



WEAR	MARGINAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
VOLVO PENTA A193859
 Component
Starboard Diesel Engine
 Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION

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		VPA054226	---	---
Sample Date		Client Info		23 May 2024	---	---
Machine Age	hrs	Client Info		429	---	---
Oil Age	hrs	Client Info		0	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		Not Chngd	---	---
Filter Changed		Client Info		Not Chngd	---	---
Sample Status				MARGINAL	---	---

WEAR

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

Iron	ppm	ASTM D5185m	>80	27	---	---
Chromium	ppm	ASTM D5185m	>6	1	---	---
Nickel	ppm	ASTM D5185m	>2	2	---	---
Titanium	ppm	ASTM D5185m	>2	0	---	---
Silver	ppm	ASTM D5185m	>2	<1	---	---
Aluminum	ppm	ASTM D5185m	>20	▲ 15	---	---
Lead	ppm	ASTM D5185m	>95	9	---	---
Copper	ppm	ASTM D5185m	>85	6	---	---
Tin	ppm	ASTM D5185m	>9	2	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

There is no indication of any contamination in the oil.

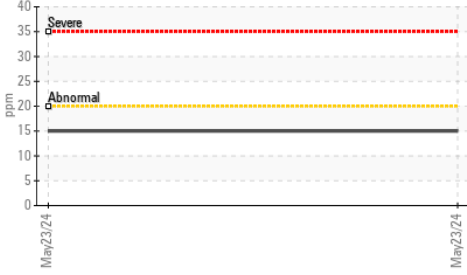
Silicon	ppm	ASTM D5185m	>25	8	---	---
Potassium	ppm	ASTM D5185m	>20	1	---	---
Fuel		WC Method	>4.0	<1.0	---	---
Water		WC Method	>0.1	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844		0.3	---	---
Nitration	Abs/cm	*ASTM D7624	>20	6.3	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.3	---	---
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

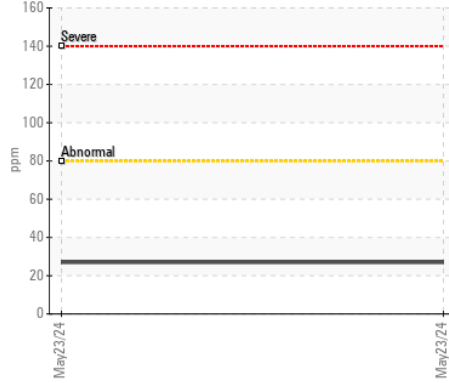
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>158	3	---	---
Boron	ppm	ASTM D5185m	250	17	---	---
Barium	ppm	ASTM D5185m	10	0	---	---
Molybdenum	ppm	ASTM D5185m	100	53	---	---
Manganese	ppm	ASTM D5185m		<1	---	---
Magnesium	ppm	ASTM D5185m	450	922	---	---
Calcium	ppm	ASTM D5185m	3000	1255	---	---
Phosphorus	ppm	ASTM D5185m	1150	1006	---	---
Zinc	ppm	ASTM D5185m	1350	1291	---	---
Sulfur	ppm	ASTM D5185m	4250	3917	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.3	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	9.3	---	---
Visc @ 100°C	cSt	ASTM D445	14.4	13.87	---	---

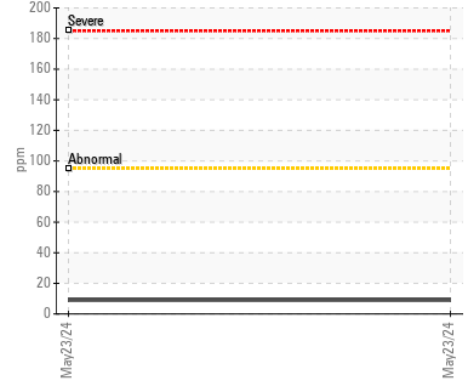
▲ Aluminum (ppm)



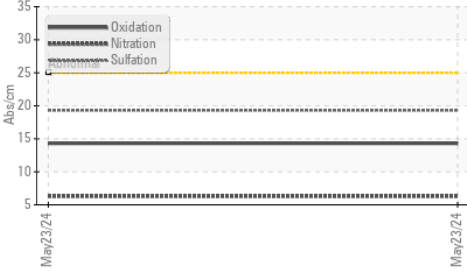
Iron (ppm)



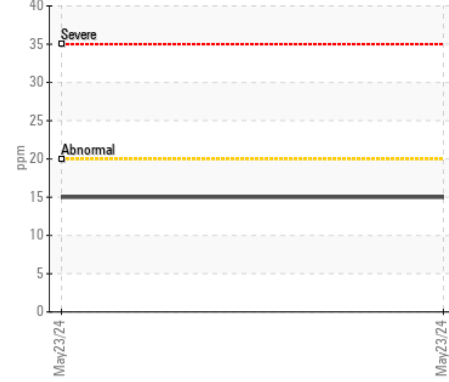
Lead (ppm)



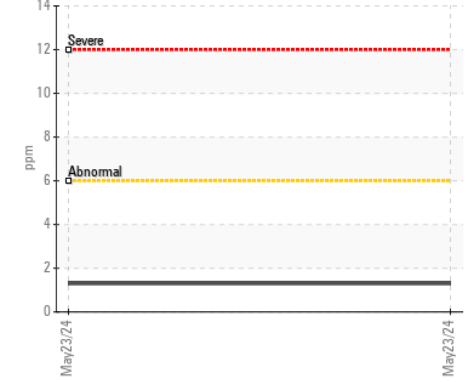
FT-IR (Direct Trend)



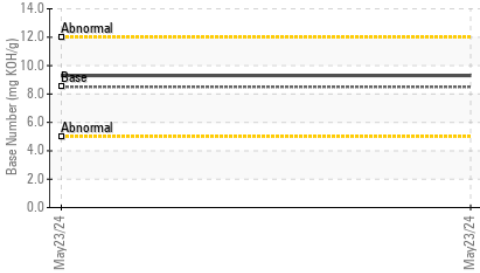
▲ Aluminum (ppm)



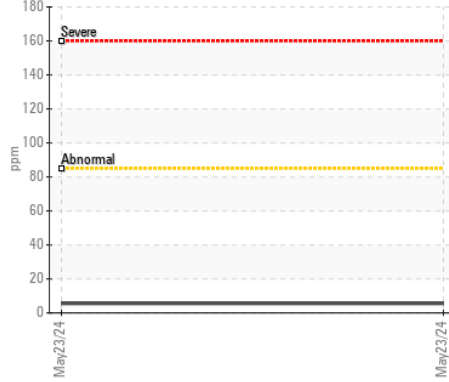
Chromium (ppm)



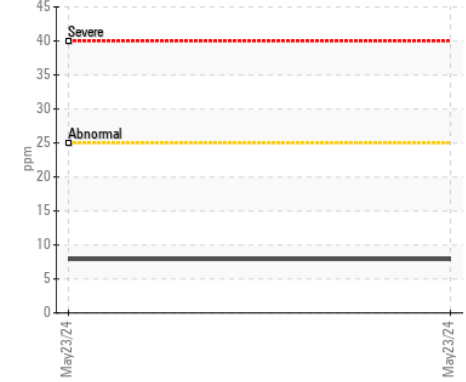
Base Number



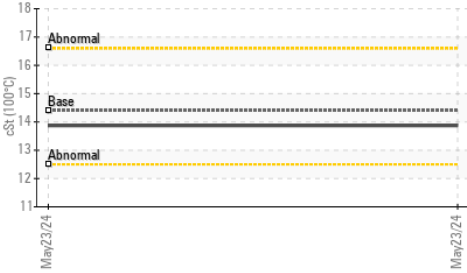
Copper (ppm)



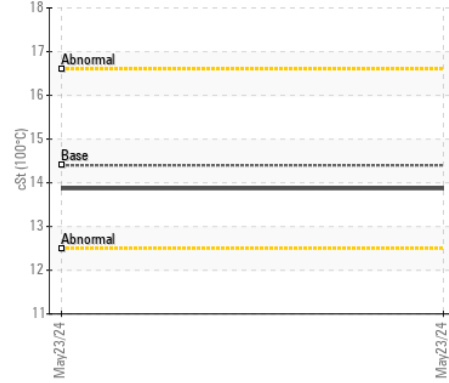
Silicon (ppm)



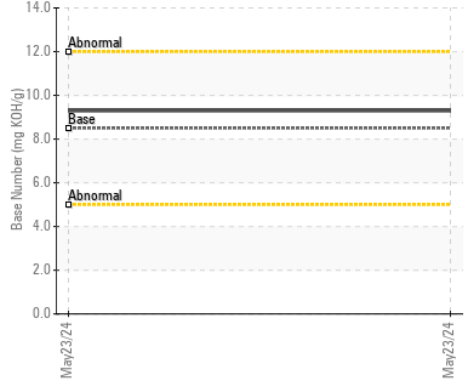
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA054226 **Received** : 24 May 2024
Lab Number : 06190925 **Tested** : 24 May 2024
Unique Number : 11047677 **Diagnosed** : 24 May 2024 - Doug Bogart
Test Package : MOB 1 (Additional Tests: TBN)

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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)