

# OIL ANALYSIS REPORT

# VOLVO PENTA

## MARTIN CUMMINS 45808615 - CENTER DIESEL ENGINE

Sample No: VPA044788

Oil Type: SHELL ROTELLA T4 15W40

### SAMPLE INFORMATION

Sample Number	VPA044788	VPA041072	VPA035661	VPA026996
Sample Date	25 Oct 2023	17 Oct 2022	01 Nov 2021	26 Oct 2020
Machine Hours	2645	2592	2539	2480
Oil Hours	53	52	58	49
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

### Point Judith Marina

360 Gooseberry Road

WAKEFIELD, RI

US 02879

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### OIL CONDITION

Visc @ 100°C	cSt	14.4	14.2	14.4	14.0
Base Number (BN)	mg KOH/g	7.2	9.7	---	---
Oxidation (PA)	%	71	73	76	73

### CONTAMINATION

Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	59	60	63	64
Sulfation (PA)	%	57	62	61	60
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	6	3	3	3
Sodium	ppm	6	0	2	3
Potassium	ppm	8	2	8	8

### WEAR METALS

Iron	ppm	16	11	13	13
Copper	ppm	6	3	4	6
Lead	ppm	<1	<1	1	1
Tin	ppm	<1	0	<1	<1
Aluminum	ppm	3	2	7	7
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	11	21	3	4
Nickel	ppm	1	<1	<1	2
Titanium	ppm	<1	0	<1	<1
Silver	ppm	0	0	<1	<1
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	<1	0	0	0

### ADDITIVES

Calcium	ppm	2107	2257	2205	2118
Magnesium	ppm	14	20	16	14
Zinc	ppm	1185	1190	1144	1070
Phosphorus	ppm	969	985	855	953
Barium	ppm	<1	0	0	0
Boron	ppm	180	177	207	200

### 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 acceptable for the time in service.

Depot: VP153811

Unique No: 10723684

Signed: Don Baldrige

Report Date: 02 Nov 2023

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## GRAPHS

