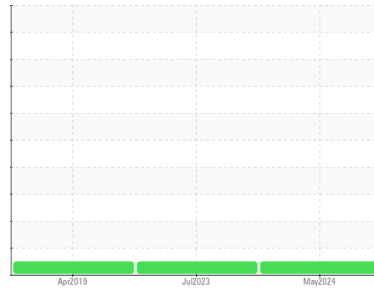




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id

VOLVO PENTA 2006040375

Component

Starboard Diesel Engine

Fluid

AMSOIL (PCO) SYN HD DIESEL15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0944531	WC0835978	WC0336496
Sample Date	Client Info		18 May 2024	09 Jul 2023	07 Apr 2019
Machine Age	hrs	Client Info	1150	1100	650
Oil Age	hrs	Client Info	50	115	125
Oil Changed	Client Info		Not Chngd	Not Chngd	Changed
Sample Status			NORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
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

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >80	9	9	13
Chromium	ppm	ASTM D5185m >6	<1	<1	<1
Nickel	ppm	ASTM D5185m >2	1	2	<1
Titanium	ppm	ASTM D5185m >2	<1	0	0
Silver	ppm	ASTM D5185m >2	1	0	0
Aluminum	ppm	ASTM D5185m >20	2	2	5
Lead	ppm	ASTM D5185m >95	11	16	1
Copper	ppm	ASTM D5185m >85	7	12	3
Tin	ppm	ASTM D5185m >9	1	2	<1
Antimony	ppm	ASTM D5185m	---	---	0
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	<1	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 7.2	81	27	5
Barium	ppm	ASTM D5185m 0.0	0	0	0
Molybdenum	ppm	ASTM D5185m 0.0	14	63	58
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 460	712	1046	956
Calcium	ppm	ASTM D5185m 2996	1163	909	1040
Phosphorus	ppm	ASTM D5185m 1076	1021	1062	934
Zinc	ppm	ASTM D5185m 1208	1167	1258	1089
Sulfur	ppm	ASTM D5185m 4236	4089	3447	4095

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	9	5	3
Sodium	ppm	ASTM D5185m	3	<1	3
Potassium	ppm	ASTM D5185m >20	4	2	<1

INFRA-RED

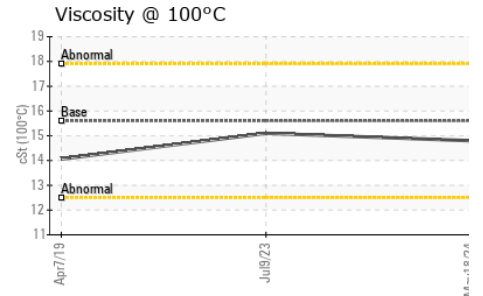
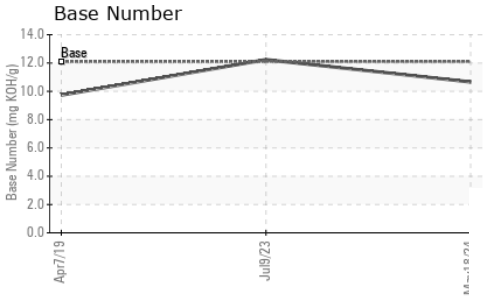
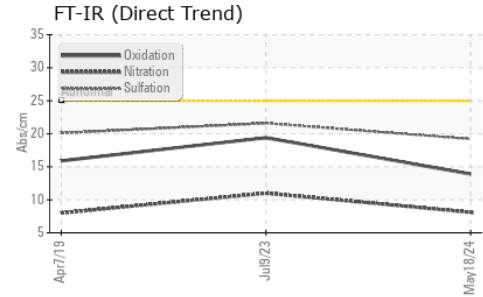
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0.1	0.3	0.2
Nitration	Abs/cm	*ASTM D7624 >20	8.1	11.0	8
Sulfation	Abs/.1mm	*ASTM D7415 >30	19.2	21.6	20.1

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	13.9	19.4	15.9
Base Number (BN)	mg KOH/g	ASTM D2896 12.1	10.66	12.24	9.73



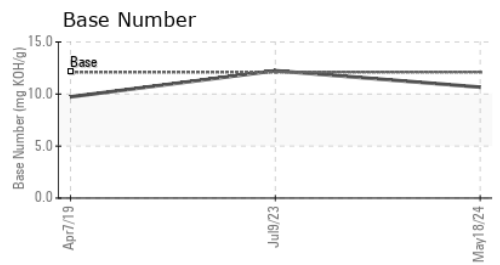
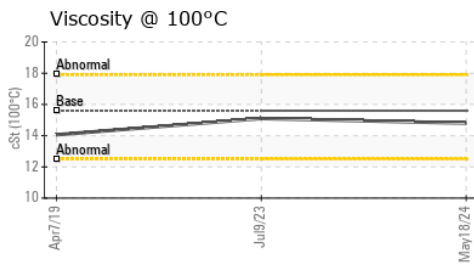
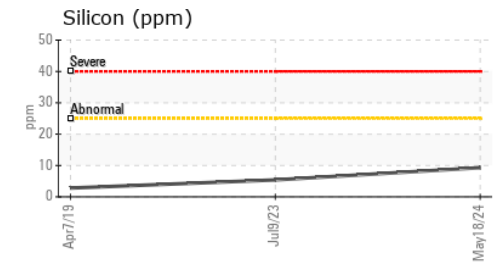
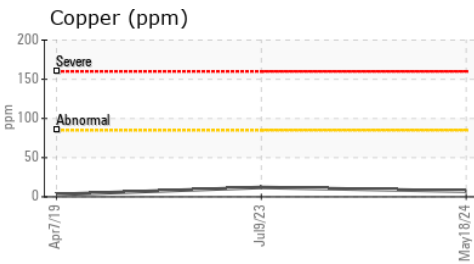
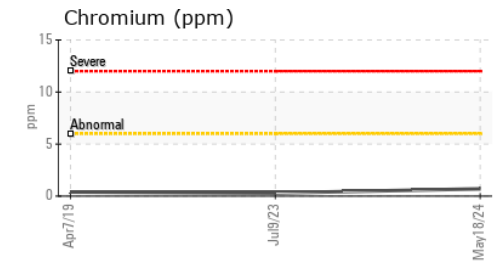
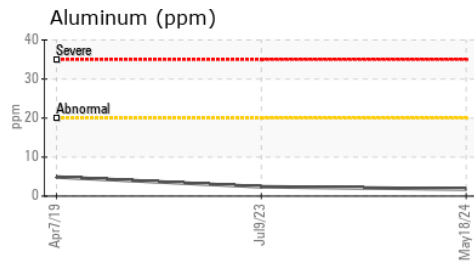
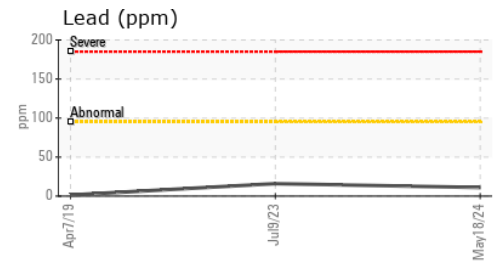
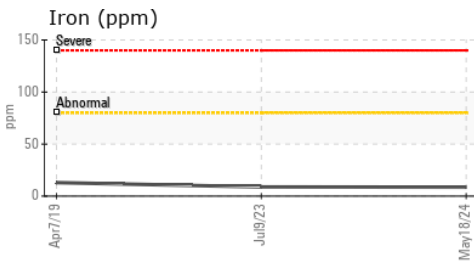
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
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
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.6	14.8	15.1	14.06

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0944531 **Received** : 29 May 2024
Lab Number : **06194232** **Tested** : 30 May 2024
Unique Number : 11056355 **Diagnosed** : 31 May 2024 - Angela Borella
Test Package : MOB 2

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 SOUTHWEST RANCHES, FL
 US 33332
 Contact: JAMES MINESSALE
 jminessale@deloitte.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)