

OIL ANALYSIS REPORT

**VOLVO
PENTA**

LERMAN CUMMINS 46878450 - STARBOARD DIESEL ENGINE

Sample No: VPA059687

Oil Type: SHELL ROTELLA T 15W40

SAMPLE INFORMATION

Sample Number	VPA059687	VPA039756	VPA035312	---
Sample Date	01 Dec 2023	21 Nov 2022	18 Oct 2021	---
Machine Hours	0	458	424	---
Oil Hours	0	25	0	---
Oil Changed	Not Changed	Changed	N/A	---
Sample Status	NORMAL	NORMAL	NORMAL	---

Walstrom Marine - 767948

501 Bay Street
HARBOR SPRINGS, MI
US 49740

Contact: RICK HEINY
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F:

OIL CONDITION

Visc @ 100°C	cSt	14.2	14.2	14.7	---
Base Number (BN)	mg KOH/g	8.9	9.8	---	---
Oxidation (PA)	%	65	71	69	---

CONTAMINATION

Water	%	NEG	NEG	NEG	---
Soot %	%	0.1	0.1	0.2	---
Nitration (PA)	%	47	53	51	---
Sulfation (PA)	%	56	61	58	---
Glycol	%	NEG	NEG	NEG	---
Fuel	%	<1.0	<1.0	<1.0	---
Silicon	ppm	3	2	4	---
Sodium	ppm	<1	1	3	---
Potassium	ppm	8	6	9	---

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.

WEAR METALS

Iron	ppm	3	5	6	---
Copper	ppm	8	7	10	---
Lead	ppm	0	0	0	---
Tin	ppm	0	<1	0	---
Aluminum	ppm	1	2	2	---
Chromium	ppm	<1	<1	<1	---
Molybdenum	ppm	<1	1	2	---
Nickel	ppm	0	0	1	---
Titanium	ppm	0	0	<1	---
Silver	ppm	0	<1	<1	---
Manganese	ppm	0	<1	<1	---
Vanadium	ppm	0	0	<1	---

ADDITIVES

Calcium	ppm	2098	2163	2386	---
Magnesium	ppm	11	10	11	---
Zinc	ppm	1085	1123	1111	---
Phosphorus	ppm	915	970	970	---
Barium	ppm	2	0	0	---
Boron	ppm	201	195	174	---

Depot: VP154879

Unique No: 10770130

Signed: Sean Felton

Report Date: 07 Dec 2023

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GRAPHS

