

# OIL ANALYSIS REPORT

**VOLVO  
PENTA**

**HAAR BUD VOLVO PENTA TAMD41P-A 2041062903 - STARBOARD DIESEL ENGINE**

**Sample No:** VPA036968

**Oil Type:** VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3

## SAMPLE INFORMATION

Sample Number	<b>VPA036968</b>	VPA047971	VPA035644	VPA034407
Sample Date	<b>07 Nov 2023</b>	17 Nov 2022	10 Dec 2021	08 Dec 2020
Machine Hours	<b>0</b>	0	0	0
Oil Hours	<b>0</b>	0	0	0
Oil Changed	<b>Changed</b>	Changed	Changed	Changed
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	NORMAL

**Point Judith Marina**

360 Gooseberry Road  
WAKEFIELD, RI  
US 02879

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## OIL CONDITION

Visc @ 100°C	cSt	<b>14.3</b>	13.7	13.7	14.3
Base Number (BN)	mg KOH/g	<b>8.4</b>	11.5	8.1	---
Oxidation (PA)	%	<b>68</b>	68	63	72

## CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	NEG
Soot %	%	<b>0.2</b>	0.2	0.3	0.3
Nitration (PA)	%	<b>58</b>	63	56	73
Sulfation (PA)	%	<b>58</b>	59	54	60
Glycol	%	<b>NEG</b>	NEG	NEG	NEG
Fuel	%	<b>&lt;1.0</b>	<1.0	<1.0	<1.0
Silicon	ppm	<b>10</b>	10	11	9
Sodium	ppm	<b>2</b>	<1	2	4
Potassium	ppm	<b>7</b>	<1	<1	<1

## WEAR METALS

Iron	ppm	<b>22</b>	19	33	28
Copper	ppm	<b>4</b>	6	8	10
Lead	ppm	<b>&lt;1</b>	<1	2	2
Tin	ppm	<b>2</b>	2	2	3
Aluminum	ppm	<b>2</b>	2	2	2
Chromium	ppm	<b>&lt;1</b>	<1	<1	<1
Molybdenum	ppm	<b>12</b>	66	67	68
Nickel	ppm	<b>1</b>	<1	2	2
Titanium	ppm	<b>0</b>	0	0	0
Silver	ppm	<b>0</b>	0	<1	<1
Manganese	ppm	<b>&lt;1</b>	<1	<1	<1
Vanadium	ppm	<b>&lt;1</b>	0	0	0

## ADDITIVES

Calcium	ppm	<b>2083</b>	1135	1197	1390
Magnesium	ppm	<b>98</b>	964	1050	946
Zinc	ppm	<b>1257</b>	1270	1357	1357
Phosphorus	ppm	<b>1020</b>	1064	1122	1139
Barium	ppm	<b>0</b>	0	0	0
Boron	ppm	<b>173</b>	3	4	13

## 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.

**Depot:** VP153811  
**Unique No:** 10755298  
**Signed:** Sean Felton  
**Report Date:** 27 Nov 2023

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## GRAPHS

