

# OIL ANALYSIS REPORT

# VOLVO PENTA

## PINES JB CRUSADER 670037 - STARBOARD GASOLINE ENGINE

**Sample No:** VPA047516  
**Oil Type:** SIERRA 10W30

### SAMPLE INFORMATION

Sample Number	<b>VPA047516</b>	VPA024435	VPA024107	VPA015894
Sample Date	<b>02 Oct 2023</b>	09 Dec 2019	20 Dec 2018	22 Nov 2017
Machine Hours	<b>917</b>	556	499	452
Oil Hours	<b>0</b>	57	53	0
Oil Changed	<b>Changed</b>	Changed	Changed	Changed
Sample Status	<b>ABNORMAL</b>	NORMAL	NORMAL	NORMAL

**Point Judith Marina**  
360 Gooseberry Road  
WAKEFIELD, RI  
US 02879  
Contact: MATT ST. ANGELO  
service@pjmarina.com;canastasio@wearcheckusa.com  
T: (401)789-7189  
F: (401)783-5350

### OIL CONDITION

Visc @ 100°C	cSt	<b>14.9</b>	13.8	14.21	14.03
Base Number (BN)	mg KOH/g	<b>6.6</b>	---	---	---
Oxidation (PA)	%	<b>16</b>	57	58	56

### CONTAMINATION

Water	%	---	0.105	---	---
Soot %	%	<b>0.1</b>	0.2	0.2	0
Nitration (PA)	%	<b>9</b>	77	76	67
Sulfation (PA)	%	<b>13</b>	58	59	55
Glycol	%	<b>0.0</b>	NEG	NEG	NEG
Fuel	%	<b>&lt;1.0</b>	<1.0	<1.0	<1.0
Silicon	ppm	<b>55</b>	7	7	6
Sodium	ppm	<b>163</b>	3	4	4
Potassium	ppm	<b>12</b>	0	4	2

### WEAR METALS

Iron	ppm	<b>81</b>	17	16	18
Copper	ppm	<b>23</b>	30	40	43
Lead	ppm	<b>2</b>	2	<1	<1
Tin	ppm	<b>&lt;1</b>	0	0	2
Aluminum	ppm	<b>9</b>	4	4	4
Chromium	ppm	<b>3</b>	<1	<1	<1
Molybdenum	ppm	<b>50</b>	31	41	43
Nickel	ppm	<b>&lt;1</b>	<1	<1	<1
Titanium	ppm	<b>0</b>	<1	<1	0
Silver	ppm	<b>0</b>	0	0	0
Manganese	ppm	<b>2</b>	<1	<1	1
Vanadium	ppm	<b>0</b>	0	0	0

### ADDITIVES

Calcium	ppm	<b>2256</b>	2518	2040	1956
Magnesium	ppm	<b>66</b>	33	87	11
Zinc	ppm	<b>908</b>	751	731	722
Phosphorus	ppm	<b>690</b>	621	573	633
Barium	ppm	<b>0</b>	0	0	0
Boron	ppm	<b>149</b>	10	44	127

### Diagnosis

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. Elemental level of silicon (Si) above normal. 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.

**Depot:** VP153811  
**Unique No:** 10685864  
**Signed:** Angela Borella  
**Report Date:** 11 Oct 2023

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## GRAPHS

