



OIL ANALYSIS REPORT

WEAR
CONTAMINATION
FLUID CONDITION

ATTENTION
NORMAL
NORMAL

Area
JOHN LUGGER [SAM]
Machine Id
VOLVO PENTA 7011383669
Component
Starboard Diesel Engine
Fluid
VOLVO PENTA SAE 15W40 (10 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VPA060426	VPA048927	VPA037053
Sample Date		Client Info		13 Mar 2024	11 Nov 2022	01 Feb 2022
Machine Age	hrs	Client Info		1442	1127	861
Oil Age	hrs	Client Info		0	176	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	NORMAL	NORMAL

WEAR

The copper level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>80	14	11	13
Chromium	ppm	ASTM D5185m	>6	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	3	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	<1	<1
Lead	ppm	ASTM D5185m	>95	2	<1	2
Copper	ppm	ASTM D5185m	>85	126	80	87
Tin	ppm	ASTM D5185m	>9	1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

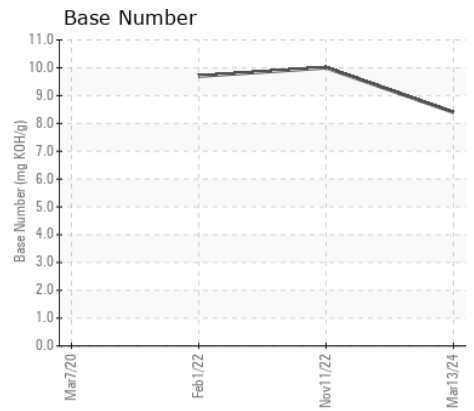
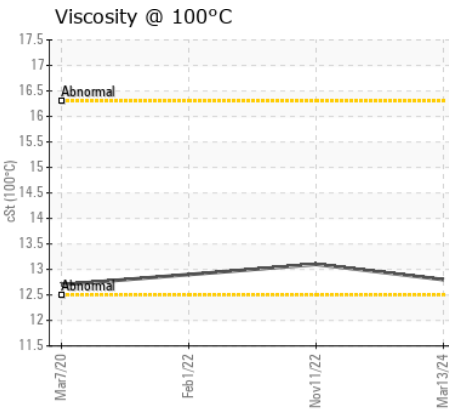
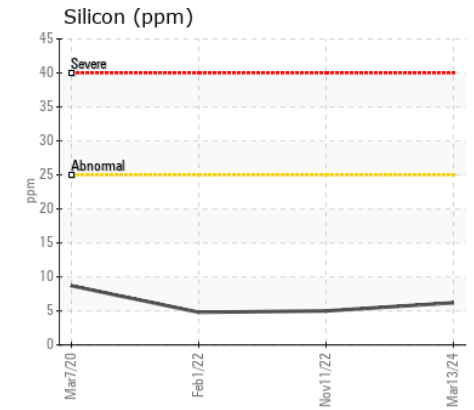
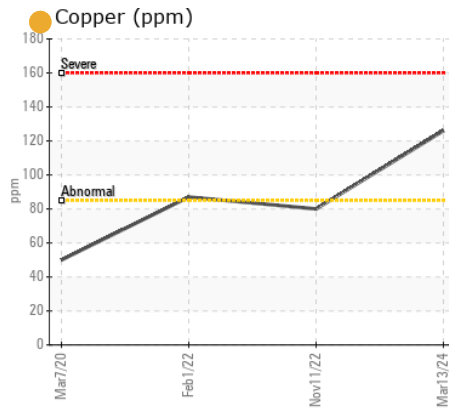
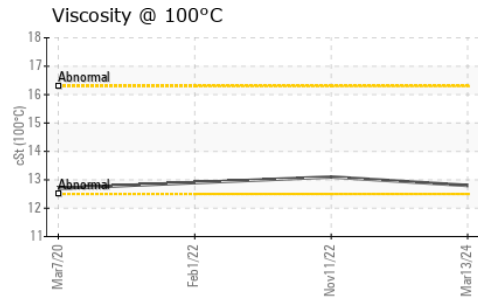
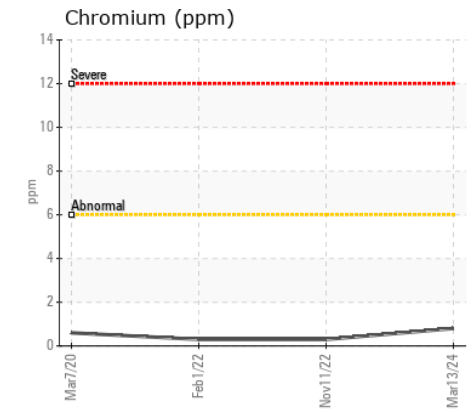
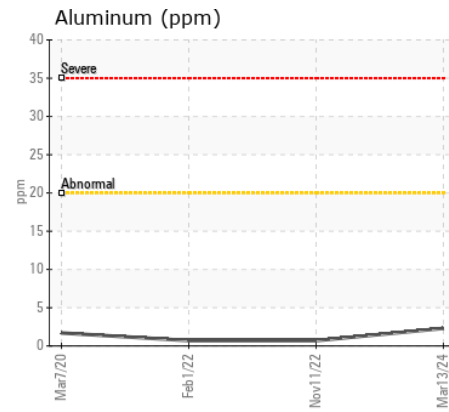
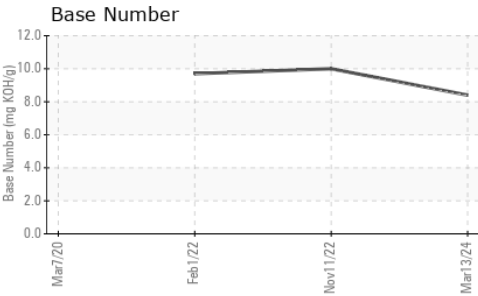
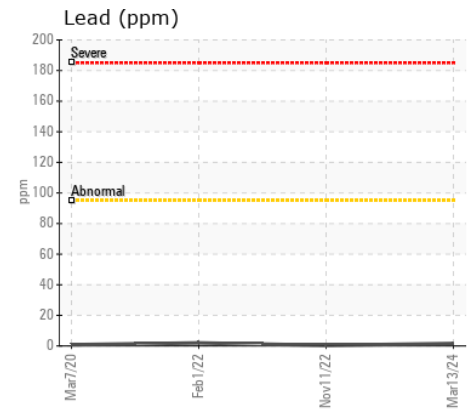
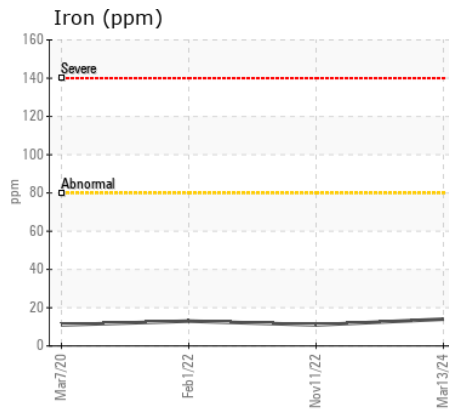
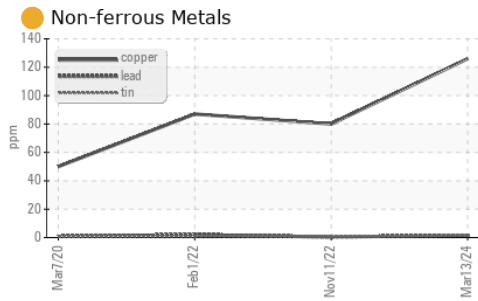
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	6	5	5
Potassium	ppm	ASTM D5185m	>20	1	0	0
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.7	0.5	0.5
Nitration	Abs/cm	*ASTM D7624	>20	9.1	9.7	8.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.0	23.7	23.0
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG

FLUID CONDITION

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.

Sodium	ppm	ASTM D5185m		2	<1	2
Boron	ppm	ASTM D5185m		14	5	10
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		65	66	57
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		974	960	947
Calcium	ppm	ASTM D5185m		1183	1143	1053
Phosphorus	ppm	ASTM D5185m		1083	1089	1074
Zinc	ppm	ASTM D5185m		1259	1247	1188
Sulfur	ppm	ASTM D5185m		3378	3558	2926
Oxidation	Abs/.1mm	*ASTM D7414	>25	17.0	18.2	17.0
Base Number (BN)	mg KOH/g	ASTM D2896		8.4	10.0	9.7
Visc @ 100°C	cSt	ASTM D445		12.8	13.1	12.9



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : VPA060426

Lab Number : 06123461

Unique Number : 10937612

Test Package : MOB 1 (Additional Tests: TBN)

Received : 20 Mar 2024

Tested : 21 Mar 2024

Diagnosed : 22 Mar 2024 - Don Baldrige

Endor Marine LLC - Coastal Marine - 152124

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SEATTLE, WA

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To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)