

# OIL ANALYSIS REPORT

**VOLVO  
PENTA**

## ENCORE I (S/N 3940023264) - STARBOARD MAIN ENGINE

**Sample No:** VPA042625  
**Oil Type:** DURON 15W30

### SAMPLE INFORMATION

Sample Number	<b>VPA042625</b>	VPA039825	VPA035187	VPA026447
Sample Date	<b>05 Apr 2023</b>	02 Aug 2022	16 Sep 2021	14 Jul 2021
Machine Hours	<b>5186</b>	4381	3926	3717
Oil Hours	<b>225</b>	215	200	200
Oil Changed	<b>Changed</b>	Changed	Changed	Changed
Sample Status	<b>NORMAL</b>	ATTENTION	ATTENTION	NORMAL

**BAY STATE CRUISE COMPANY**  
200 SEAPORT BLVD, SUITE 50 LOWER LEVEL  
BOSTON, MA  
US 02210  
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### OIL CONDITION

Visc @ 100°C	cSt	<b>14.6</b>	14.4	<b>10.5</b>	14.3
Base Number (BN)	mg KOH/g	<b>9.8</b>	9.4	---	---
Oxidation (PA)	%	<b>53</b>	55	47	66

### CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	NEG
Soot %	%	<b>0.1</b>	0.1	0.1	0.1
Nitration (PA)	%	<b>47</b>	48	42	55
Sulfation (PA)	%	<b>48</b>	49	47	56
Glycol	%	<b>NEG</b>	NEG	NEG	NEG
Fuel	%	<b>&lt;1.0</b>	<1.0	0.1	<1.0
Silicon	ppm	<b>4</b>	3	2	3
Sodium	ppm	<b>0</b>	1	2	3
Potassium	ppm	<b>2</b>	1	3	7

### WEAR METALS

Iron	ppm	<b>3</b>	6	4	5
Copper	ppm	<b>2</b>	3	2	2
Lead	ppm	<b>&lt;1</b>	<1	<1	<1
Tin	ppm	<b>&lt;1</b>	<1	<1	0
Aluminum	ppm	<b>1</b>	<b>28</b>	1	2
Chromium	ppm	<b>1</b>	2	<1	<1
Molybdenum	ppm	<b>59</b>	45	2	2
Nickel	ppm	<b>2</b>	<1	0	0
Titanium	ppm	<b>&lt;1</b>	0	0	<1
Silver	ppm	<b>&lt;1</b>	0	<1	0
Manganese	ppm	<b>&lt;1</b>	<1	<1	<1
Vanadium	ppm	<b>&lt;1</b>	0	0	0

### ADDITIVES

Calcium	ppm	<b>1015</b>	1437	1317	2135
Magnesium	ppm	<b>939</b>	731	18	22
Zinc	ppm	<b>1182</b>	1144	897	1154
Phosphorus	ppm	<b>928</b>	1002	736	973
Barium	ppm	<b>0</b>	0	0	0
Boron	ppm	<b>5</b>	46	153	247

### 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:** VPBAYBOS  
**Unique No:** 10885086  
**Signed:** Jonathan Hester  
**Report Date:** 20 Feb 2024

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## GRAPHS

