

# OIL ANALYSIS REPORT

**VOLVO  
PENTA**

## GRANT BOTH 505830 VOLVO PENTA 7011465367 - STARBOARD DIESEL ENGINE

**Sample No:** VPA052135  
**Oil Type:** SHELL ROTELLA T 15W40

### SAMPLE INFORMATION

Sample Number	VPA052135	VPA041031	VPA029984	---
Sample Date	18 Jan 2024	12 Dec 2022	06 Jan 2022	---
Machine Hours	651	577	464	---
Oil Hours	74	100	150	---
Oil Changed	Changed	Changed	Changed	---
Sample Status	NORMAL	NORMAL	SEVERE	---

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### OIL CONDITION

Visc @ 100°C	cSt	█ 13.4	█ 12.7	---	---
Base Number (BN)	mg KOH/g	█ 7.3	█ 10.3	█ 25.1	---
Oxidation (PA)	%	53	63	86	---

### CONTAMINATION

Water	%	NEG	NEG	█ 3.10	---
Soot %	%	█ 0.7	█ 0.3	█ 1.1	---
Nitration (PA)	%	61	63	138	---
Sulfation (PA)	%	52	57	33	---
Glycol	%	NEG	NEG	NEG	---
Fuel	%	<1.0	<1.0	<1.0	---
Silicon	ppm	█ 4	█ 4	█ 9	---
Sodium	ppm	█ 3	█ 0	█ 23	---
Potassium	ppm	█ 3	█ 2	▲ 147	---

### 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	█ 6	█ 6	█ 78	---
Copper	ppm	█ 17	█ 11	█ 126	---
Lead	ppm	█ <1	█ 0	█ 2	---
Tin	ppm	█ <1	█ <1	█ 8	---
Aluminum	ppm	█ 2	█ 1	█ 1	---
Chromium	ppm	█ 0	█ <1	█ <1	---
Molybdenum	ppm	█ 65	█ 58	█ 52	---
Nickel	ppm	█ 1	█ 0	█ 1	---
Titanium	ppm	█ 0	█ 0	█ <1	---
Silver	ppm	█ <1	█ 1	█ <1	---
Manganese	ppm	█ <1	█ <1	█ 1	---
Vanadium	ppm	0	<1	0	---

### ADDITIVES

Calcium	ppm	█ 1765	█ 1038	█ 1318	---
Magnesium	ppm	190	█ 891	█ 701	---
Zinc	ppm	█ 1140	█ 1170	█ 1090	---
Phosphorus	ppm	█ 1013	█ 992	█ 868	---
Barium	ppm	█ <1	█ 0	█ 0	---
Boron	ppm	█ 79	█ 2	█ 148	---

**Depot:** VP297371  
**Unique No:** 10847948  
**Signed:** Don Baldrige  
**Report Date:** 29 Jan 2024

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## GRAPHS

