



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Area
LOU BRITO [205604]
Machine Id
VOLVO PENTA 2003011980
Component
Starboard Diesel Engine
Fluid
VOLVO PENTA SAE 15W40 (8 LTR)

RECOMMENDATION

We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VPA046359	VPA046355	---
Sample Date		Client Info		20 May 2024	10 Apr 2023	---
Machine Age	hrs	Client Info		1396	1407	---
Oil Age	hrs	Client Info		41	50	---
Filter Age	hrs	Client Info		0	0	---
Oil Changed		Client Info		Not Changd	Changed	---
Filter Changed		Client Info		Not Changd	Changed	---
Sample Status				SEVERE	SEVERE	---

WEAR

Piston, ring and cylinder wear is indicated.

Iron	ppm	ASTM D5185m	>80	▲ 328	▲ 412	---
Chromium	ppm	ASTM D5185m	>6	▲ 21	▲ 27	---
Nickel	ppm	ASTM D5185m	>2	4	4	---
Titanium	ppm	ASTM D5185m	>2	5	6	---
Silver	ppm	ASTM D5185m	>2	<1	0	---
Aluminum	ppm	ASTM D5185m	>20	▲ 92	▲ 120	---
Lead	ppm	ASTM D5185m	>95	4	2	---
Copper	ppm	ASTM D5185m	>85	60	77	---
Tin	ppm	ASTM D5185m	>9	3	1	---
Vanadium	ppm	ASTM D5185m		<1	<1	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

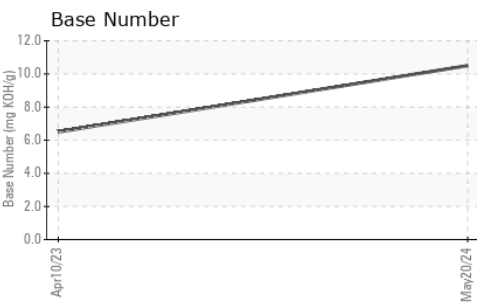
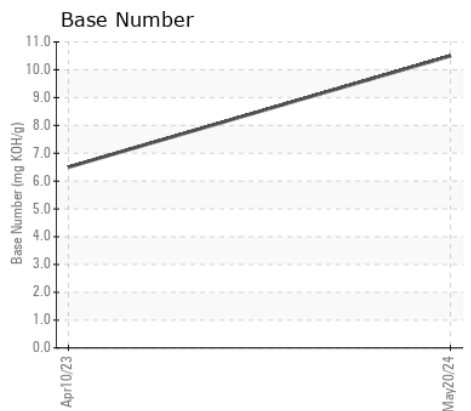
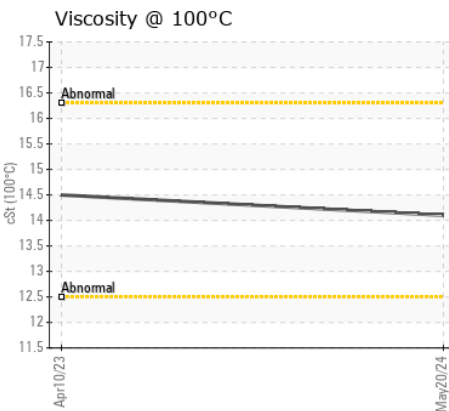
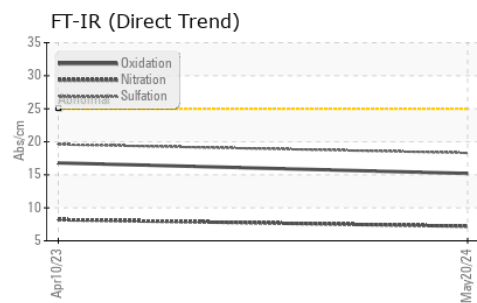
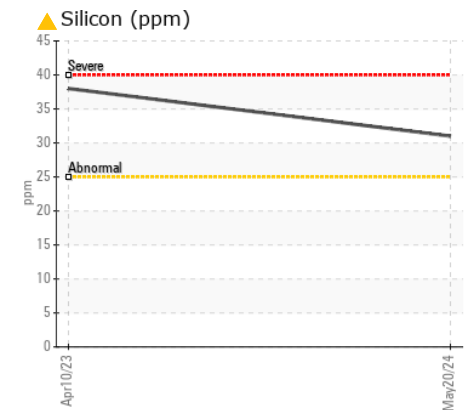
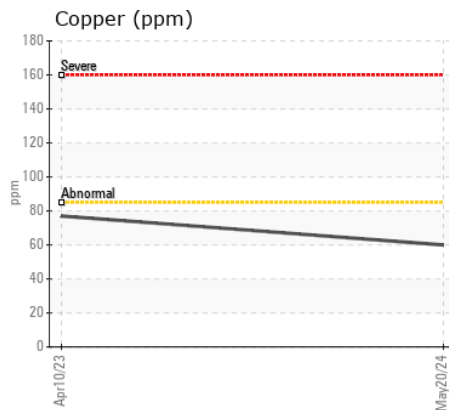
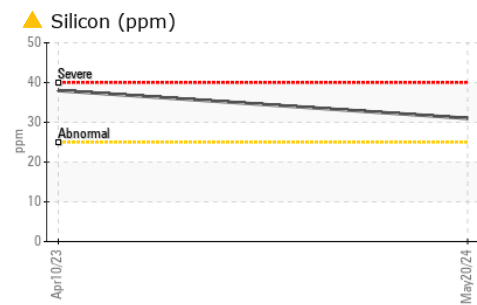
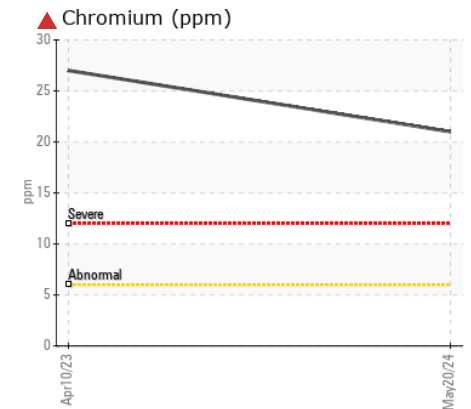
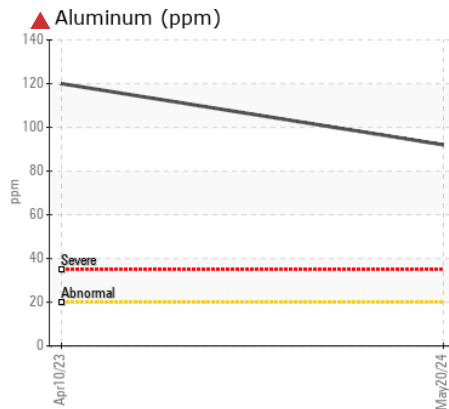
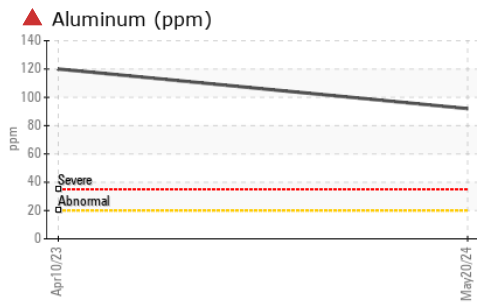
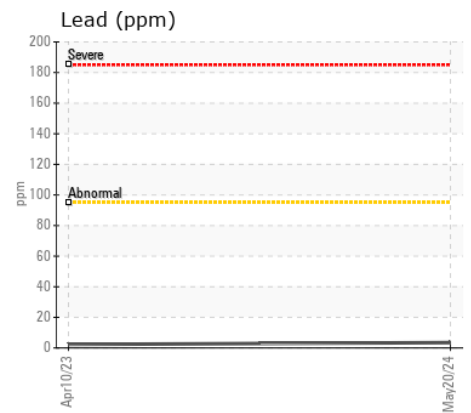
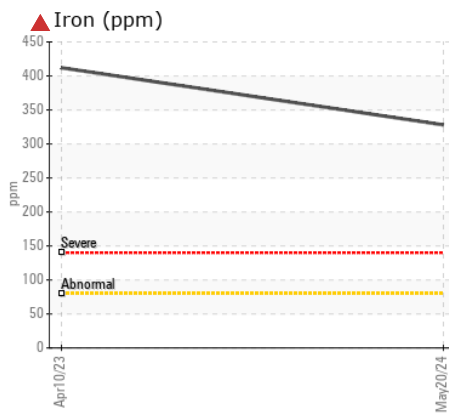
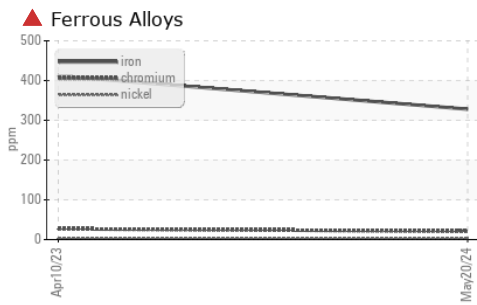
Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>25	▲ 31	▲ 38	---
Potassium	ppm	ASTM D5185m	>20	6	5	---
Fuel		WC Method	>4.0	<1.0	<1.0	---
Water		WC Method	>0.1	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844		0.1	0.2	---
Nitration	Abs/cm	*ASTM D7624	>20	7.2	8.2	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.3	19.6	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	---

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185m		35	40	---
Boron	ppm	ASTM D5185m		128	183	---
Barium	ppm	ASTM D5185m		0	0	---
Molybdenum	ppm	ASTM D5185m		80	82	---
Manganese	ppm	ASTM D5185m		3	4	---
Magnesium	ppm	ASTM D5185m		824	649	---
Calcium	ppm	ASTM D5185m		1410	1492	---
Phosphorus	ppm	ASTM D5185m		1148	1061	---
Zinc	ppm	ASTM D5185m		1366	1338	---
Sulfur	ppm	ASTM D5185m		3547	3751	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.2	16.8	---
Base Number (BN)	mg KOH/g	ASTM D2896		10.5	6.5	---
Visc @ 100°C	cSt	ASTM D445		14.1	14.5	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA046359 **Received** : 23 May 2024
Lab Number : 06189882 **Tested** : 29 May 2024
Unique Number : 11046634 **Diagnosed** : 29 May 2024 - Sean Felton
Test Package : MOB 1 (Additional Tests: kv40, TBN)

Cogswell Marine & Motorsports, Inc
 865 Stella Street
 CHULA VISTA, CA
 US 91911
 Contact: Mitchell Cogswell
 Cogswellmarinemotorsports@gmail.com

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)

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