



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area

ALPHA CAS

Machine Id

VOLVO PENTA 2013962541

Component

Starboard Diesel Engine

Fluid

VOLVO VDS-4.5 Premium Motor Oil 15W40 (11 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VPA060058	VPA029888	VPA037258
Sample Date		Client Info		18 Jun 2024	13 Oct 2023	12 Jan 2023
Machine Age	hrs	Client Info		0	632	388
Oil Age	hrs	Client Info		187	244	200
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	N/A	Changed
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>80	3	12	13
Chromium	ppm	ASTM D5185m	>6	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	2
Lead	ppm	ASTM D5185m	>95	<1	1	1
Copper	ppm	ASTM D5185m	>85	2	4	7
Tin	ppm	ASTM D5185m	>9	<1	1	1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

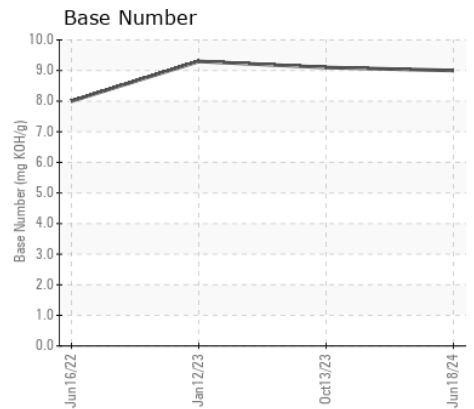
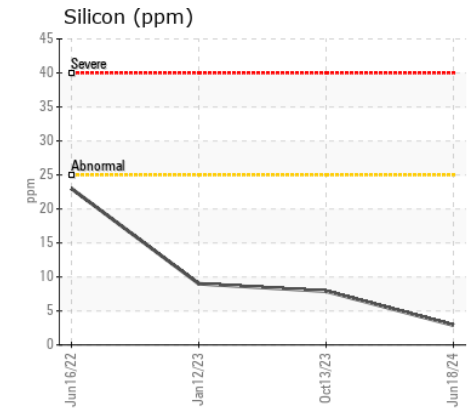
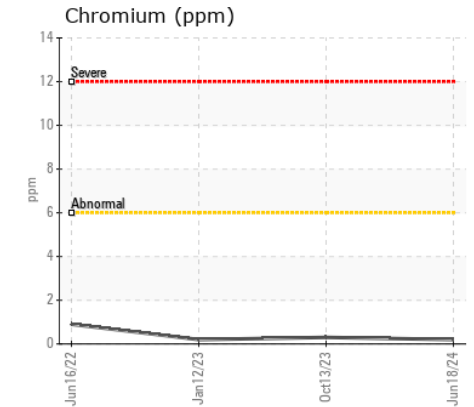
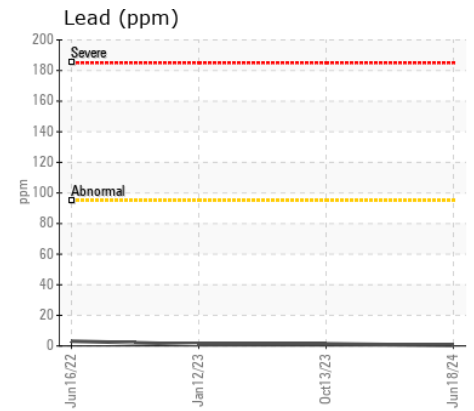
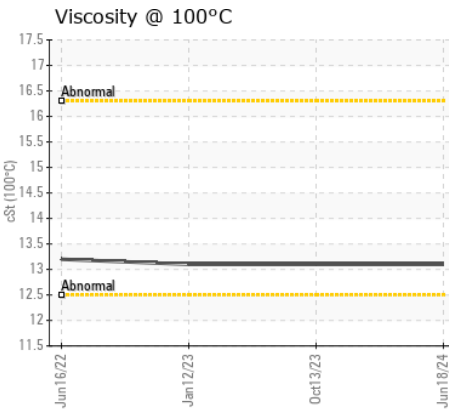
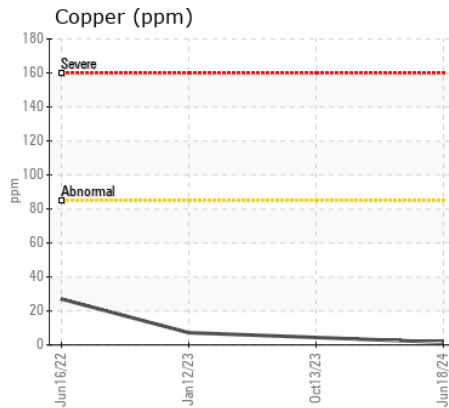
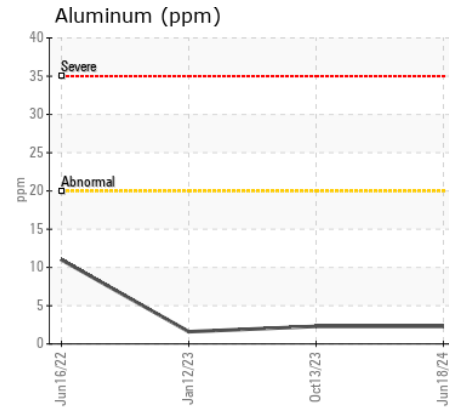
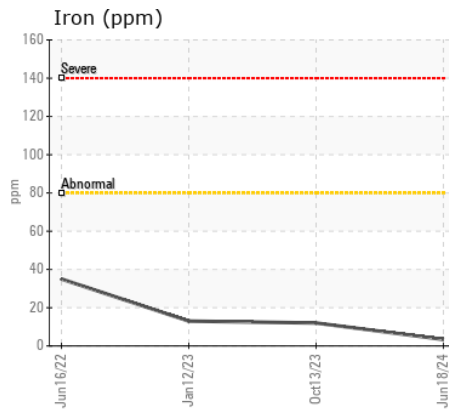
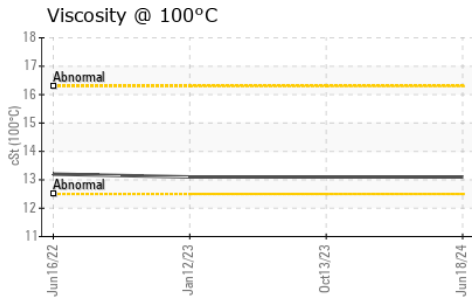
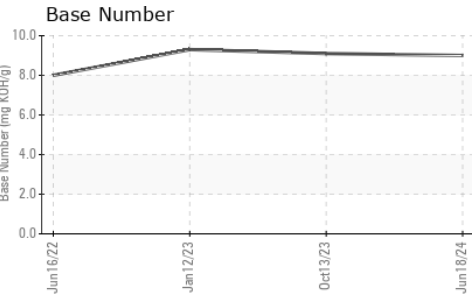
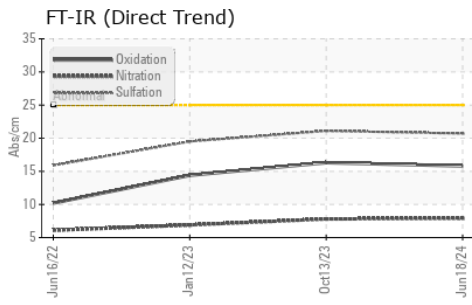
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	3	8	9
Potassium	ppm	ASTM D5185m	>20	2	4	6
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		0.3	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	7.9	7.8	6.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.7	21.1	19.5
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 suitable for further service.

Sodium	ppm	ASTM D5185m		<1	<1	1
Boron	ppm	ASTM D5185m		2	4	0
Barium	ppm	ASTM D5185m		0	3	0
Molybdenum	ppm	ASTM D5185m		63	75	57
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		996	1154	912
Calcium	ppm	ASTM D5185m		1090	1246	1090
Phosphorus	ppm	ASTM D5185m		975	1207	1043
Zinc	ppm	ASTM D5185m		1328	1467	1241
Sulfur	ppm	ASTM D5185m		3067	4193	3509
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.8	16.3	14.4
Base Number (BN)	mg KOH/g	ASTM D2896		9.0	9.1	9.3
Visc @ 100°C	cSt	ASTM D445		13.1	13.1	13.1



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA060058 **Received** : 26 Jun 2024
Lab Number : 06220988 **Tested** : 27 Jun 2024
Unique Number : 11099185 **Diagnosed** : 27 Jun 2024 - Don Baldrige
Test Package : MOB 1 (Additional Tests: TBN)

ALPHA CAS
 100 BUELL HILL RD
 KILLINGWORTH, CT
 US 06419
 Contact: JOSHUA SUMMERS
 joshuasummers@me.com
 T:
 F:

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)