

# OIL ANALYSIS REPORT

**VOLVO  
PENTA**

## BOOMERANG 4007 74054989 - STARBOARD DIESEL ENGINE

Sample No: VPA052372

Oil Type: SHELL ROTELLA T 15W40

### SAMPLE INFORMATION

Sample Number	VPA052372	VPA046304	VPA031318	VPA029389
Sample Date	03 Jan 2024	09 Jan 2023	13 Jan 2022	07 Jan 2020
Machine Hours	563	510	446	199
Oil Hours	50	64	119	40
Oil Changed	Changed	Changed	Not Changd	N/A
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

### The Talaria Company

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OXFORD, MD

US 21654

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### OIL CONDITION

Visc @ 100°C	cSt	█ 14.3	█ 14.6	█ 15.1	█ 14.3
Base Number (BN)	mg KOH/g	█ 7.9	█ 8.1	█ 8.6	---
Oxidation (PA)	%	67	71	86	71

### CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	█ 0.4	█ 0.6	█ 1.1	█ 0.3
Nitration (PA)	%	61	68	93	70
Sulfation (PA)	%	57	61	70	58
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	█ 5	█ 6	█ 9	█ 13
Sodium	ppm	█ 2	█ 3	█ 3	█ 4
Potassium	ppm	█ 7	█ 8	█ 6	█ 3

### WEAR METALS

Iron	ppm	█ 20	█ 39	█ 70	█ 38
Copper	ppm	█ 23	█ 42	█ 84	█ 33
Lead	ppm	█ 0	█ 0	█ <1	█ 0
Tin	ppm	█ <1	█ 0	█ <1	█ 0
Aluminum	ppm	█ 7	█ 17	█ 26	█ 13
Chromium	ppm	█ 1	█ 3	█ 5	█ 2
Molybdenum	ppm	█ 2	█ 4	█ 11	█ 45
Nickel	ppm	█ <1	█ 1	█ 2	█ 1
Titanium	ppm	█ <1	█ 0	█ <1	█ 2
Silver	ppm	█ 0	█ 0	█ <1	█ <1
Manganese	ppm	█ <1	█ <1	█ 1	█ <1
Vanadium	ppm	0	0	0	0

### ADDITIVES

Calcium	ppm	█ 2024	█ 2181	█ 2186	█ 1529
Magnesium	ppm	█ 40	█ 37	92	654
Zinc	ppm	█ 1163	█ 1169	█ 1229	█ 1126
Phosphorus	ppm	█ 954	█ 973	█ 942	█ 998
Barium	ppm	█ 0	█ <1	█ 0	█ <1
Boron	ppm	█ 146	█ 162	█ 97	█ 41

### 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: VP592286

Unique No: 10884406

Signed: Don Baldrige

Report Date: 19 Feb 2024

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## GRAPHS

