



WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	MARGINAL

Area
NADINE URCIUOLI [FRED BOUJU]

Machine Id
VOLVO PENTA 4012051591

Component
Center Gasoline Engine

Fluid
VOLVO 10W40 (5 QTS)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VPA054889	---	---
Sample Date		Client Info		18 Apr 2024	---	---
Machine Age	hrs	Client Info		0	---	---
Oil Age	hrs	Client Info		0	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				SEVERE	---	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>150	96	---	---
Chromium	ppm	ASTM D5185m	>20	<1	---	---
Nickel	ppm	ASTM D5185m	>5	0	---	---
Titanium	ppm	ASTM D5185m		0	---	---
Silver	ppm	ASTM D5185m	>2	0	---	---
Aluminum	ppm	ASTM D5185m	>40	1	---	---
Lead	ppm	ASTM D5185m	>50	42	---	---
Copper	ppm	ASTM D5185m	>155	16	---	---
Tin	ppm	ASTM D5185m	>10	2	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

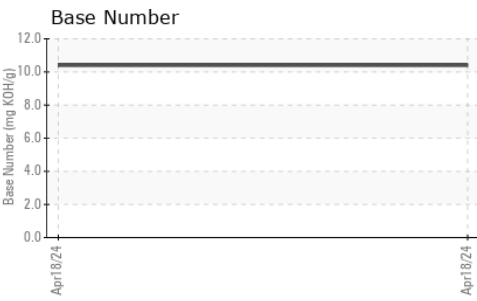
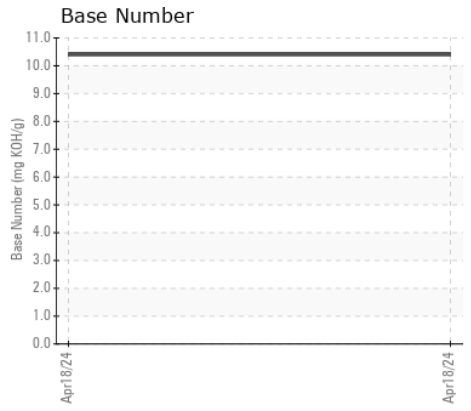
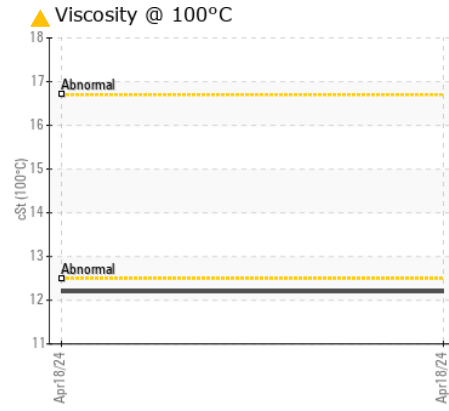
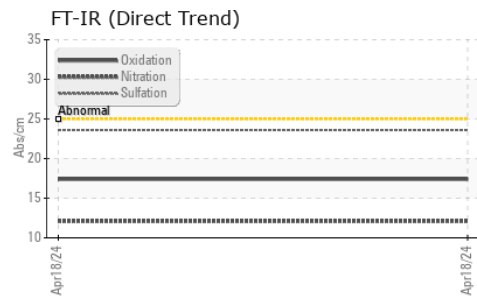
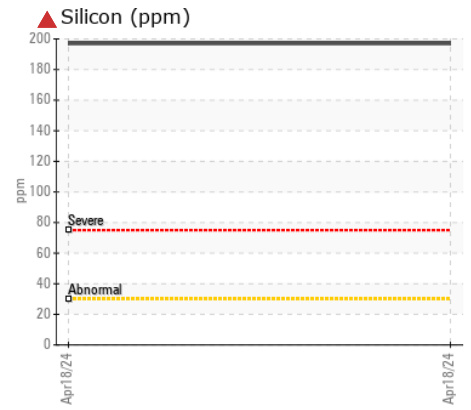
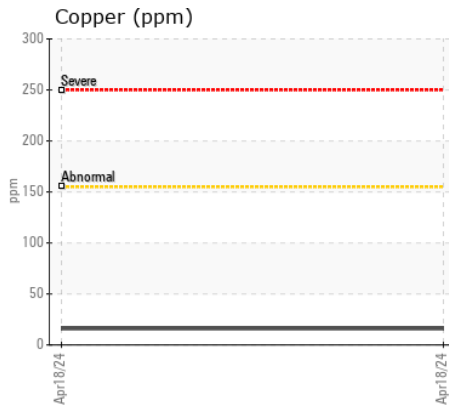
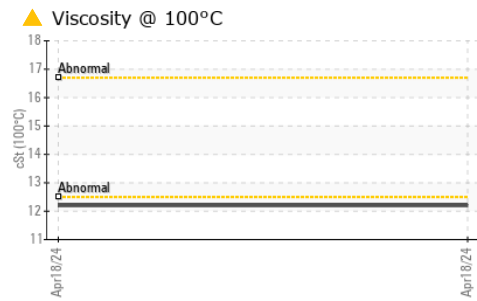
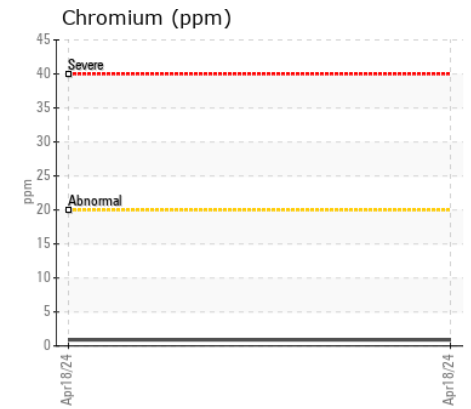
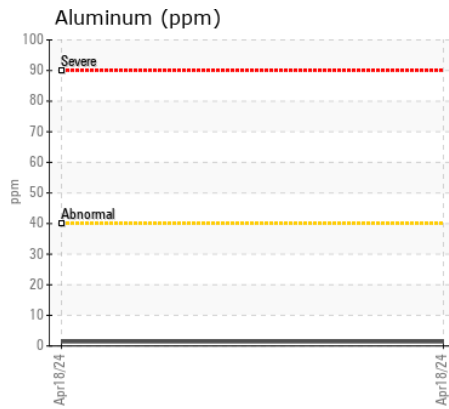
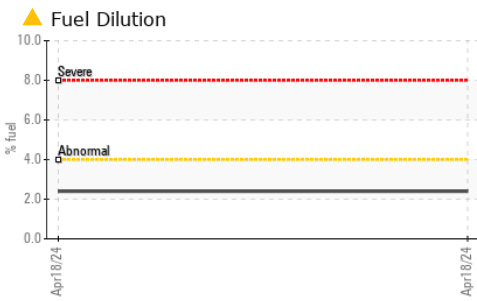
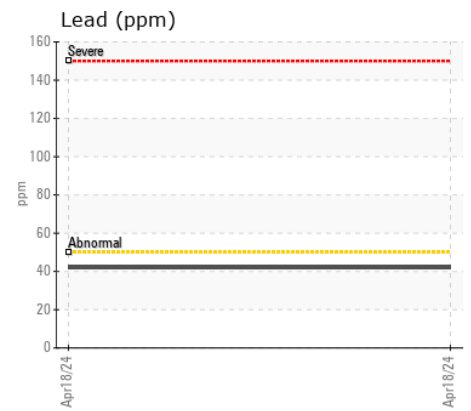
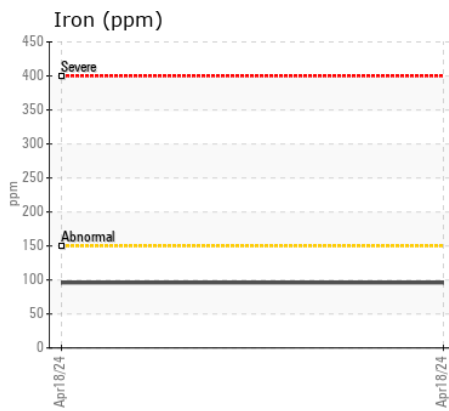
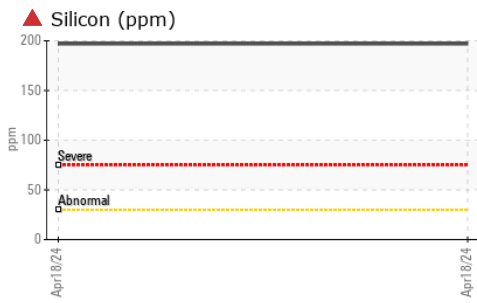
Elemental level of silicon (Si) above normal indicating ingress of seal material. Light fuel dilution occurring.

Silicon	ppm	ASTM D5185m	>30	▲ 197	---	---
Potassium	ppm	ASTM D5185m	>20	3	---	---
Fuel	%	ASTM D3524	>4.0	▲ 2.4	---	---
Water		WC Method	>0.1	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844		0.1	---	---
Nitration	Abs/cm	*ASTM D7624	>20	12.1	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.6	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.1	NEG	---	---

FLUID CONDITION

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil.

Sodium	ppm	ASTM D5185m		63	---	---
Boron	ppm	ASTM D5185m		0	---	---
Barium	ppm	ASTM D5185m		0	---	---
Molybdenum	ppm	ASTM D5185m		4	---	---
Manganese	ppm	ASTM D5185m		<1	---	---
Magnesium	ppm	ASTM D5185m		64	---	---
Calcium	ppm	ASTM D5185m		3393	---	---
Phosphorus	ppm	ASTM D5185m		1128	---	---
Zinc	ppm	ASTM D5185m		1369	---	---
Sulfur	ppm	ASTM D5185m		5830	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	17.4	---	---
Base Number (BN)	mg KOH/g	ASTM D2896		10.4	---	---
Visc @ 100°C	cSt	ASTM D445		▲ 12.2	---	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA054889 **Received** : 24 Apr 2024
Lab Number : 06158682 **Tested** : 30 Apr 2024
Unique Number : 10994105 **Diagnosed** : 30 Apr 2024 - Jonathan Hester
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel, TBN)

Helmuts Marine Service
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 SAN RAFAEL, CA
 US 94901-3545
 Contact: NADINE URUIOLI
 SERVICE@HELMUTSMARINE.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)

T: x:

F: x: