPP driving gear installed:

- Inspection and replacement of an affected HPP driving gear, accomplished before the effective date of this Mandatory Service Bulletin and in accordance with the instructions of Austro Engine MSB-E4-034 at Revision 3 or subsequent, is an acceptable method to comply with the requirements of the chapter 2 of this service bulletin provided the installed HPP driving gear is the p/n E4A-30-000-201 rev. AE.1

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## 2. Technical Details

### 2.1. Removal and inspection of the HPP driving gear

1. Remove the HPP in accordance with the instructions in Maintenance Manual, Doc. No. E4.08.04, Section 73-10-03, Paragraph A.
2. Remove the drive gear from the HPP in accordance with the instructions in Maintenance Manual, Doc. No. E4.08.04, Section 73-10-03, Paragraph C.



**Caution:** Use only the tool p/n AE300T012-1 provided in the kit of this Service Bulletin to block the gear.

3. To remove the gear from the shaft, use a bearing extractor shown in Chapter 0
4. Clean the driving gear with non-chlorinated brake cleaner (recommended product Manufacturer: Förch, Product ID.: R510)
5. Visually inspect the driving gear against colour criteria of **Appendix II** Table 6; if the acceptable criteria are not met:
  - remove the camshafts according to the Maintenance Manual, Doc. No. E4.08.04, Section 85-30-00 Subparagraph 4A (a) - (h)
  - Inspect the HPP shaft, the cylinder head, camshaft gear, the inlet/outlet camshaft bushing in accordance with the **Appendix II** of this service bulletin and replace the parts as necessary.

### 2.2. Installation of the new HPP driving gear

#### 2.2.1 Driving Gear p/n E4A-30-000-201 rev. AB1 or p/n E4A-30-000-601



**Caution:** DO NOT INSTALL the gear p/n E4A-30-000-201 rev. AB1 or E4A-30-000-601 if a Cylinder Head p/n E4A-12-500-000 is installed on the engine

1. Install the new drive gear in accordance with the instructions in Maintenance Manual, Doc. No. E4.08.04, Section 73-10-03, Paragraph D (replace the nut, if required).



**Note:** Lubricate the gear and the O-ring with engine oil before installing the HPP



**Caution:** Use only the tool p/n AE300T012-1 provided in the kit of this Service Bulletin to block the gear

2. Install the HPP in accordance with the instructions in Maintenance Manual, Doc. No. E4.08.04, Section 73-10-03, Paragraph B. Refer also to chapter 6 Table 2 for the tightening sequence of the screws.
3. Mark a tool cycle on the Tool Cycle Recording Sheet and fill the execution report (both included in the chapter 6 of this Service Bulletin).
4. Perform an engine ground run according to the EMM



**Note:** One cycle equals the disassembly of the old gear and the installation of the new gear





**Caution:** When the assembly tool p/n AE300T012-1 has reached 100 cycles, discard the tool

|                  |      |      |          |               |     |     |       |
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### 2.2.2 Driving gear p/n E4A-30-000-201 Rev. AE.1 or subsequent

1. Install the new drive gear in accordance with the instructions in Maintenance Manual, Doc. No. E4.08.04, Section 73-10-03, Paragraph D (replace the nut, if required).

|   |              |   |
|---|--------------|---|
|  | <b>Note:</b> | Use a standard low-profile open-ended wrench (27 mm) instead of the special tool. |
|  | <b>Note:</b> | Lubricate the gear and the O-ring with engine oil before installing the HPP       |

2. Install the HPP in accordance with the instructions in Maintenance Manual, Doc. No. E4.08.04, Section 73-10-03, Paragraph B. Refer also to chapter 6 Table 2 for the tightening sequence of the screws.
3. Perform an Engine Ground Run according to the Engine Maintenance Manual

### 2.3. Illustrations

Provided as appendix to this service bulletin

### 2.4. Mass (weight)

Not affected

### 2.5. Approval statement

The technical content of this document is approved under the authority of the DOA ref. EASA. 21J.399.

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### 3. Planning Information

#### 3.1. Material & Availability

| Quantity | Part Description  | Part Number  |
|----------|-------------------|--|
| 1        | HPP Drive Gear    | E4A-30-000-601 <sup>(1)</sup> <u>or</u><br>E4A-30-000-201 Rev. AB.1 <sup>(1)</sup> <u>or</u><br>E4A-30-000-201 Rev. AE.1 |
| 1        | Gasket            | DIN7603-12x16x2.0  |
| 1        | Gasket            | DIN7603-A12x16-AL  |
| 1        | Holder wrench HPP | AE300T012-1  |




|  |                     |   |
|--|---------------------|---|
|   | <b>(1) Caution:</b> | DO NOT INSTALL the gear p/n E4A-30-000-201 rev. AB1 or E4A-30-000-601 if a Cylinder Head p/n E4A-12-500-000 is installed on the engine  |
|   | <b>Caution:</b>     | The holder wrench HPP p/n AE300T012-1 can be used for only for 100 cycles, after that the tool is not serviceable and must be scrapped. |
|  | <b>Note:</b>        | One cycle equals the disassembly of the old gear and the installation of the new gear   |



Figure 1 – Driving gear E4A-30-000-201 Rev. AE.1

#### 3.2. Special tools

| No. | Description       | Note   |
|-----|-------------------|--|
| 1   | Holder wrench HPP | This special tool is provided as part of this SB and it is limited to 100 cycles |
| 2   | Bearing extractor | Refer to Figure 2 (not part of the service bulletin kit)                         |



Figure 2 – Bearing extractor

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### 3.3. Labor effort

2 Hours for an acceptable gear up to 16 hours for a non-acceptable gear that requires additional inspections and/or parts replacement. The exact time depends on the components that might require replacement and do not include the waiting time between correspondence.

## 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 chapter 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 1.6
- 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)

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## 5. Explanatory notes

### 5.1. Symbol explanation



**WARNING:** Disregarding these safety rules can cause personal injury or even death



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

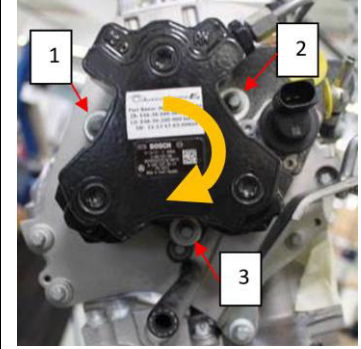


**NOTE:** Additional note or instruction for better understanding of an instruction

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## 6. Appendix I


**Table 2 – HPP tightening sequence**

|  |   |
|--|---|
|  <p><b>Figure 3</b></p> | <p>Install the HPP tightening the screws clockwise, according to the Figure 3 sequence with 12 Nm.:</p> <ul style="list-style-type: none"> <li>- Step 1 – 1 at 50%</li> <li>- Step 2 – 2 at 50%</li> <li>- Step 3 – 3 at 50%</li> <li>- Step 4 - 1 at 100%</li> <li>- Step 5 - 2 at 100%</li> <li>- Step 6 - 3 at 100%</li> </ul> |
|--|---|




**CAUTION:** DO NOT over torque

**Table 3 – HPP Wrench Cycles recording sheet**

|   |  |           |           |           |           |           |           |           |            |
|---|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
|                                    | <b>HPP Wrench Cycles recording sheet</b> |           |           |           |           |           |           |           |            |
| <b>Note:</b>  |  |           |           |           |           |           |           |           |            |
| <p><b>For each cycle, mark a cross on the corresponding box. When 100 cycles are reached, discard the wrench.</b></p> |  |           |           |           |           |           |           |           |            |
| <b>1 Gear replacement (removal &amp; installation) = 1 cycle</b>  |  |           |           |           |           |           |           |           |            |
| <b>1</b>  | <b>2</b>                                 | <b>3</b>  | <b>4</b>  | <b>5</b>  | <b>6</b>  | <b>7</b>  | <b>8</b>  | <b>9</b>  | <b>10</b>  |
| <b>11</b>   | <b>12</b>                                | <b>13</b> | <b>14</b> | <b>15</b> | <b>16</b> | <b>17</b> | <b>18</b> | <b>19</b> | <b>20</b>  |
| <b>21</b>   | <b>22</b>                                | <b>23</b> | <b>24</b> | <b>25</b> | <b>26</b> | <b>27</b> | <b>28</b> | <b>29</b> | <b>30</b>  |
| <b>31</b>   | <b>32</b>                                | <b>33</b> | <b>34</b> | <b>35</b> | <b>36</b> | <b>37</b> | <b>38</b> | <b>39</b> | <b>40</b>  |
| <b>41</b>   | <b>42</b>                                | <b>43</b> | <b>44</b> | <b>45</b> | <b>46</b> | <b>47</b> | <b>48</b> | <b>49</b> | <b>50</b>  |
| <b>51</b>   | <b>52</b>                                | <b>53</b> | <b>54</b> | <b>55</b> | <b>56</b> | <b>57</b> | <b>58</b> | <b>59</b> | <b>60</b>  |
| <b>61</b>   | <b>62</b>                                | <b>63</b> | <b>64</b> | <b>65</b> | <b>66</b> | <b>67</b> | <b>68</b> | <b>69</b> | <b>70</b>  |
| <b>71</b>   | <b>72</b>                                | <b>73</b> | <b>74</b> | <b>75</b> | <b>76</b> | <b>77</b> | <b>78</b> | <b>79</b> | <b>80</b>  |
| <b>81</b>   | <b>82</b>                                | <b>83</b> | <b>84</b> | <b>85</b> | <b>86</b> | <b>87</b> | <b>88</b> | <b>89</b> | <b>90</b>  |
| <b>91</b>   | <b>92</b>                                | <b>93</b> | <b>94</b> | <b>95</b> | <b>96</b> | <b>97</b> | <b>98</b> | <b>99</b> | <b>100</b> |
| <i>HPP Drive gear wrench p/n</i>  |  |           |           |           |           |           |           |           |            |

|                  |      |      |          |     |               |     |       |      |  |
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**Table 4 – Service Bulletin Execution Report (SBER)**

|   | <b>Service Bulletin Execution Report</b> | <b>Note:</b>  |
|--|--|---|
| 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 HPP Gear s/n:<br>Or<br>Inspected HPP p/n and s/n:  |  | <i>Refer to the figure below to identify the serial number</i>                        |
| <p><b>NOTE:</b> A scanned version of this form must be provided to:<br/><a href="mailto:service@austroengine.at">service@austroengine.at</a><br/>copy to:<br/><a href="mailto:support-austria@diamondaircraft.com">support-austria@diamondaircraft.com</a><br/><a href="mailto:support-canada@diamondaircraft.com">support-canada@diamondaircraft.com</a><br/><a href="mailto:support@wfit.com">support@wfit.com</a></p> |  |   |
| <p><b>NOTE:</b> The original filled version of this form, must be packed with the removed gear, and provided to Austro Engine</p>  |  |   |



**Figure 4 – Gear s/n location**




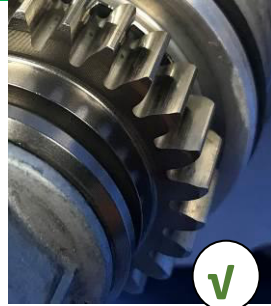

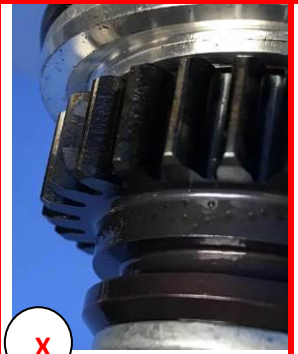

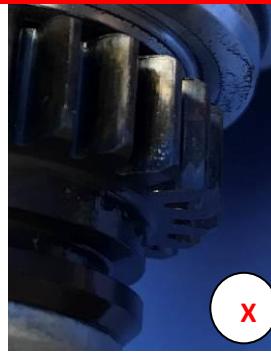



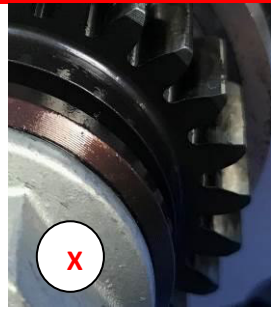


**Figure 5 – HPP p/n and s/n location**

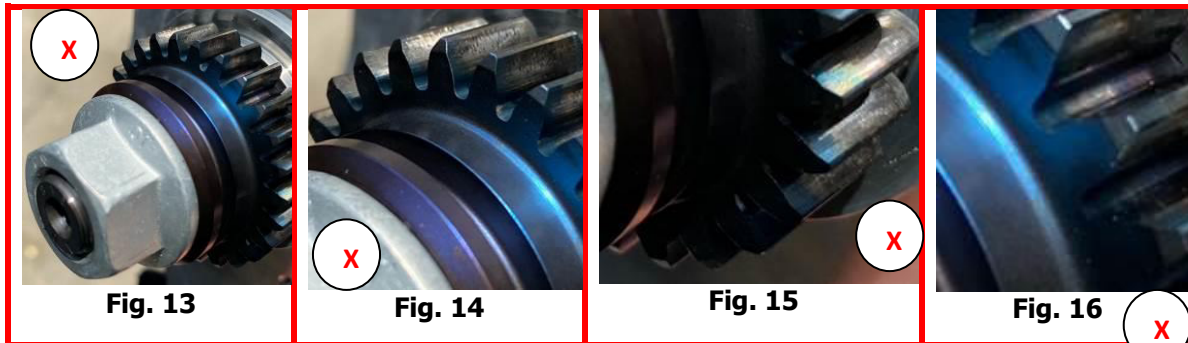
|                  |      |      |          |               |     |     |       |
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## 7. Appendix II

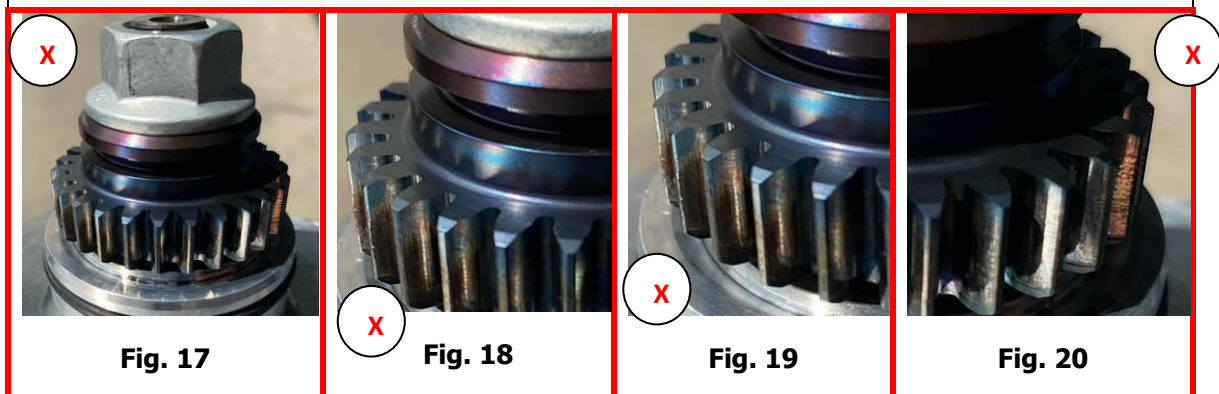
Table 5 - HPP Driving gear assembled - inspection chart

|   |   |  |   |
|---|---|--|---|
|    |    |    |    |
| <b>Fig. 1</b>   | <b>Fig. 2</b>   | <b>Fig. 3</b>  | <b>Fig. 4</b>   |
| Examples of HPP gear in <u>acceptable</u> conditions                                |   |  |   |
|   |   |   |   |
| <b>Fig. 5</b>   | <b>Fig. 6</b>   | <b>Fig. 7</b>  | <b>Fig. 8</b>   |
| Examples of HPP gear in <u>not acceptable</u> condition                             |   |  |   |
|  |  |  |  |
| <b>Fig. 9</b>   | <b>Fig. 10</b>  | <b>Fig. 11</b>   | <b>Fig. 12</b>  |
| Examples of HPP gear in <u>not acceptable</u> condition                             |   |  |   |

|                  |      |      |          |     |               |     |       |
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Examples of HPP gear in not acceptable condition

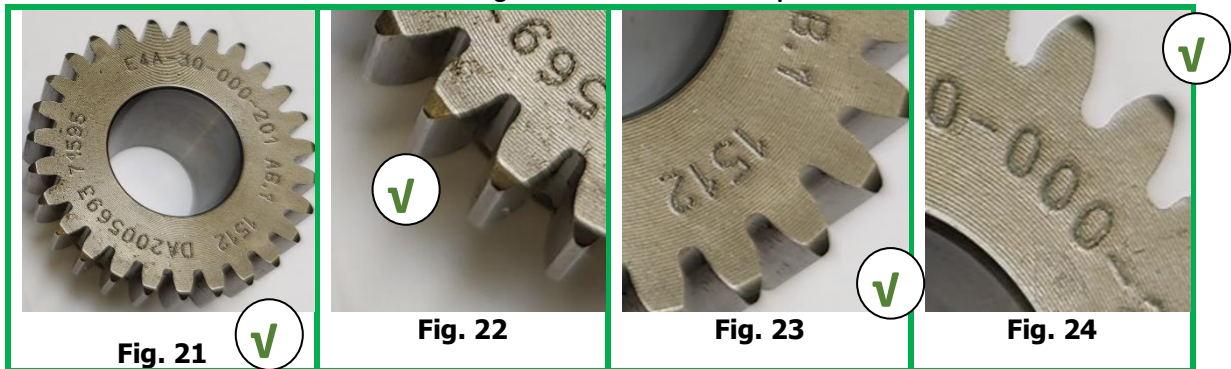


Examples of HPP gear in not acceptable condition

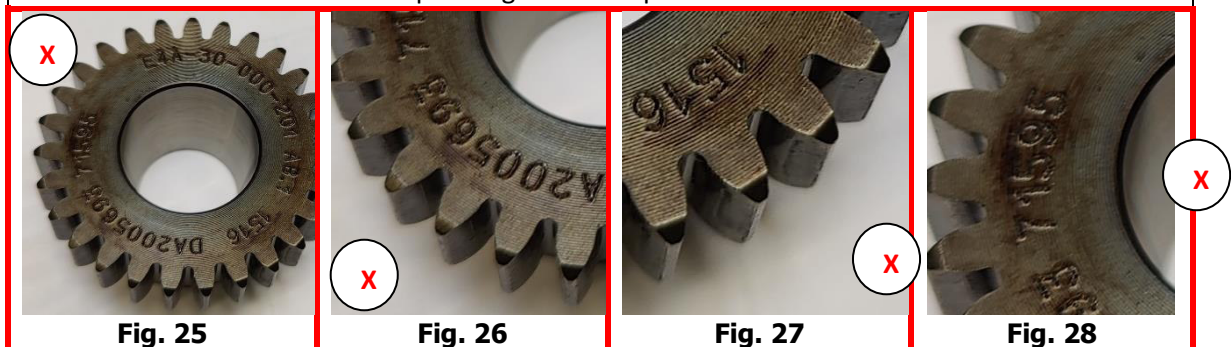
|                              | YES  | NO                       | Consultation with AE required |
|------------------------------|--|--------------------------|-------------------------------|
| HPP Driving gear acceptable: | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>      |
| Note:                        | <ul style="list-style-type: none"> <li>The possible discoloration shown in the non-acceptable gears is due to high friction, which generates heat. When present, the typical discoloration is not homogeneous and presents different shades from black/blue to violet/bronze.</li> <li>Check the gear according to the discoloration criteria provided.</li> <li>Discoloration is clearly visible on the outer surface of the gear.</li> <li>Check also for visible discoloration on the face of the teeth.</li> <li>Check for excessive wear of the gear.</li> </ul> <p>In case of doubt, fill the Appendix III and contact Austro Engine</p> |                          |                               |

|                  |      |      |          |               |     |     |       |
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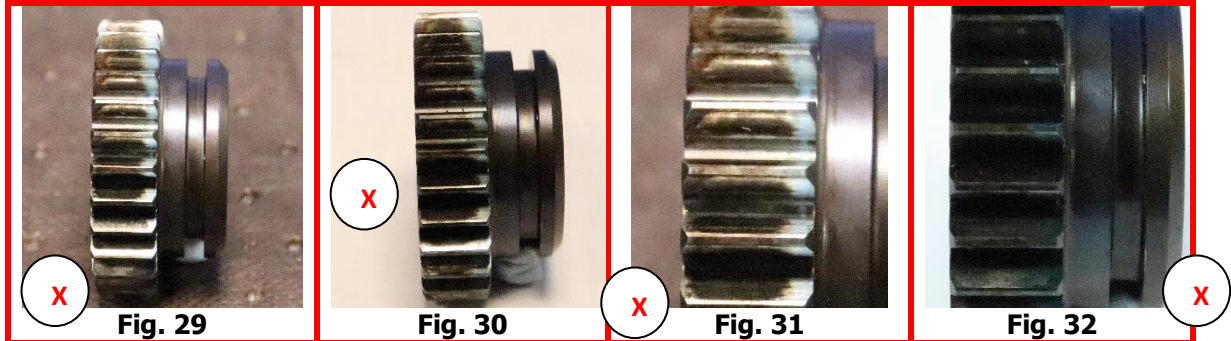
**Table 6 - HPP Driving Gear Disassembled - Inspection chart**



Examples of gear in acceptable conditions



Examples of gear in not acceptable condition



Examples of gear in not acceptable condition

|                         | YES                      | NO                       | Consultation with AE required |
|-------------------------|--------------------------|--------------------------|-------------------------------|
| <b>Part acceptable:</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |

Note:

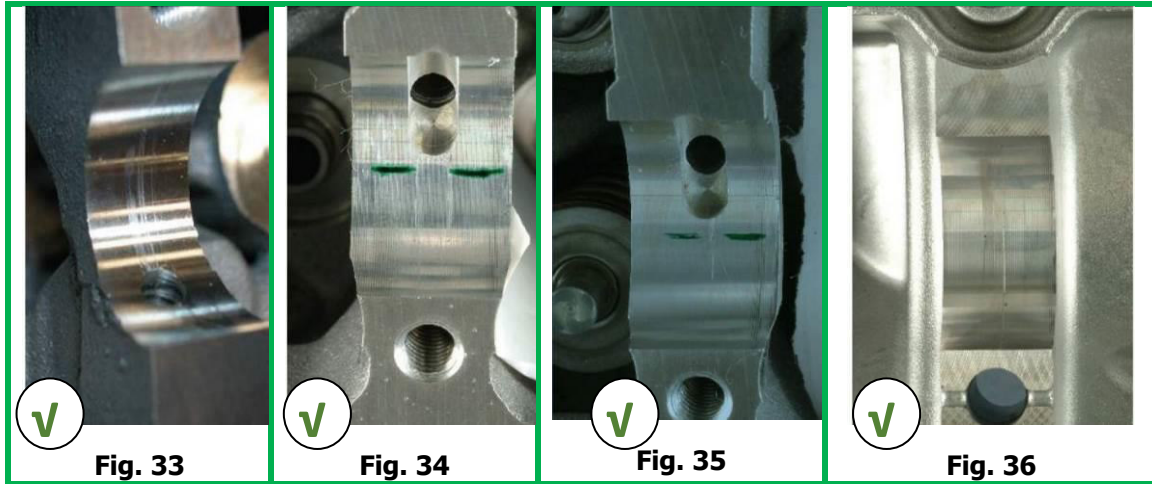
- The possible discoloration shown in the non-acceptable gears is due to high friction, which generates heat. When present, the typical discoloration is not homogeneous and presents different shades from black/blue to violet/bronze.
- Check the gear according to the discoloration criteria provided.
- Discoloration is clearly visible on the outer surface of the gear and in the marking zone of the gear.
- Check also for visible discoloration on the face of the teeth.
- Check for excessive wear of the gear.

In case of doubt, fill the Appendix III and contact Austro Engine

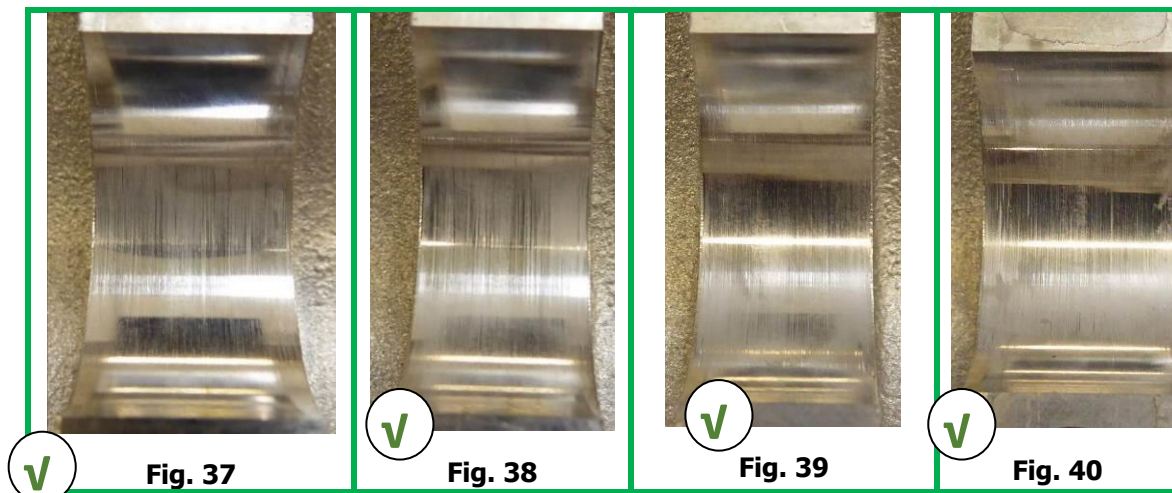
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**Table 7 - Camshaft/camshaft gear - Camshaft inlet/outlet bearing - Cylinder head – HPP Shaft inspection chart**

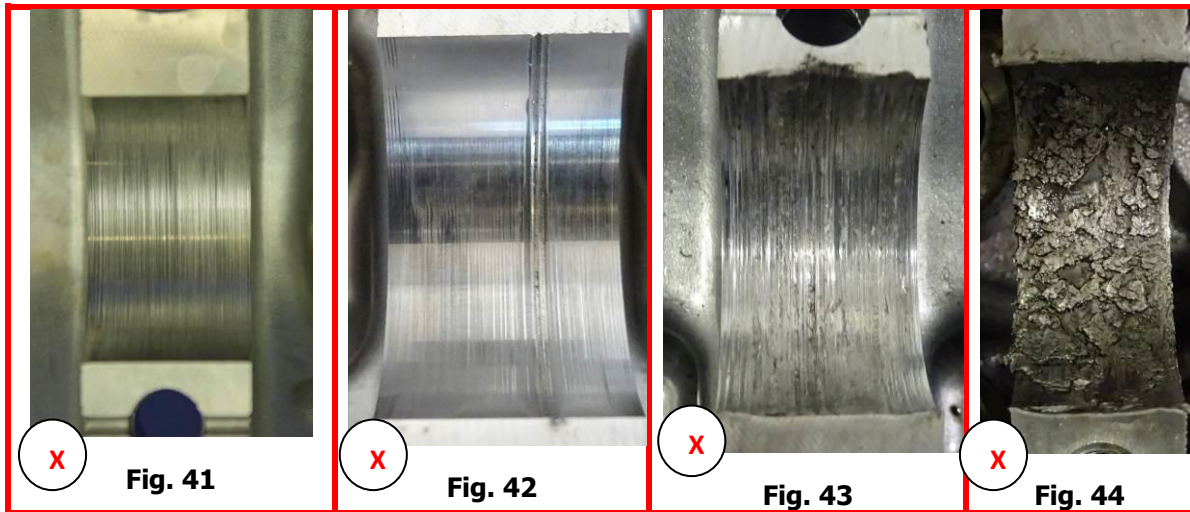


Examples of **normal wear** of the cylinder head at camshaft bearings



Examples of **normal wear** of the cylinder head at camshaft bearings

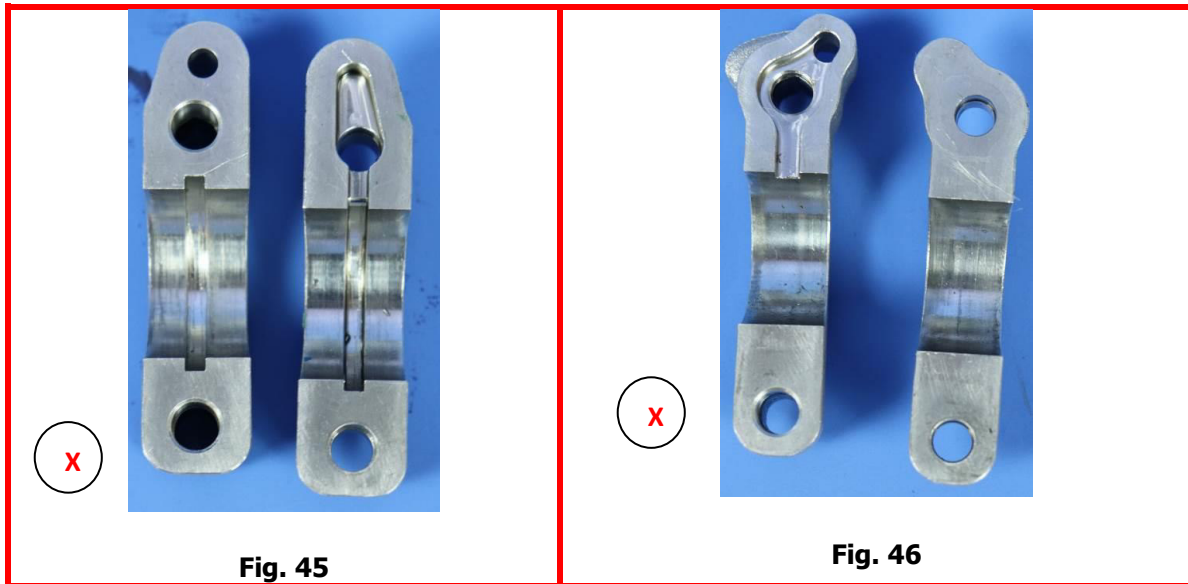
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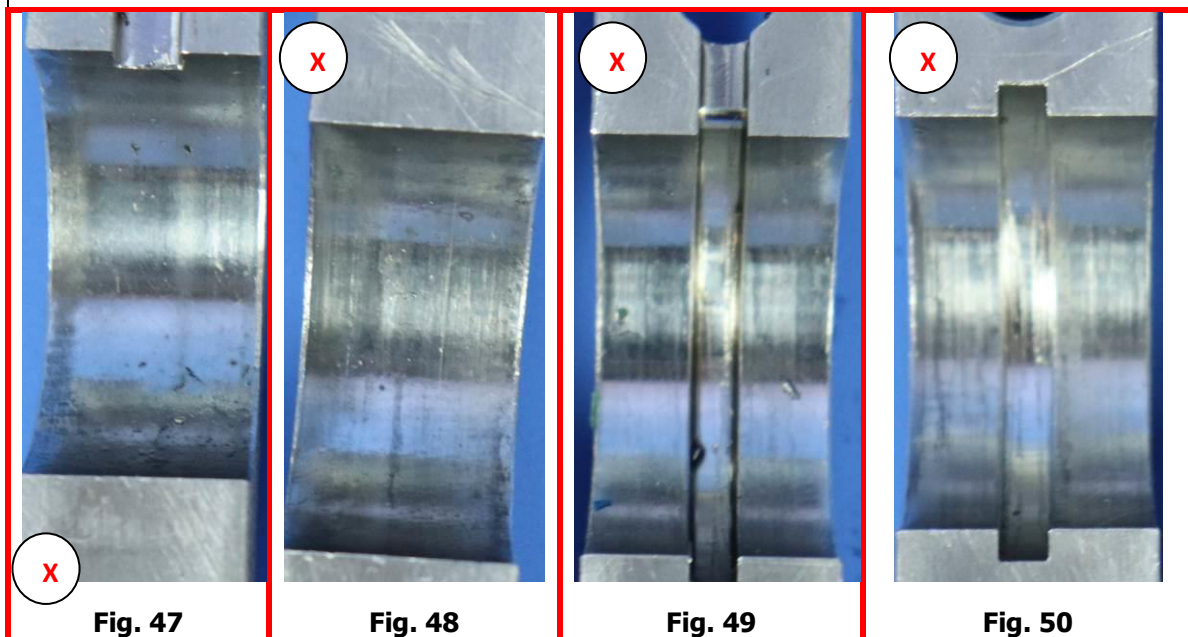
Examples of **excessive wear** of the cylinder head at camshaft bearings

|                                  | YES  | NO                       | Consultation with AE required |
|----------------------------------|--|--------------------------|-------------------------------|
| <b>Cylinder Head acceptable:</b> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>      |
|                                  | <p>The wear rate of the upper bearing segments, which are located inside the cylinder head cover, and upper bearing brackets is normally higher compared to the lower bearing surfaces. This is caused by the force of the valve springs applied to the camshafts.</p> <p>Examine the bearing segments at the cylinder cover and the cylinder cover for grooves and/or scratches detectable by finger.</p> <p>In case of doubt, fill the Appendix III and contact Austro Engine.</p> |                          |                               |

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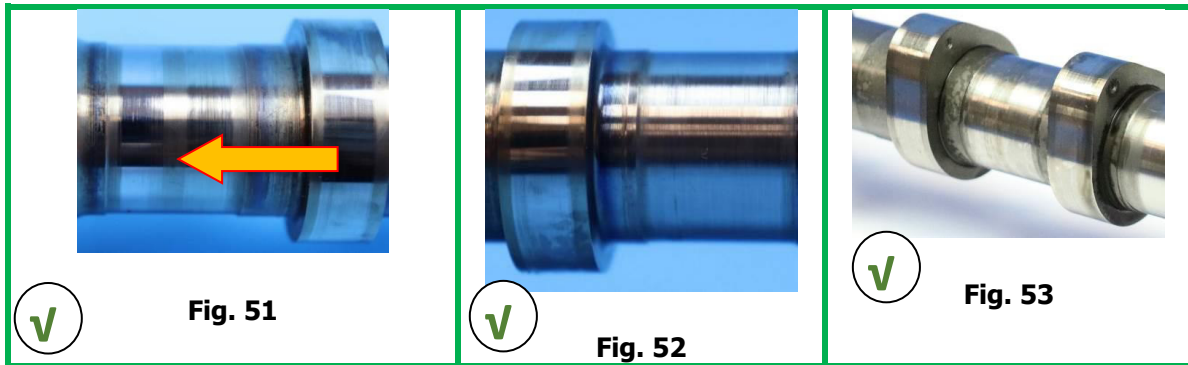
Examples of camshaft bearings in not acceptable conditions



Examples of camshaft bearings in not acceptable conditions

|                                      | YES  | NO                       | Consultation with AE required |
|--------------------------------------|--|--------------------------|-------------------------------|
| <b>Camshaft Bearings acceptable:</b> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>      |
| <b>Note:</b>                         | Examine the inlet/outlet bearings of the camshafts for discoloration, wear, grooves detectable by finger.<br><br>In case of doubt, fill the Appendix III and contact Austro Engine |                          |                               |

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Examples of camshaft in **acceptable** conditions



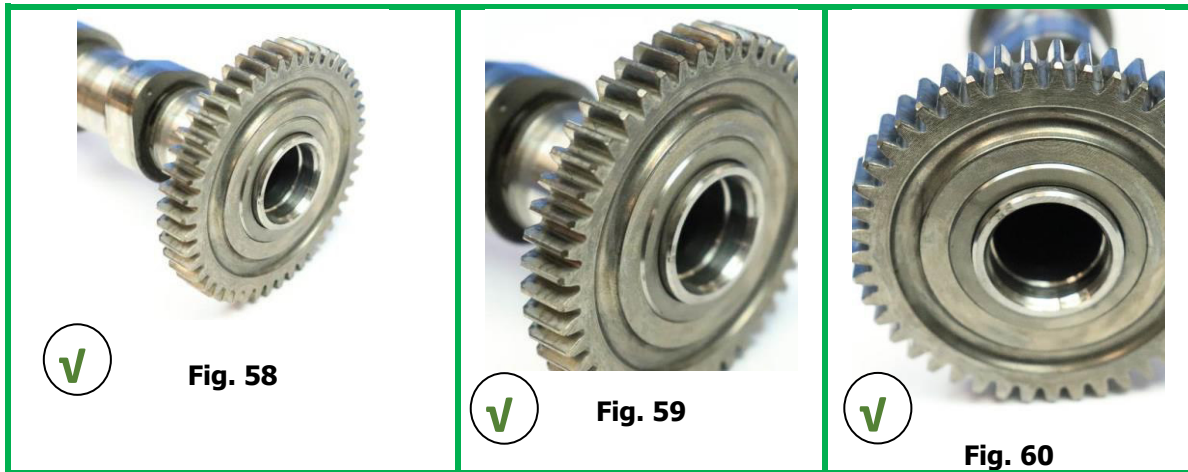
Examples of camshaft in **not acceptable** conditions



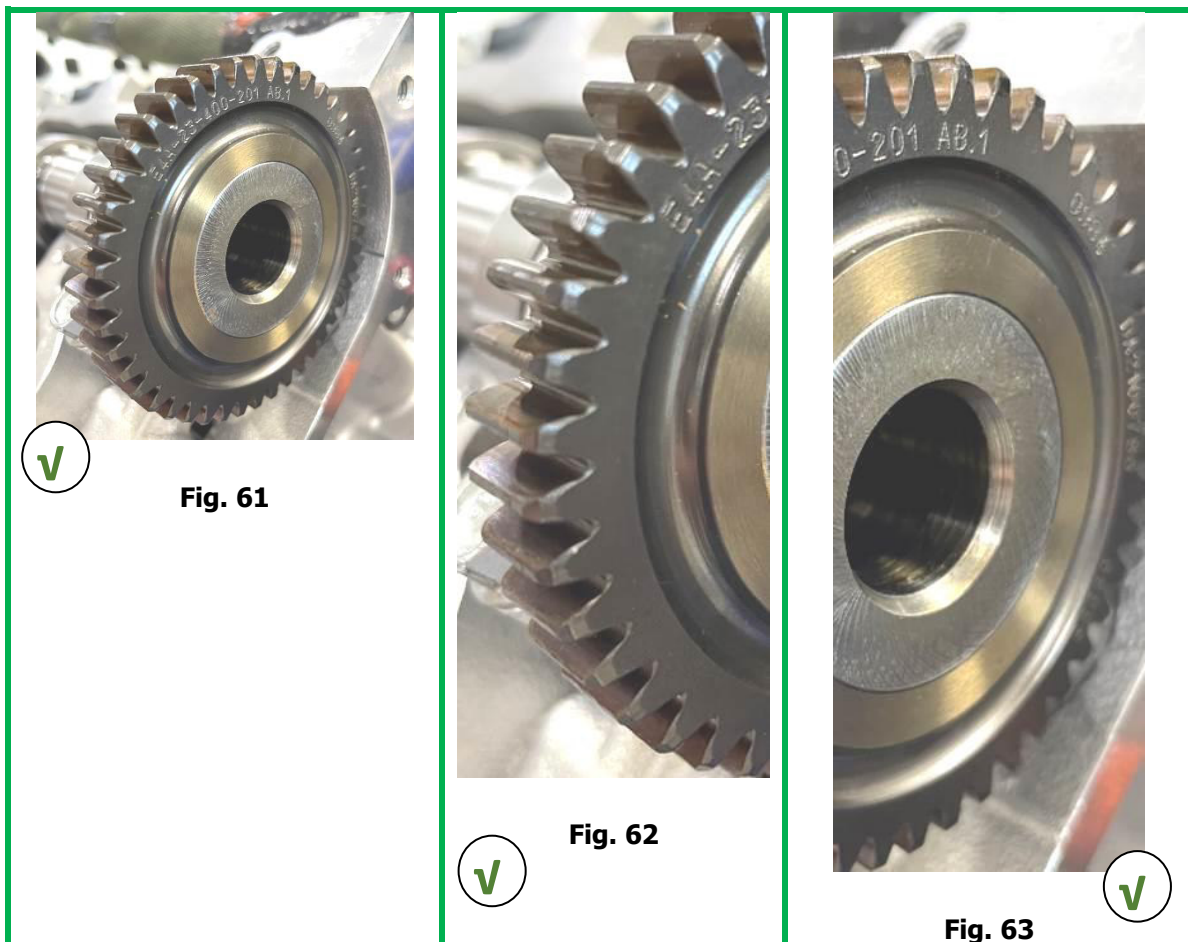
Examples of camshaft in **not acceptable** conditions

|                             | YES  | NO                       | Consultation with AE required |
|-----------------------------|--|--------------------------|-------------------------------|
| <b>Camshaft acceptable:</b> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>      |
| <b>Note:</b>                | <p>Some bearing positions show a circular discoloration; this is a normal sign of the oil supply bore located inside the lower bearing segment. Bearing surfaces are acceptable when they have:</p> <ul style="list-style-type: none"> <li>- a homogenous, even surface</li> <li>- no circular sensitive running mark detectable by fingernail.</li> </ul> <p>Camshafts with sensitive running marks detectable by fingernail are not permitted for re-use. Replace them by new ones.</p> <p>In case of doubt, fill the Appendix III and contact Austro Engine</p> |                          |                               |

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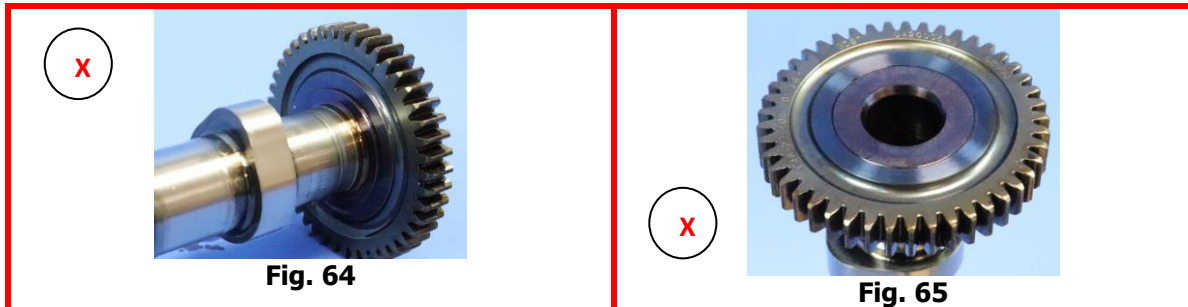


Examples of camshaft gear in acceptable conditions

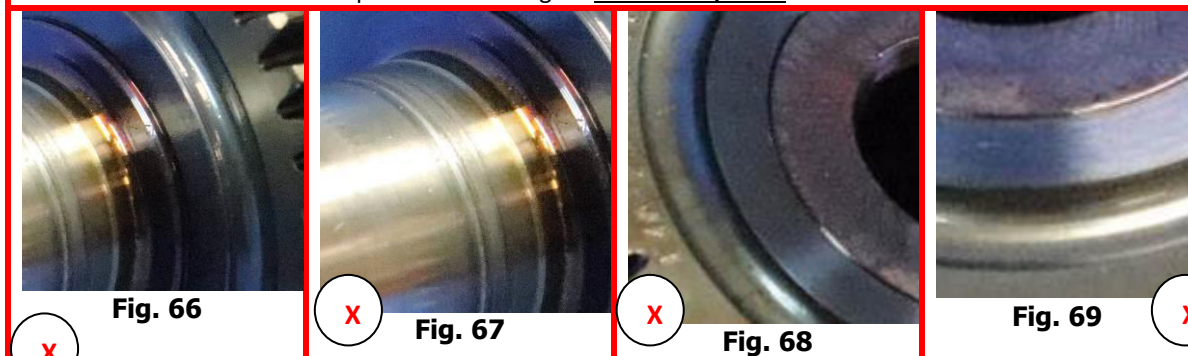


Examples of camshaft gear in acceptable conditions

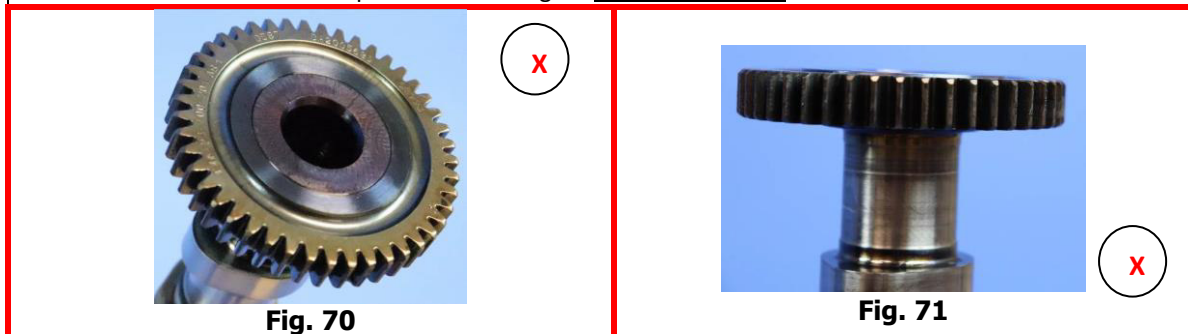
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Examples of camshaft gear **in not acceptable** conditions



Examples of camshaft gear **in not acceptable** conditions



Examples of camshaft gear **in not acceptable** conditions

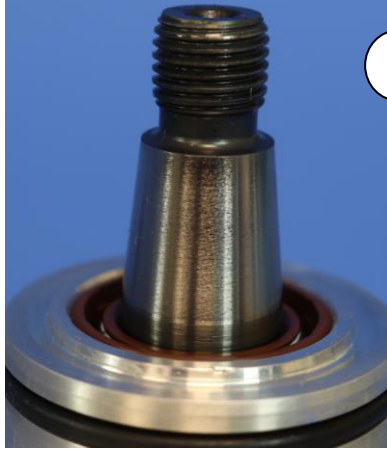
|                                  | YES                      | NO                       | Consultation with AE required |
|----------------------------------|--------------------------|--------------------------|-------------------------------|
| <b>Camshaft gear acceptable:</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |

**Note:**

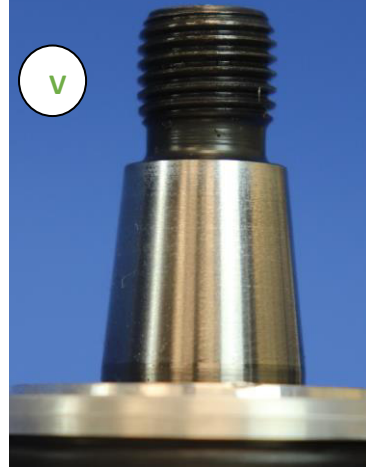
- Check the gear according to the discoloration criteria provided.
- Darken gear without clear “overburn” discoloration are acceptable as it is the typical colour of the heat treatment of the material (e.g. figs. 61, 62, 63).
- The possible discoloration shown in the non-acceptable gears is due to high friction, which generates heat. When present the typical discoloration is not homogeneous and presents different shades from black/blue to violet/bronze.
- Shades of “burnt” material are typically present on both face of the gear, such discoloration is clearly visible on the outer surface of the gear; use a magnifier, if required, to check the inner surface.
- Check also for visible discoloration on the face of the teeth.

In case of doubt, fill the Appendix III and contact Austro Engine

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**Fig. 72**



**Fig. 73**

Examples of HPP Shaft in acceptable conditions



**Fig. 74**



**Fig. 75**

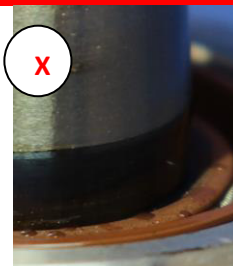
Examples of HPP Shaft in not acceptable conditions



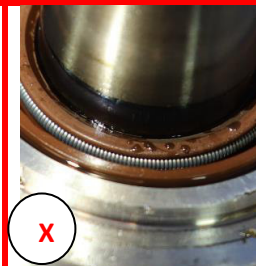
**Fig. 76**



**Fig. 77**



**Fig. 78**



**Fig. 79**

Examples of HPP Shaft in not acceptable conditions

|                              | YES                      | NO                       | Consultation with AE required |
|------------------------------|--------------------------|--------------------------|-------------------------------|
| <b>HPP Shaft acceptable:</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      |

Note:

- Check the shaft according to the discoloration criteria provided.
  - Shaft darkening in the lower area (e.g. figs. 74 to 79).
- In case of doubt, fill the Appendix III and contact Austro Engine

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## 8. Appendix III

This form must be filled in case support for inspection is requested to Austro Engine. The form should be provided to Austro Engine service, within the photos of the inspected parts. Mark only the applicable parts.

|   |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|
| Aircraft Serial Number  |                          |                          |                          |
| Engine Serial Number  |                          |                          |                          |
| Service Contacts  |                          |                          |                          |
| <b>Note:</b> please mark only one the applicable box. In case of not applicable/not performed, left the row blank |                          |                          |                          |
| Inspected and found:  | <b>OK</b>                | <b>Not OK</b>            | <b>Pictures attached</b> |
| HPP Gear  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| HPP Shaft   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Camshaft Gear   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Camshaft  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cylinder Head   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Bearings  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>NOTE:</b>  |                          |                          |                          |
| Filled by: (Name Surname)   |                          |                          |                          |
| Date: (DD.MM.YYYY)  |                          |                          |                          |

|                  |      |      |          |               |     |       |
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