



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area

GREG GARTRELL [503045]

Machine Id

VOLVO PENTA A404558

Component

Starboard Diesel Engine

Fluid

VOLVO VDS-4.5 Premium Motor Oil 15W40 (5 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		VPA061587	VPA050574	VPA034168
Sample Date		Client Info		13 Jun 2024	27 Jun 2023	19 Apr 2022
Machine Age	hrs	Client Info		818	0	724
Oil Age	hrs	Client Info		0	0	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				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>80	13	10	11
Chromium	ppm	ASTM D5185m	>6	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	<1	2
Lead	ppm	ASTM D5185m	>95	0	<1	1
Copper	ppm	ASTM D5185m	>85	1	2	4
Tin	ppm	ASTM D5185m	>9	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

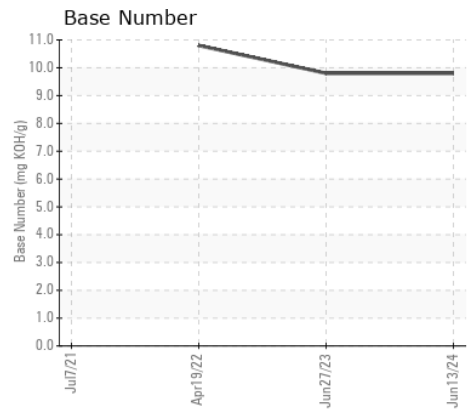
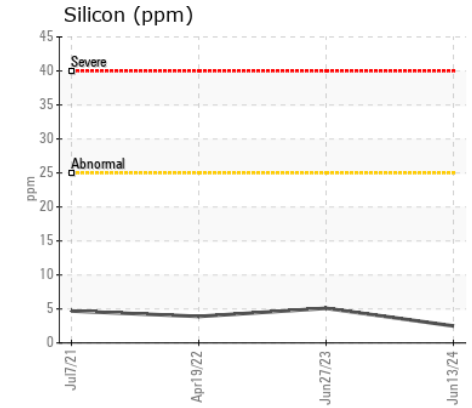
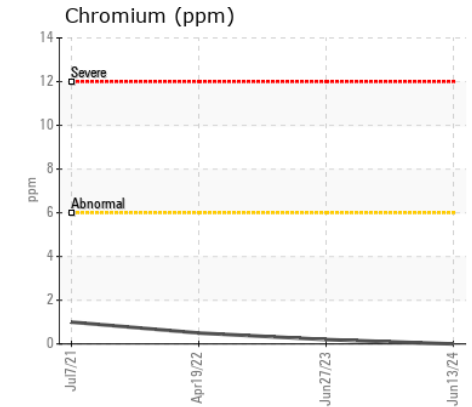
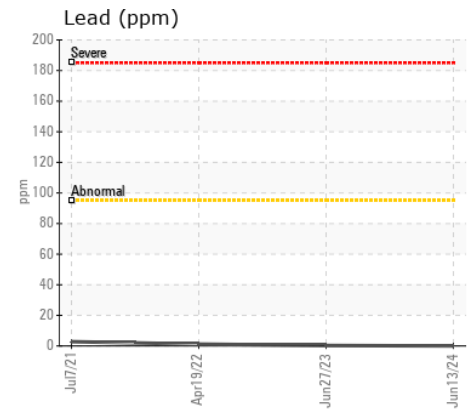
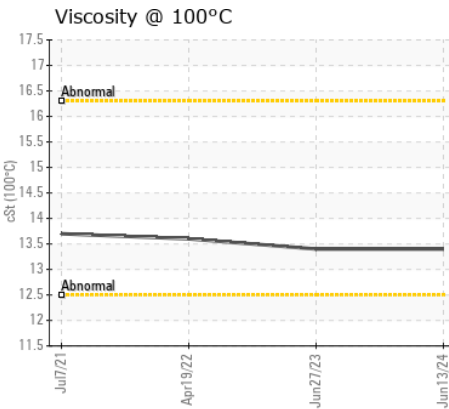
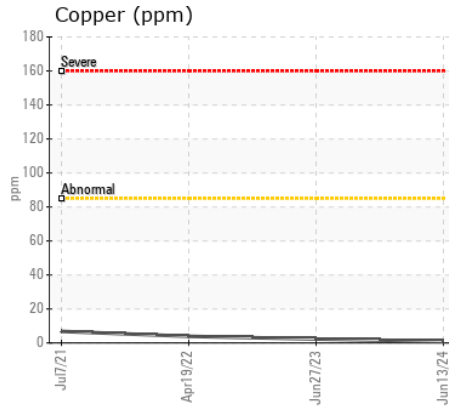
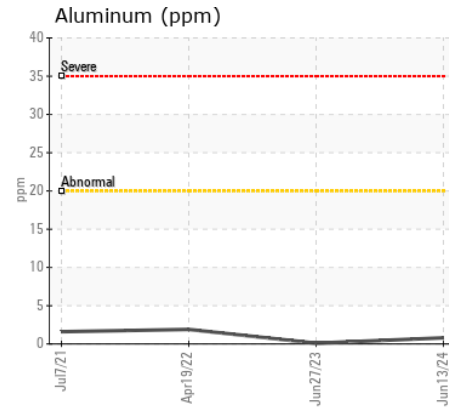
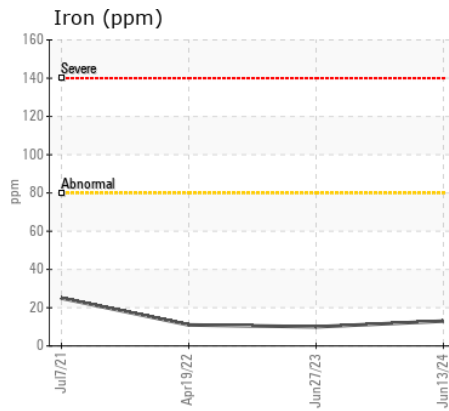
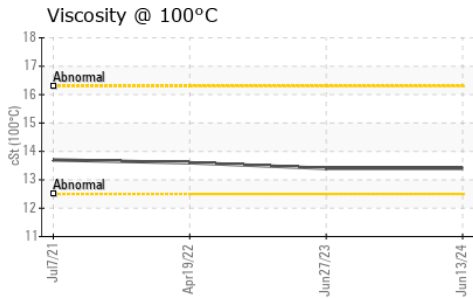
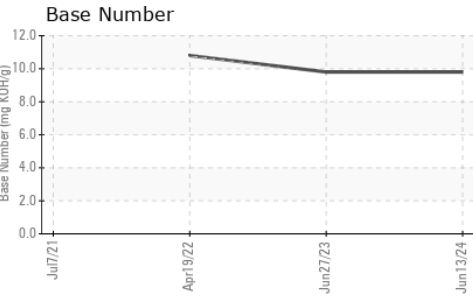
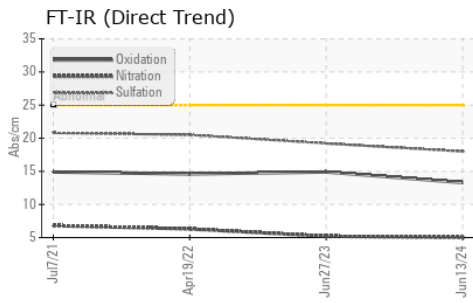
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	2	5	4
Potassium	ppm	ASTM D5185m	>20	<1	3	<1
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		0.2	0.2	0.3
Nitration	Abs/cm	*ASTM D7624	>20	5.0	5.2	6.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.0	19.2	20.5
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		<1	2	<1
Boron	ppm	ASTM D5185m		1	2	11
Barium	ppm	ASTM D5185m		0	<1	0
Molybdenum	ppm	ASTM D5185m		55	58	50
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		933	990	885
Calcium	ppm	ASTM D5185m		1079	1085	1079
Phosphorus	ppm	ASTM D5185m		1040	1008	923
Zinc	ppm	ASTM D5185m		1212	1253	1140
Sulfur	ppm	ASTM D5185m		3872	3793	2644
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.3	14.9	14.6
Base Number (BN)	mg KOH/g	ASTM D2896		9.8	9.8	10.8
Visc @ 100°C	cSt	ASTM D445		13.4	13.4	13.6



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA061587 **Received** : 19 Jun 2024
Lab Number : 06214312 **Tested** : 20 Jun 2024
Unique Number : 11087176 **Diagnosed** : 20 Jun 2024 - Sean Felton
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)