



VOLVO PENTA

OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
RYAN KELLY [SAM]
Machine Id
ZF 20006121 INBOARD

Component
Starboard Gearbox
Fluid
DIESEL ENGINE OIL SAE 30 (2 QTS)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VPA060505	VPA047680	VPA002422
Sample Date		Client Info		14 Feb 2024	16 Jan 2023	13 May 2015
Machine Age	hrs	Client Info		980	828	0
Oil Age	hrs	Client Info		0	133	4
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	Changed
Filter Changed		Client Info		Changed	Not Changd	Changed
Sample Status				SEVERE	SEVERE	NORMAL

WEAR

Clutch wear is indicated.

PQ		ASTM D8184		13	7	25.0
Iron	ppm	ASTM D5185m	>150	11	11	14
Chromium	ppm	ASTM D5185m	>10	0	<1	<1
Nickel	ppm	ASTM D5185m	>10	0	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m		0	<1	0
Aluminum	ppm	ASTM D5185m	>5	1	1	3
Lead	ppm	ASTM D5185m	>65	254	255	244
Copper	ppm	ASTM D5185m	>80	243	256	19
Tin	ppm	ASTM D5185m	>8	4	3	0
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	MODER	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

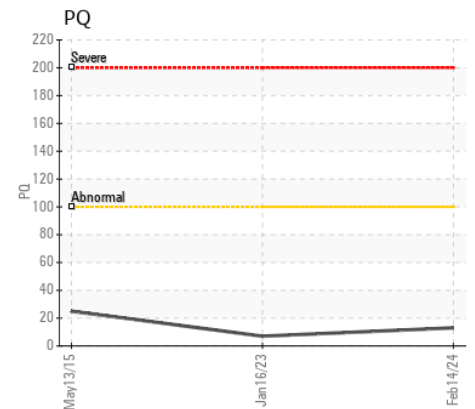
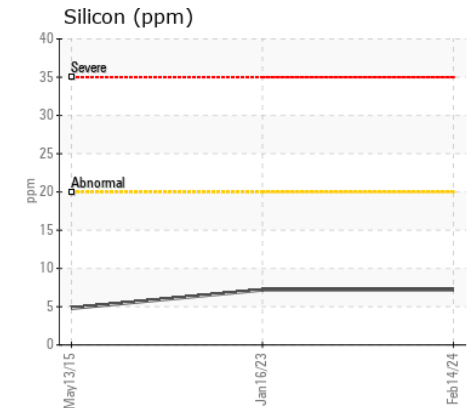
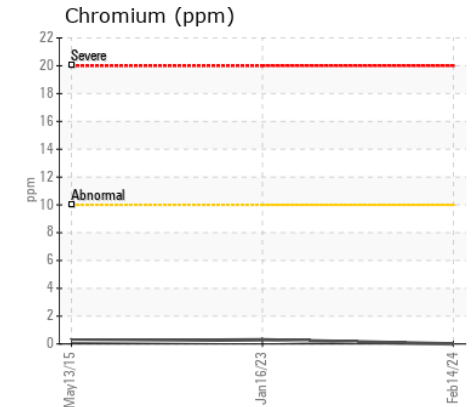
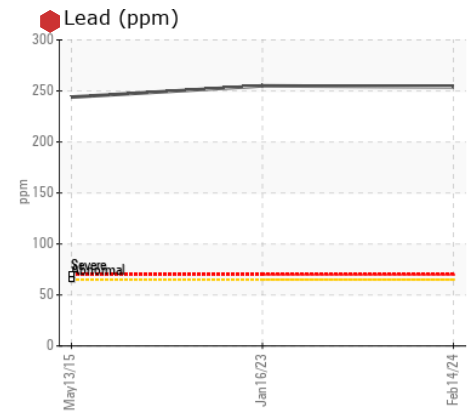
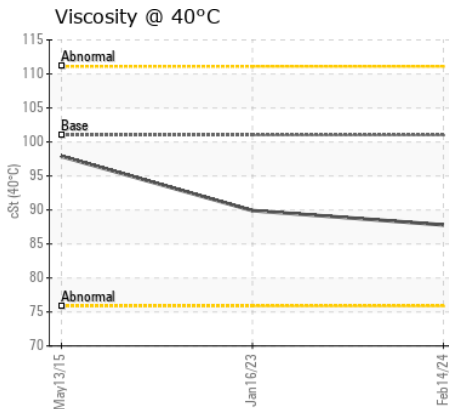
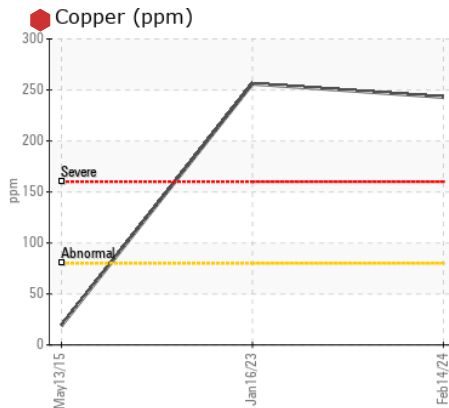
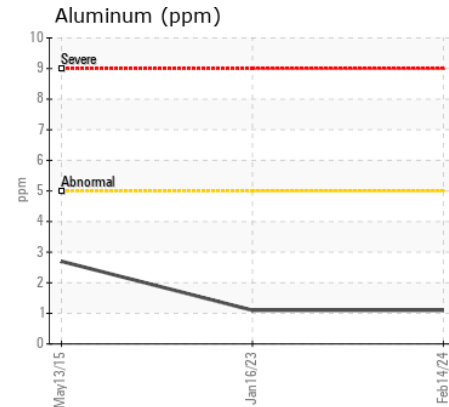
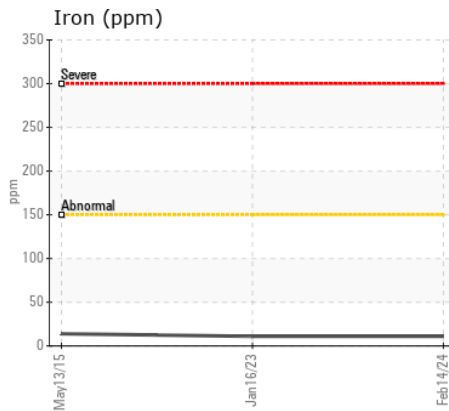
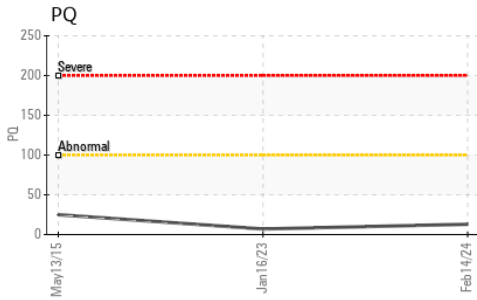
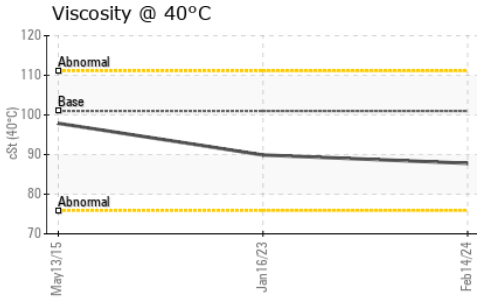
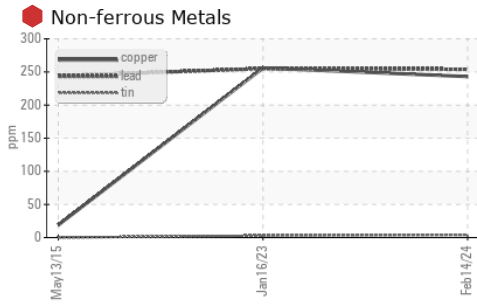
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	7	7	5
Potassium	ppm	ASTM D5185m	>20	0	0	2
Water		WC Method	>0.2	NEG	NEG	NEG
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 oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185m	>75	<1	1	3
Boron	ppm	ASTM D5185m	250	444	436	138
Barium	ppm	ASTM D5185m	10	0	5	0
Molybdenum	ppm	ASTM D5185m	100	46	45	70
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	15	29	677
Calcium	ppm	ASTM D5185m	3000	3498	3287	1371
Phosphorus	ppm	ASTM D5185m	1150	1040	922	1089
Zinc	ppm	ASTM D5185m	1350	1123	1046	1189
Sulfur	ppm	ASTM D5185m	4250	4414	3862	3538
Visc @ 40°C	cSt	ASTM D445	101	87.8	89.9	97.88



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA060505 **Received** : 22 Feb 2024
Lab Number : 06097287 **Tested** : 23 Feb 2024
Unique Number : 10890140 **Diagnosed** : 26 Feb 2024 - Sean Felton
Test Package : MOB 1 (Additional Tests: PQ)

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 SEATTLE, WA
 US 98107
 Contact: WILLOW YANARELLA
 service@coastalmarineengine.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)