



VOLVO PENTA

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area

NADINE URCIUOLI [SILVER SEAS]

Machine Id

VOLVO PENTA D6-435D-F A765044

Component

Starboard Diesel Engine

Fluid

VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (6 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		VPA058331	VPA031823	VPA019714
Sample Date		Client Info		14 Mar 2024	28 Oct 2020	04 Jun 2020
Machine Age	hrs	Client Info		551	356	281
Oil Age	hrs	Client Info		551	0	281
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	11	15	9
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	1	2	2
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	2	2
Lead	ppm	ASTM D5185m	>40	<1	3	0
Copper	ppm	ASTM D5185m	>330	4	10	5
Tin	ppm	ASTM D5185m	>15	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

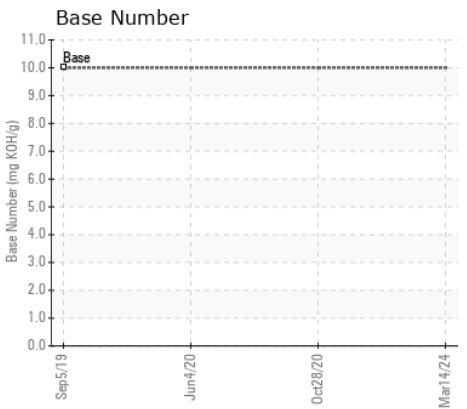
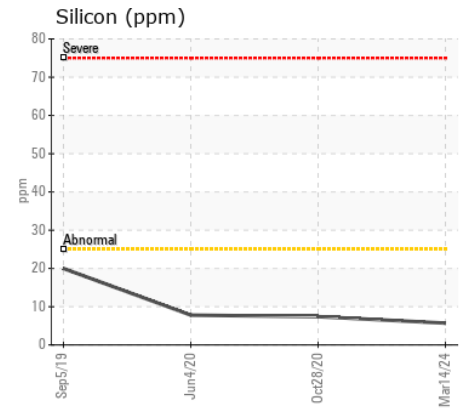
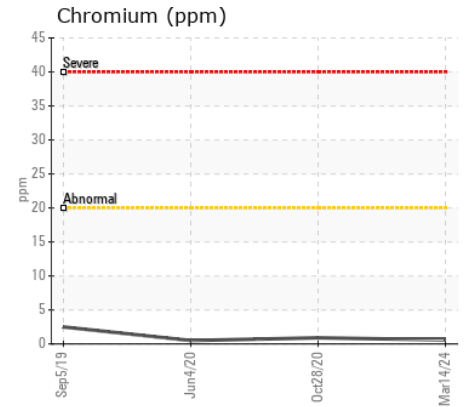
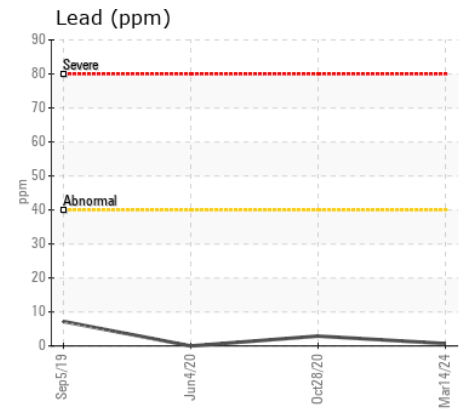
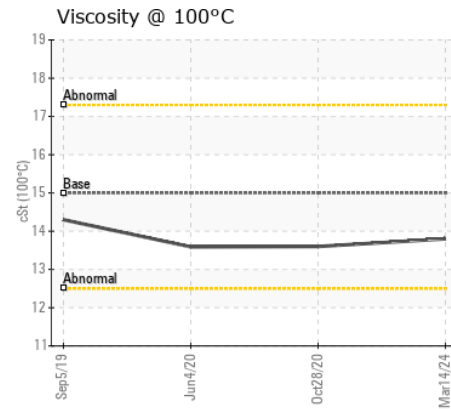
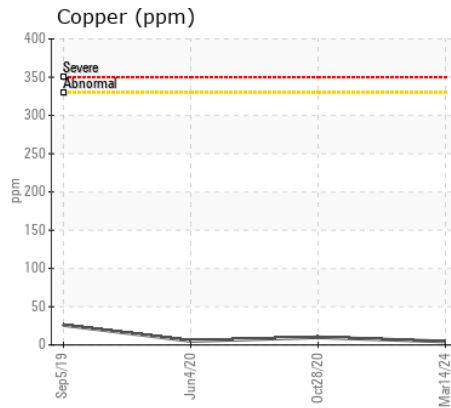
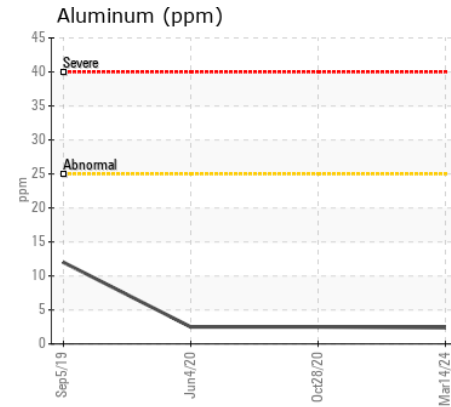
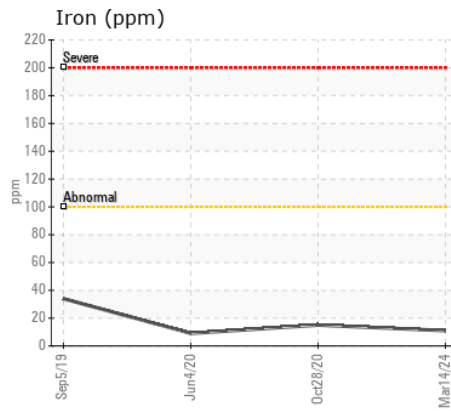
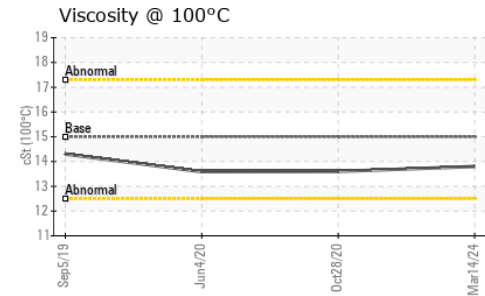
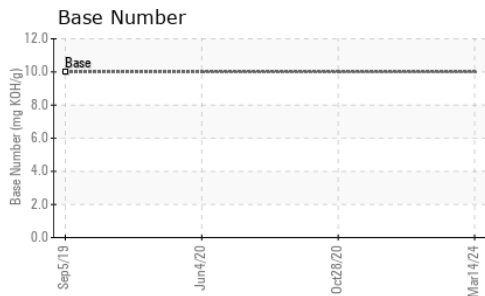
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	6	7	8
Potassium	ppm	ASTM D5185m	>20	3	0	0
Fuel		WC Method	>6.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	6.8	7.1	5.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.3	20.3	19.7
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	>0.2	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		3	2	2
Boron	ppm	ASTM D5185m	2.5	75	5	5
Barium	ppm	ASTM D5185m	0.0	0	0	0
Molybdenum	ppm	ASTM D5185m	0.7	8	58	53
Manganese	ppm	ASTM D5185m	0.0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	256	706	995	924
Calcium	ppm	ASTM D5185m	2057	1247	1269	1120
Phosphorus	ppm	ASTM D5185m	935	730	1080	978
Zinc	ppm	ASTM D5185m	1223	833	1168	1112
Sulfur	ppm	ASTM D5185m	4079	3216	2914	2700
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.2	15.5	14.5
Base Number (BN)	mg KOH/g	ASTM D2896	10	8.5	---	---
Visc @ 100°C	cSt	ASTM D445	15.0	13.8	13.6	13.59



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA058331 **Received** : 20 Mar 2024
Lab Number : 06123440 **Tested** : 21 Mar 2024
Unique Number : 10937591 **Diagnosed** : 21 Mar 2024 - Doug Bogart
Test Package : MOB 1 (Additional Tests: TBN)

Helmuts Marine Service
 619 Canal Street
 SAN RAFAEL, CA
 US 94901-3545

Contact: NADINE URUIOLI
 SERVICE@HELMUTSMARINE.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)

T: x:
 F: x: