

OIL ANALYSIS REPORT



SCARLETE RINER VOLVO PENTA 1013897351 (S/N 101397351) - PORT DIESEL ENGINE

Sample No: VPA051762
Oil Type: VOLVO VDS-4.5 Premium Motor Oil 15W40

SAMPLE INFORMATION

Sample Number	VPA051762	VPA051763	VPA034045	VPA038790
Sample Date	01 Oct 2023	23 Jul 2023	22 Feb 2023	05 Aug 2022
Machine Hours	1975	1623	1032	605
Oil Hours	950	589	1032	605
Oil Changed	Changed	Not Changd	Changed	Not Changd
Sample Status	ABNORMAL	ABNORMAL	ABNORMAL	ABNORMAL

NEWT MARINE
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 DUBUQUE, IA
 US 52001
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OIL CONDITION

Visc @ 100°C	cSt	▲ 11.6	▲ 11.3	▲ 11.2	▲ 11.6
Base Number (BN)	mg KOH/g	■ 7.4	■ 7.8	■ 7.8	■ 9.8
Oxidation (PA)	%	■ 69	■ 77	■ 76	■ 77

CONTAMINATION

Soot %	%	■ 0.2	■ 0.2	■ 0.2	■ 0.2
Nitration (PA)	%	■ 73	■ 78	■ 76	■ 72
Sulfation (PA)	%	■ 58	■ 60	■ 61	■ 63
Glycol	%	■ NEG	■ NEG	■ NEG	■ NEG
Fuel	%	▲ 4.6	▲ 7.4	▲ 6.3	▲ 6.3
Silicon	ppm	■ 7	■ 20	■ 18	■ 20
Sodium	ppm	■ 4	■ 3	■ 0	■ 5
Potassium	ppm	■ 8	■ 28	■ 31	■ 29

WEAR METALS

Iron	ppm	■ 12	■ 20	■ 19	■ 15
Copper	ppm	▲ 146	▲ 234	▲ 288	■ 7
Lead	ppm	■ 2	■ 4	■ 1	■ 2
Tin	ppm	■ <1	■ 2	■ 2	■ 3
Aluminum	ppm	■ 4	■ 12	■ 12	■ 12
Chromium	ppm	■ 0	■ <1	■ <1	■ <1
Molybdenum	ppm	■ 57	■ 54	■ 55	■ 51
Nickel	ppm	■ 0	■ 0	■ 0	■ <1
Titanium	ppm	■ 0	■ <1	■ 0	■ 0
Silver	ppm	■ 0	■ 0	■ 0	■ 0
Manganese	ppm	■ <1	■ 2	■ 2	■ 1
Vanadium	ppm	■ 0	■ <1	■ 0	■ <1

ADDITIVES

Calcium	ppm	■ 1013	■ 1227	■ 1230	■ 1159
Magnesium	ppm	■ 964	■ 874	■ 787	■ 748
Zinc	ppm	■ 1234	■ 1225	■ 1141	■ 1115
Phosphorus	ppm	■ 947	■ 925	■ 946	■ 886
Barium	ppm	■ 0	■ 0	■ 0	■ <1
Boron	ppm	■ 0	■ 7	■ 11	■ 18

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. The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). 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.

Depot: VP99298099
Unique No: 10709769
Signed: Jonathan Hester
Report Date: 25 Oct 2023

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VOLVO PENTA

GRAPHS

