

# OIL ANALYSIS REPORT



## STEVE MALONE PATRICK 502333 VOLVO PENTA 2013566025 - STARBOARD DIESEL ENGINE

**Sample No:** VPA036981  
**Oil Type:** VOLVO VDS-4.5 Premium Motor Oil 15W40

### SAMPLE INFORMATION

Sample Number	<b>VPA036981</b>	VPA056421	VPA042075	---
Sample Date	<b>11 Sep 2023</b>	14 Jun 2023	26 Sep 2022	---
Machine Hours	<b>1464</b>	1456	1440	---
Oil Hours	<b>69</b>	68	55	---
Oil Changed	<b>Changed</b>	Not Changd	N/A	---
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	---

**Endor Marine LLC - Coastal Marine - 152124**  
 4300 11th Ave. NW  
 SEATTLE, WA  
 US 98107  
 Contact: WILLOW YANARELLA  
 service@coastalmarineengine.com  
 T: (206)784-3703  
 F: (206)784-8823

### OIL CONDITION

Visc @ 100°C	cSt	<b>13.5</b>	13.4	13.7	---
Base Number (BN)	mg KOH/g	<b>9.4</b>	9.4	10.9	---
Oxidation (PA)	%	<b>51</b>	60	58	---

### CONTAMINATION

Soot %	%	<b>0.1</b>	0.1	0.1	---
Nitration (PA)	%	<b>45</b>	43	47	---
Sulfation (PA)	%	<b>50</b>	54	56	---
Glycol	%	<b>NEG</b>	NEG	NEG	---
Fuel	%	<b>&lt;1.0</b>	<1.0	<1.0	---
Silicon	ppm	<b>7</b>	7	4	---
Sodium	ppm	<b>2</b>	<1	<1	---
Potassium	ppm	<b>&lt;1</b>	3	0	---

### 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 suitable for further service.

### WEAR METALS

Iron	ppm	<b>2</b>	0	2	---
Copper	ppm	<b>55</b>	52	55	---
Lead	ppm	<b>&lt;1</b>	<1	3	---
Tin	ppm	<b>&lt;1</b>	1	0	---
Aluminum	ppm	<b>3</b>	2	5	---
Chromium	ppm	<b>0</b>	<1	<1	---
Molybdenum	ppm	<b>50</b>	51	53	---
Nickel	ppm	<b>0</b>	<1	0	---
Titanium	ppm	<b>&lt;1</b>	0	0	---
Silver	ppm	<b>0</b>	0	0	---
Manganese	ppm	<b>&lt;1</b>	<1	<1	---
Vanadium	ppm	<b>0</b>	<1	0	---

### ADDITIVES

Calcium	ppm	<b>1039</b>	1143	1003	---
Magnesium	ppm	<b>896</b>	1018	903	---
Zinc	ppm	<b>1143</b>	1366	1129	---
Phosphorus	ppm	<b>973</b>	1094	1022	---
Barium	ppm	<b>0</b>	0	0	---
Boron	ppm	<b>5</b>	6	6	---

**Depot:** VP794951  
**Unique No:** 10648344  
**Signed:** Sean Felton  
**Report Date:** 19 Sep 2023

# OIL ANALYSIS REPORT

# VOLVO PENTA

## GRAPHS

