



OIL ANALYSIS REPORT

WEAR
CONTAMINATION
FLUID CONDITION

ATTENTION
NORMAL
NORMAL

Area
ASTLE [NICK/23526]
Machine Id
VOLVO PENTA A1099684
Component
Starboard Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 40 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. 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		VPA060726	VPA048824	VPA029907
Sample Date		Client Info		10 Jun 2024	06 Jul 2023	25 Mar 2022
Machine Age	hrs	Client Info		0	985	197
Oil Age	hrs	Client Info		0	0	197
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	NORMAL	ATTENTION

WEAR

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

Iron	ppm	ASTM D5185m	>80	14	9	24
Chromium	ppm	ASTM D5185m	>6	2	1	3
Nickel	ppm	ASTM D5185m	>2	5	3	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	10	2	15
Lead	ppm	ASTM D5185m	>95	<1	1	7
Copper	ppm	ASTM D5185m	>85	3	3	18
Tin	ppm	ASTM D5185m	>9	<1	<1	2
Vanadium	ppm	ASTM D5185m		<1	<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.

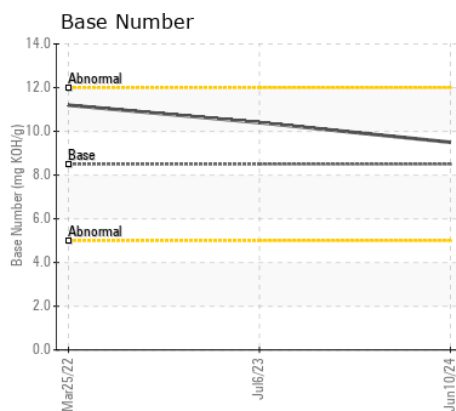
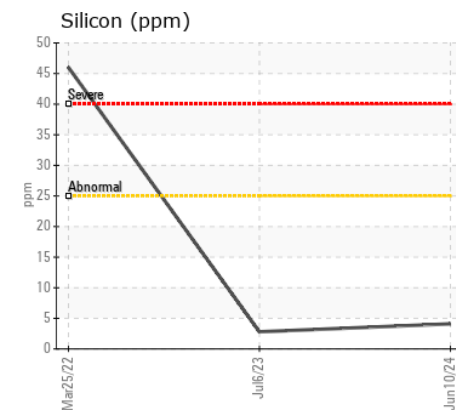
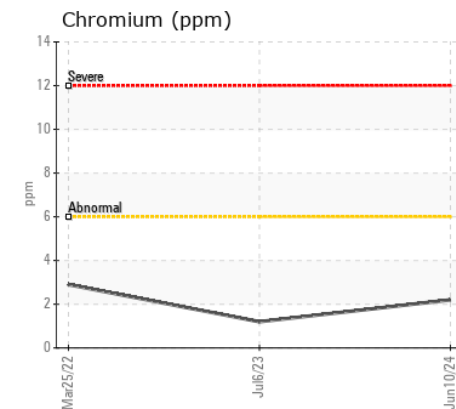
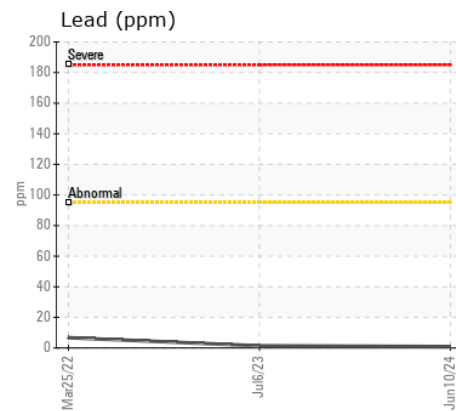
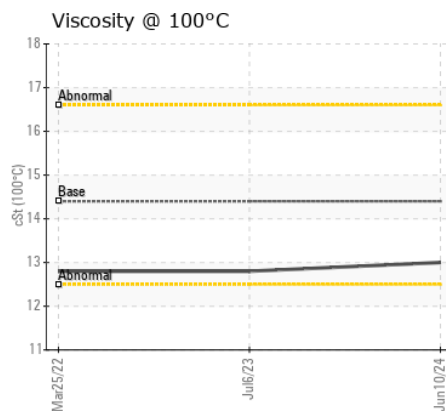
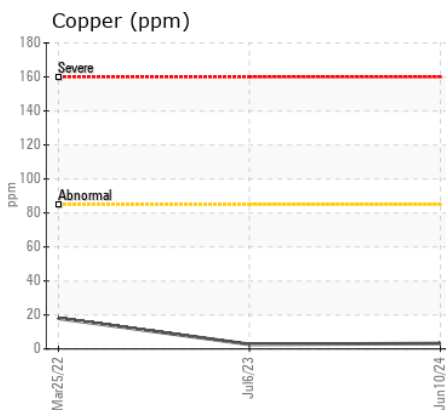
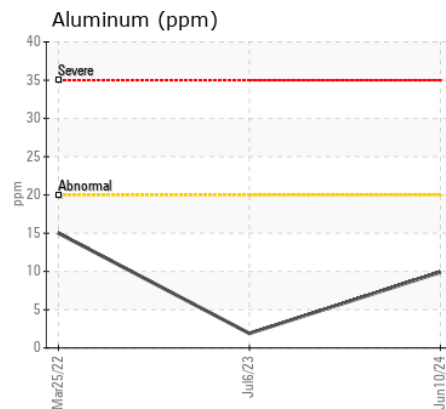
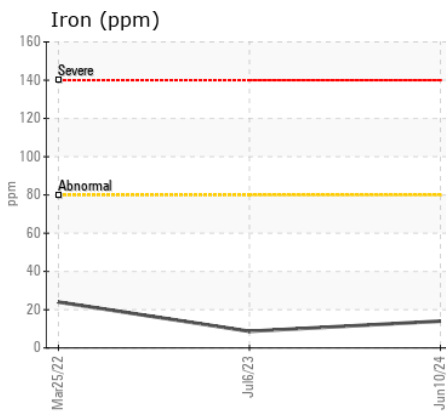
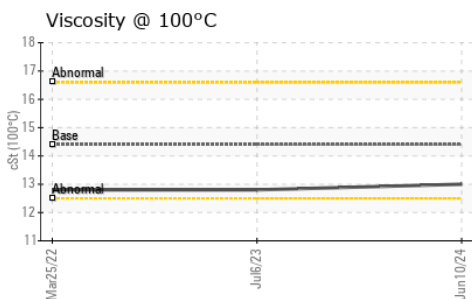
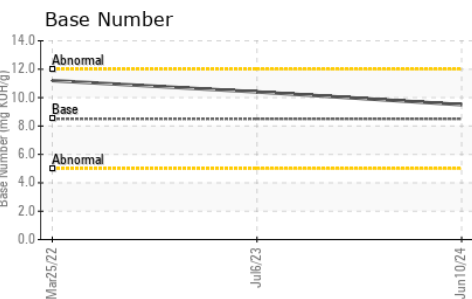
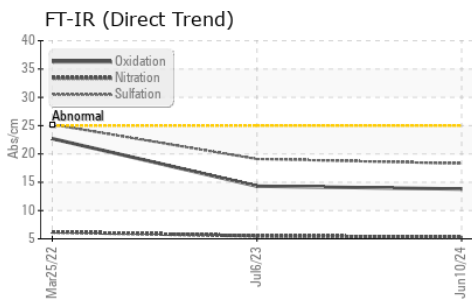
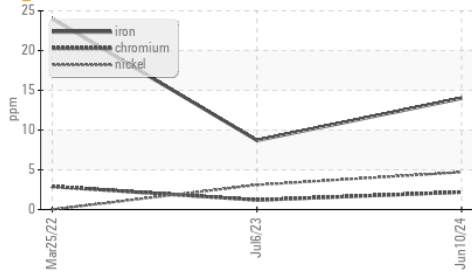
Silicon	ppm	ASTM D5185m	>25	4	3	46
Potassium	ppm	ASTM D5185m	>20	2	4	4
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0.1	0.3
Nitration	Abs/cm	*ASTM D7624	>20	5.3	5.5	6.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.3	19.1	25.2
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	>216	5	2	<1
Boron	ppm	ASTM D5185m	250	2	0	84
Barium	ppm	ASTM D5185m	10	0	0	0
Molybdenum	ppm	ASTM D5185m	100	58	57	40
Manganese	ppm	ASTM D5185m		<1	<1	1
Magnesium	ppm	ASTM D5185m	450	1025	985	524
Calcium	ppm	ASTM D5185m	3000	1098	1081	1680
Phosphorus	ppm	ASTM D5185m	1150	1039	1021	999
Zinc	ppm	ASTM D5185m	1350	1282	1268	1101
Sulfur	ppm	ASTM D5185m	4250	3543	3815	3717
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.8	14.3	22.7
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	9.5	10.4	11.2
Visc @ 100°C	cSt	ASTM D445	14.4	13.0	12.8	12.8

Ferrous Alloys



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA060726 **Received** : 27 Jun 2024
Lab Number : 06221972 **Tested** : 27 Jun 2024
Unique Number : 11100169 **Diagnosed** : 28 Jun 2024 - Don Baldrige
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)