



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area

BARRY BARR [1610045]

Machine Id

ZF 20024399 - INBOARD

Component

Starboard Gearbox

Fluid

VOLVO VDS-4.5 Premium Motor Oil 15W40 (1 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VPA055157	VPA048890	---
Sample Date		Client Info		27 Mar 2024	11 Apr 2022	---
Machine Age	hrs	Client Info		0	1407	---
Oil Age	hrs	Client Info		0	0	---
Filter Age	hrs	Client Info		0	0	---
Oil Changed		Client Info		N/A	Changed	---
Filter Changed		Client Info		N/A	Changed	---
Sample Status				NORMAL	NORMAL	---

WEAR

All component wear rates are normal.

PQ		ASTM D8184		20	32	---
Iron	ppm	ASTM D5185m	>150	16	40	---
Chromium	ppm	ASTM D5185m	>10	1	<1	---
Nickel	ppm	ASTM D5185m	>10	2	1	---
Titanium	ppm	ASTM D5185m		<1	<1	---
Silver	ppm	ASTM D5185m		<1	<1	---
Aluminum	ppm	ASTM D5185m	>5	4	3	---
Lead	ppm	ASTM D5185m	>65	10	3	---
Copper	ppm	ASTM D5185m	>80	73	34	---
Tin	ppm	ASTM D5185m	>8	3	1	---
Vanadium	ppm	ASTM D5185m		<1	0	---
White Metal	scalar	*Visual	NONE	NONE	LIGHT	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

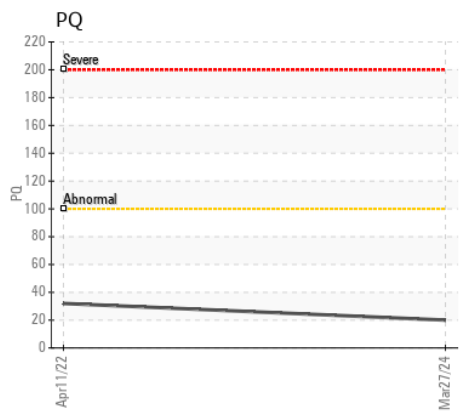
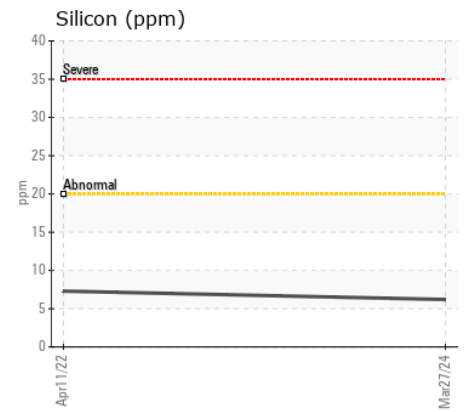
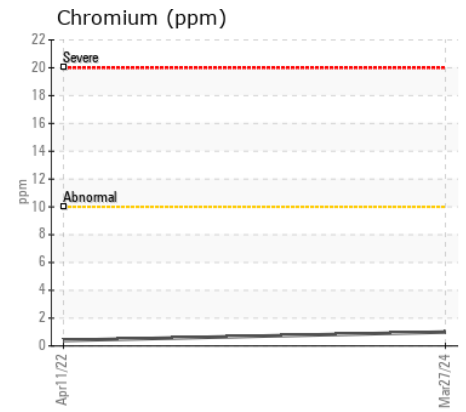
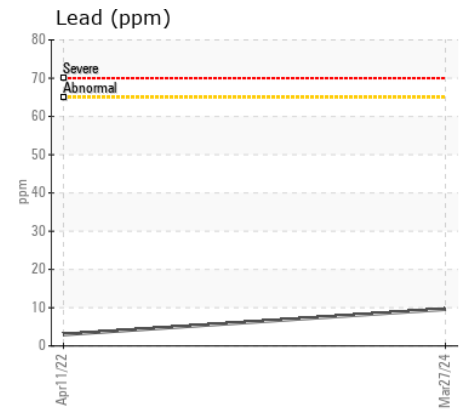
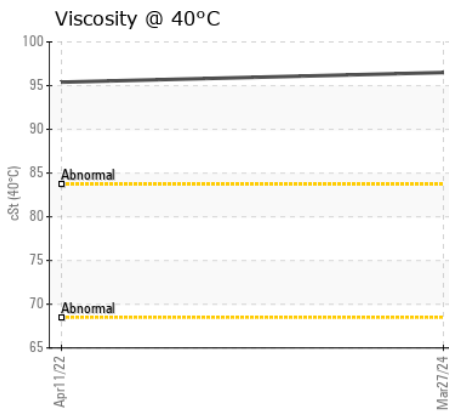
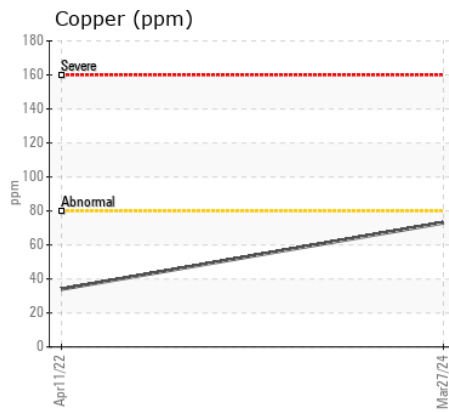
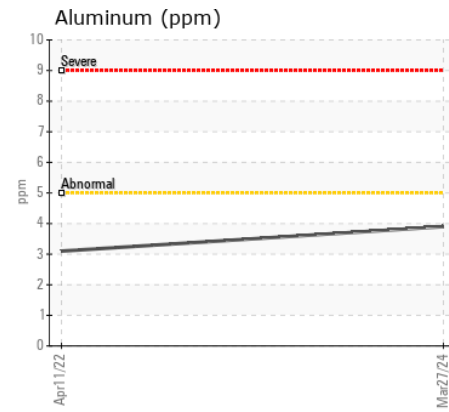
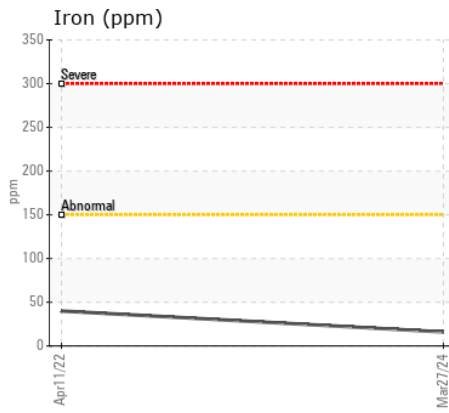
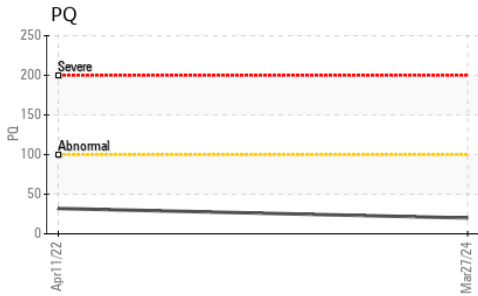
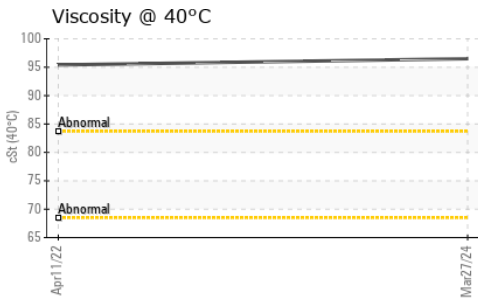
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	6	7	---
Potassium	ppm	ASTM D5185m	>20	3	0	---
Water		WC Method	>0.2	NEG	NEG	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	---

FLUID CONDITION

The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		15	1	---
Boron	ppm	ASTM D5185m		47	346	---
Barium	ppm	ASTM D5185m		0	0	---
Molybdenum	ppm	ASTM D5185m		6	48	---
Manganese	ppm	ASTM D5185m		2	<1	---
Magnesium	ppm	ASTM D5185m		20	200	---
Calcium	ppm	ASTM D5185m		2545	2755	---
Phosphorus	ppm	ASTM D5185m		988	975	---
Zinc	ppm	ASTM D5185m		1021	1054	---
Sulfur	ppm	ASTM D5185m		20447	3342	---
Visc @ 40°C	cSt	ASTM D445		96.5	95.4	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA055157 **Received** : 17 Apr 2024
Lab Number : 06152311 **Tested** : 18 Apr 2024
Unique Number : 10982389 **Diagnosed** : 19 Apr 2024 - Doug Bogart
Test Package : MOB 1 (Additional Tests: PQ)

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 Kent, WA
 US 98032
 Contact: PAT RYAN
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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)