

OIL ANALYSIS REPORT



JOHN LUGGER SAM VOLVO PENTA 7011383691 - PORT DIESEL ENGINE

Sample No: VPA060421
Oil Type: VOLVO PENTA SAE 15W40

SAMPLE INFORMATION

| | | | | |
|---------------|--------------------|-------------|-------------|-------------|
| Sample Number | VPA060421 | VPA048930 | VPA037055 | VPA029033 |
| Sample Date | 13 Mar 2024 | 11 Nov 2022 | 01 Feb 2022 | 02 Mar 2020 |
| Machine Hours | 1462 | 0 | 825 | 451 |
| Oil Hours | 0 | 178 | 0 | 0 |
| Oil Changed | Changed | Changed | Changed | Changed |
| Sample Status | ATTENTION | NORMAL | NORMAL | NORMAL |

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OIL CONDITION

| | | | | | |
|------------------|----------|-------------|------|------|------|
| Visc @ 100°C | cSt | 12.9 | 13.1 | 12.7 | 12.8 |
| Base Number (BN) | mg KOH/g | 8.2 | 9.9 | 9.6 | --- |
| Oxidation (PA) | % | 68 | 74 | 70 | 61 |

CONTAMINATION

| | | | | | |
|----------------|-----|----------------|------|------|------|
| Water | % | NEG | NEG | NEG | NEG |
| Soot % | % | 0.7 | 0.6 | 0.6 | 0.5 |
| Nitration (PA) | % | 78 | 83 | 76 | 63 |
| Sulfation (PA) | % | 61 | 67 | 65 | 57 |
| Glycol | % | NEG | NEG | NEG | NEG |
| Fuel | % | <1.0 | <1.0 | <1.0 | <1.0 |
| Silicon | ppm | 6 | 5 | 5 | 8 |
| Sodium | ppm | 2 | <1 | 2 | 3 |
| Potassium | ppm | 1 | 0 | 0 | <1 |

WEAR METALS

| | | | | | |
|------------|-----|--------------|----|----|----|
| Iron | ppm | 15 | 12 | 14 | 12 |
| Copper | ppm | 107 | 67 | 71 | 41 |
| Lead | ppm | 2 | <1 | 2 | 1 |
| Tin | ppm | 1 | <1 | <1 | 0 |
| Aluminum | ppm | 2 | <1 | <1 | 2 |
| Chromium | ppm | 1 | <1 | <1 | <1 |
| Molybdenum | ppm | 62 | 66 | 59 | 62 |
| Nickel | ppm | 3 | 0 | 0 | 1 |
| Titanium | ppm | <1 | 0 | 0 | 0 |
| Silver | ppm | 0 | 0 | 0 | 0 |
| Manganese | ppm | <1 | <1 | <1 | <1 |
| Vanadium | ppm | <1 | 0 | 0 | 0 |

ADDITIVES

| | | | | | |
|------------|-----|-------------|------|------|------|
| Calcium | ppm | 1176 | 1120 | 1132 | 1018 |
| Magnesium | ppm | 974 | 956 | 999 | 880 |
| Zinc | ppm | 1253 | 1239 | 1253 | 1087 |
| Phosphorus | ppm | 1071 | 1076 | 1053 | 972 |
| Barium | ppm | 0 | 0 | 0 | 0 |
| Boron | ppm | 8 | 2 | 2 | 3 |

Diagnosis

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Depot: VP794951
Unique No: 10937610
Signed: Don Baldrige
Report Date: 22 Mar 2024

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GRAPHS

