

OIL ANALYSIS REPORT



SCARLETE RINER MITCH VOLVO PENTA 1013935841 - STARBOARD DIESEL ENGINE

Sample No: VPA051811
Oil Type: VOLVO VDS-4.5 Premium Motor Oil 15W40

SAMPLE INFORMATION

Sample Number	VPA051811	VPA051767	VPA051771	VPA034042
Sample Date	01 Mar 2024	01 Oct 2023	19 Jul 2023	22 Feb 2023
Machine Hours	2329	1975	1619	1019
Oil Hours	300	943	589	1019
Oil Changed	Not Changd	Changed	Not Changd	Changed
Sample Status	ATTENTION	ABNORMAL	ATTENTION	ATTENTION

NEWT MARINE
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OIL CONDITION

Visc @ 100°C	cSt	11.8	11.8	11.9	11.3
Base Number (BN)	mg KOH/g	7.6	7.3	8.8	8.3
Oxidation (PA)	%	73	71	63	91

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.3	0.2	0.1	0.2
Nitration (PA)	%	76	74	58	75
Sulfation (PA)	%	60	59	55	65
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	6	6	5	24
Sodium	ppm	2	3	1	0
Potassium	ppm	8	10	4	35

WEAR METALS

Iron	ppm	8	11	6	18
Copper	ppm	160	240	12	107
Lead	ppm	4	3	<1	2
Tin	ppm	<1	<1	<1	2
Aluminum	ppm	5	5	2	14
Chromium	ppm	<1	0	0	<1
Molybdenum	ppm	60	59	58	42
Nickel	ppm	<1	0	0	0
Titanium	ppm	0	0	<1	<1
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	2
Vanadium	ppm	<1	0	<1	0

ADDITIVES

Calcium	ppm	1155	1063	1148	1557
Magnesium	ppm	1062	992	1016	525
Zinc	ppm	1332	1275	1320	1075
Phosphorus	ppm	1040	1008	1013	882
Barium	ppm	0	0	0	0
Boron	ppm	<1	0	0	30

Diagnosis

No corrective action is recommended at this time. 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). All other component wear rates are normal. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Depot: VP99298099
Unique No: 10915909
Signed: Don Baldrige
Report Date: 11 Mar 2024

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**VOLVO
PENTA**

GRAPHS

