

# OIL ANALYSIS REPORT

**VOLVO  
PENTA**

## DENISON 15109 VOLVO PENTA 7008491301 - STARBOARD DIESEL ENGINE

Sample No: VPA050777

Oil Type: VOLVO VDS-4.5 Premium Motor Oil 15W40

### SAMPLE INFORMATION

Sample Number	VPA050777	VPA038624	VPA037617	---
Sample Date	15 Sep 2023	14 Sep 2021	16 Apr 2021	---
Machine Hours	1400	0	482	---
Oil Hours	0	0	0	---
Oil Changed	Changed	N/A	N/A	---
Sample Status	NORMAL	NORMAL	NORMAL	---

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### OIL CONDITION

Visc @ 100°C	cSt	█ 13.3	█ 13.3	█ 13.2	---
Base Number (BN)	mg KOH/g	█ 9.6	---	---	---
Oxidation (PA)	%	56	59	64	---

### CONTAMINATION

Soot %	%	█ 0.3	█ 0.2	█ 0.3	---
Nitration (PA)	%	51	50	57	---
Sulfation (PA)	%	53	55	60	---
Glycol	%	NEG	NEG	NEG	---
Fuel	%	<1.0	<1.0	<1.0	---
Silicon	ppm	█ 12	█ 8	█ 13	---
Sodium	ppm	█ <1	█ 0	█ 3	---
Potassium	ppm	█ <1	█ <1	█ <1	---

### 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	█ 7	█ 6	█ 18	---
Copper	ppm	█ 60	█ 35	█ 58	---
Lead	ppm	█ <1	█ <1	█ 0	---
Tin	ppm	█ 0	█ <1	█ <1	---
Aluminum	ppm	█ 2	█ <1	█ 0	---
Chromium	ppm	█ 1	█ <1	█ <1	---
Molybdenum	ppm	█ 66	█ 60	█ 61	---
Nickel	ppm	█ <1	█ <1	█ 1	---
Titanium	ppm	█ 0	█ 0	█ 0	---
Silver	ppm	█ <1	█ <1	█ <1	---
Manganese	ppm	█ <1	█ <1	█ <1	---
Vanadium	ppm	0	0	0	---

### ADDITIVES

Calcium	ppm	█ 1139	█ 1088	█ 1043	---
Magnesium	ppm	992	█ 980	█ 928	---
Zinc	ppm	█ 1316	█ 1285	█ 1161	---
Phosphorus	ppm	█ 1101	█ 1064	█ 1036	---
Barium	ppm	█ 0	█ 0	█ 0	---
Boron	ppm	█ 1	█ 5	█ 0	---

**Depot:** VP151520  
**Unique No:** 10656226  
**Signed:** Jonathan Hester  
**Report Date:** 21 Sep 2023

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## GRAPHS

