

# OIL ANALYSIS REPORT



## DOUG ZALK 7715233 VOLVO PENTA A1053534 - STARBOARD DIESEL ENGINE

**Sample No:** VPA050655  
**Oil Type:** VOLVO VDS-4.5 Premium Motor Oil 15W40

### SAMPLE INFORMATION

Sample Number	VPA050655	VPA026056	VPA032033	VPA025787
Sample Date	03 Jul 2023	20 Jun 2022	23 Jun 2021	18 May 2020
Machine Hours	258	220	150	66
Oil Hours	0	70	82	66
Oil Changed	N/A	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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### OIL CONDITION

Visc @ 100°C	cSt	13.6	13.4	13.1	13.2
Base Number (BN)	mg KOH/g	9.7	10.1	---	---
Oxidation (PA)	%	63	70	75	58

### CONTAMINATION

Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	59	63	58	53
Sulfation (PA)	%	53	56	56	53
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	7	5	15	23
Sodium	ppm	<1	2	3	5
Potassium	ppm	1	0	2	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	18	16	14	25
Copper	ppm	3	4	6	10
Lead	ppm	0	1	2	<1
Tin	ppm	0	<1	1	0
Aluminum	ppm	3	4	8	13
Chromium	ppm	<1	<1	1	2
Molybdenum	ppm	62	53	53	76
Nickel	ppm	<1	<1	<1	1
Titanium	ppm	0	0	<1	<1
Silver	ppm	0	<1	<1	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	0	0	0

### ADDITIVES

Calcium	ppm	1155	1002	1080	1455
Magnesium	ppm	1091	899	903	1393
Zinc	ppm	1460	1182	1179	1548
Phosphorus	ppm	1149	817	842	1351
Barium	ppm	0	0	0	<1
Boron	ppm	<1	2	15	4

**Depot:** VP99031103  
**Unique No:** 10564918  
**Signed:** Don Baldrige  
**Report Date:** 24 Jul 2023

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**VOLVO  
PENTA**

## GRAPHS

