

OIL ANALYSIS REPORT



KATIE VOLVO PENTA 1013932213 - PORT DIESEL ENGINE

Sample No: VPA051814
Oil Type: VOLVO VDS-4.5 Premium Motor Oil 15W40

SAMPLE INFORMATION

Sample Number	VPA051814	VPA023262	VPA038787	VPA038824
Sample Date	25 Mar 2024	18 Jul 2023	03 Oct 2022	14 Apr 2022
Machine Hours	3190	2702	1972	1181
Oil Hours	0	500	688	1181
Oil Changed	Changed	Not Changd	Not Changd	Changed
Sample Status	ABNORMAL	ABNORMAL	ABNORMAL	SEVERE

NEWT MARINE
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 DUBUQUE, IA
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OIL CONDITION

Visc @ 100°C	cSt	▲ 11.6	▲ 11.9	▲ 11.3	▲ 10.9
Base Number (BN)	mg KOH/g	■ 8.8	■ 8.7	■ 10.1	■ 8.5
Oxidation (PA)	%	57	54	63	84

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	■ 0.3	■ 0.2	■ 0.2	■ 0.3
Nitration (PA)	%	58	48	63	78
Sulfation (PA)	%	54	51	59	65
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	▲ 5.7	▲ 5.0	▲ 6.0	▲ 10.1
Silicon	ppm	■ 6	■ 10	▲ 40	▲ 99
Sodium	ppm	■ 0	■ <1	■ <1	■ 4
Potassium	ppm	■ 4	■ 2	■ 7	■ 17

Diagnosis

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

WEAR METALS

Iron	ppm	■ 19	■ 7	■ 13	■ 33
Copper	ppm	■ 7	■ 3	■ 27	▲ 146
Lead	ppm	■ 1	■ 0	■ <1	■ 1
Tin	ppm	■ 2	■ <1	■ 1	■ 2
Aluminum	ppm	■ 2	■ <1	■ 3	■ 6
Chromium	ppm	■ <1	■ 0	■ <1	■ <1
Molybdenum	ppm	■ 83	■ 57	■ 53	■ 53
Nickel	ppm	■ <1	■ 0	■ <1	■ 0
Titanium	ppm	■ <1	■ <1	■ 0	■ 0
Silver	ppm	■ 0	■ 0	■ 0	■ <1
Manganese	ppm	■ <1	■ <1	■ <1	■ 2
Vanadium	ppm	<1	<1	0	0

ADDITIVES

Calcium	ppm	■ 1407	1096	■ 1056	1127
Magnesium	ppm	1259	1014	■ 934	831
Zinc	ppm	1591	■ 1284	■ 1146	■ 1028
Phosphorus	ppm	1410	■ 996	■ 950	■ 934
Barium	ppm	■ 2	■ 0	■ 0	■ 0
Boron	ppm	■ 6	■ 2	■ 8	11

Depot: VP99298099
Unique No: 11022890
Signed: Sean Felton
Report Date: 15 May 2024

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VOLVO PENTA

GRAPHS

