

OIL ANALYSIS REPORT

**VOLVO
PENTA**

BAKER C5389 CATERPILLAR 1ZJ03738 - PORT DIESEL ENGINE

Sample No: VPA044137

Oil Type: SHELL ROTELLA T 15W40

SAMPLE INFORMATION

| | | | | |
|---------------|-------------|-------------|-------------|-----|
| Sample Number | VPA044137 | VPA033801 | VPA015627 | --- |
| Sample Date | 06 Sep 2023 | 13 Sep 2021 | 24 Sep 2020 | --- |
| Machine Hours | 1488 | 1221 | 1151 | --- |
| Oil Hours | 163 | 0 | 0 | --- |
| Oil Changed | Changed | N/A | N/A | --- |
| Sample Status | NORMAL | NORMAL | NORMAL | --- |

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OIL CONDITION

| | | | | | |
|------------------|----------|--------|--------|--------|-----|
| Visc @ 100°C | cSt | █ 14.4 | █ 14.4 | █ 13.8 | --- |
| Base Number (BN) | mg KOH/g | █ 7.8 | --- | --- | --- |
| Oxidation (PA) | % | 68 | 70 | 62 | --- |

CONTAMINATION

| | | | | | |
|----------------|-----|-------|-------|-------|-----|
| Soot % | % | █ 0.2 | █ 0.1 | █ 0.1 | --- |
| Nitration (PA) | % | 65 | 53 | 48 | --- |
| Sulfation (PA) | % | 57 | 59 | 55 | --- |
| Glycol | % | NEG | NEG | NEG | --- |
| Fuel | % | <1.0 | <1.0 | <1.0 | --- |
| Silicon | ppm | █ 3 | █ <1 | █ 2 | --- |
| Sodium | ppm | █ 3 | █ 0 | █ 2 | --- |
| Potassium | ppm | █ 8 | █ 4 | █ <1 | --- |

Diagnosis

Resample at the next service interval to monitor. All 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.

WEAR METALS

| | | | | | |
|------------|-----|------|------|------|-----|
| Iron | ppm | █ 14 | █ 10 | █ 9 | --- |
| Copper | ppm | █ 11 | █ 4 | █ 7 | --- |
| Lead | ppm | █ <1 | █ <1 | █ <1 | --- |
| Tin | ppm | █ 1 | █ 0 | █ <1 | --- |
| Aluminum | ppm | █ 2 | █ <1 | █ 1 | --- |
| Chromium | ppm | █ <1 | █ <1 | █ <1 | --- |
| Molybdenum | ppm | █ 4 | █ 5 | █ 58 | --- |
| Nickel | ppm | █ <1 | █ 0 | █ 0 | --- |
| Titanium | ppm | █ 0 | █ 0 | █ 0 | --- |
| Silver | ppm | █ 0 | █ 1 | █ 0 | --- |
| Manganese | ppm | █ 1 | █ <1 | █ <1 | --- |
| Vanadium | ppm | 0 | 0 | 0 | --- |

ADDITIVES

| | | | | | |
|------------|-----|--------|--------|--------|-----|
| Calcium | ppm | █ 2394 | █ 2032 | █ 1660 | --- |
| Magnesium | ppm | █ 19 | █ 51 | █ 364 | --- |
| Zinc | ppm | █ 1363 | █ 1124 | █ 1150 | --- |
| Phosphorus | ppm | █ 1073 | █ 941 | █ 975 | --- |
| Barium | ppm | █ 0 | █ 0 | █ <1 | --- |
| Boron | ppm | █ 189 | █ 239 | █ 124 | --- |

Depot: VP154879
Unique No: 10642985
Signed: Don Baldrige
Report Date: 13 Sep 2023

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GRAPHS

