



VOLVO

OIL ANALYSIS REPORT

WEAR
CONTAMINATION
FLUID CONDITION

SEVERE
SEVERE
ABNORMAL



Machine Id
LIEBHERR L524 020079-659
Component
Diesel Engine
Fluid
VALVOLINE ALLFLEET 15W40 (4 GAL)

RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend that you drain the oil and perform a filter service on this component if not already done. 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		VCP06152513	VCP306499	LHMC131184
Sample Date		Client Info		02 Apr 2024	17 Feb 2021	18 Mar 2019
Machine Age	hrs	Client Info		0	0	11557
Oil Age	hrs	Client Info		0	0	500
Filter Age	hrs	Client Info		0	0	500
Oil Changed		Client Info		N/A	Changed	Changed
Filter Changed		Client Info		N/A	Changed	Changed
Sample Status				SEVERE	NORMAL	NORMAL

WEAR

Cylinder, crank, or cam shaft wear is indicated. Bearing and/or bushing wear is indicated.

Iron	ppm	ASTM D5185m	>100	▲ 162	55	36
Chromium	ppm	ASTM D5185m	>5	5	1	1
Nickel	ppm	ASTM D5185m	>5	5	1	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>15	10	<1	3
Lead	ppm	ASTM D5185m	>30	▲ 105	8	1
Copper	ppm	ASTM D5185m	>125	▲ 95	2	<1
Tin	ppm	ASTM D5185m	>5	▲ 9	<1	1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

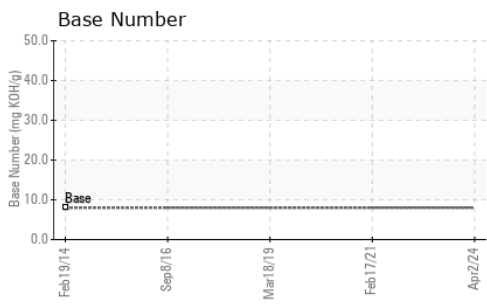
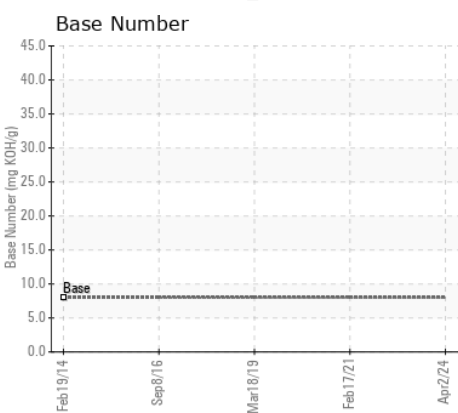
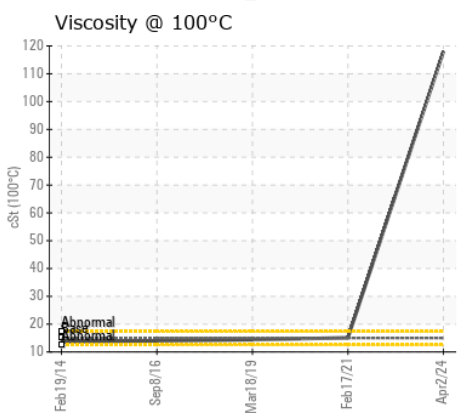
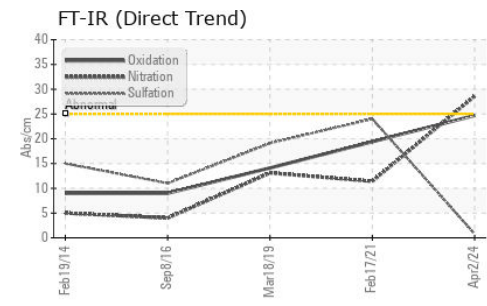
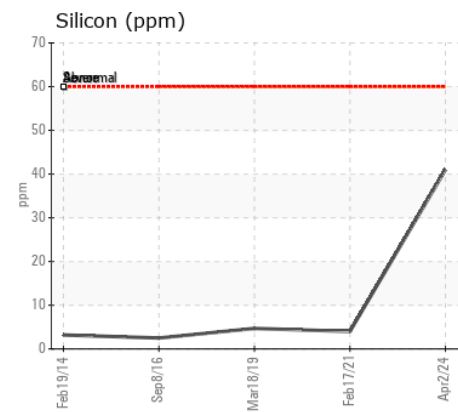
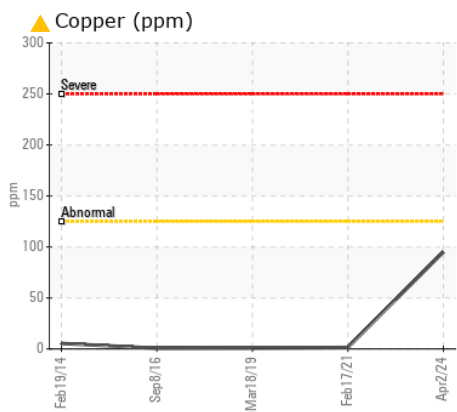
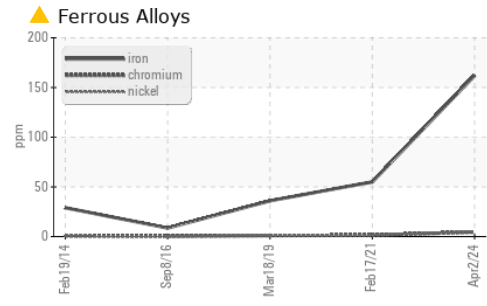
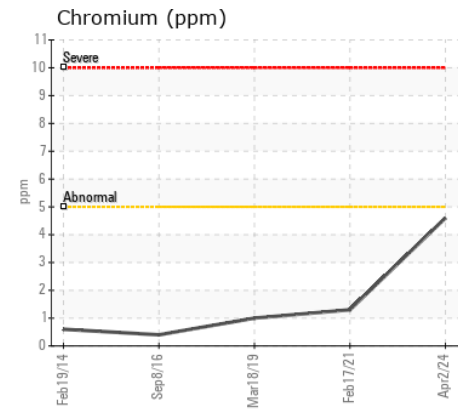
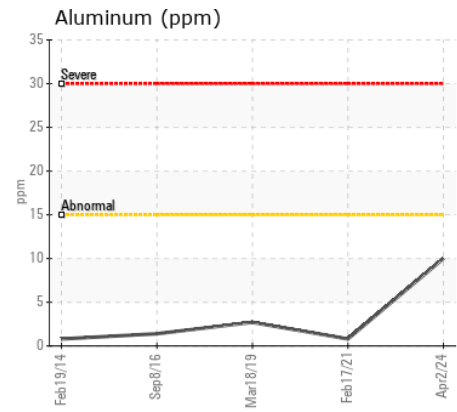
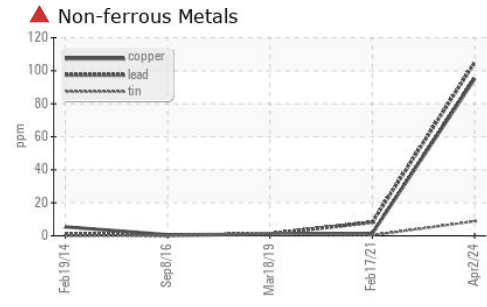
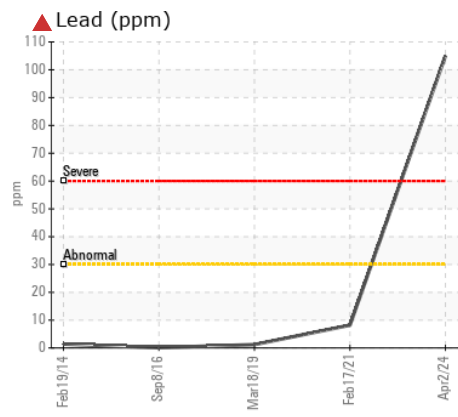
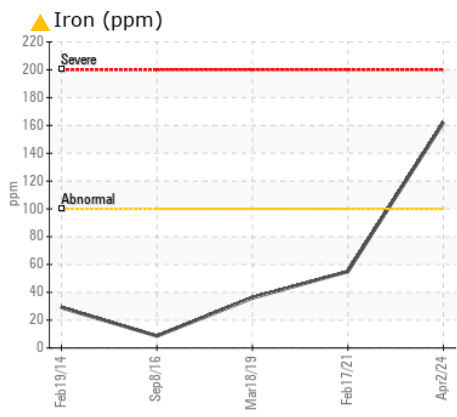
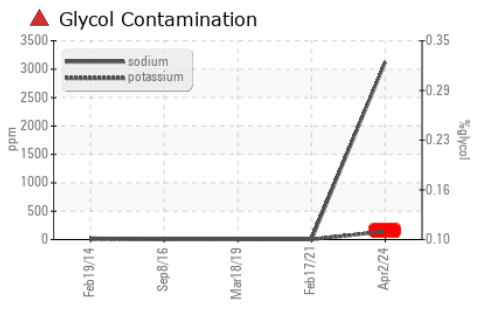
Sodium and/or potassium levels are high. There is a high concentration of glycol present in the oil.

Silicon	ppm	ASTM D5185m	>60	41	4	5
Potassium	ppm	ASTM D5185m	>20	▲ 144	2	0
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		▲ 0.12	NEG	NEG
Soot %	%	*ASTM D7844	>3	1.8	1.4	0.9
Nitration	Abs/cm	*ASTM D7624	>20	28.6	11.4	13.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	0.8	24	19.1
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 viscosity is higher than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		▲ 3125	<1	4
Boron	ppm	ASTM D5185m	360	282	44	184
Barium	ppm	ASTM D5185m	0.2	2	0	0
Molybdenum	ppm	ASTM D5185m	95	345	33	<1
Manganese	ppm	ASTM D5185m		4	<1	<1
Magnesium	ppm	ASTM D5185m	284	542	664	260
Calcium	ppm	ASTM D5185m	2592	948	1811	3922
Phosphorus	ppm	ASTM D5185m	1148	762	1214	1084
Zinc	ppm	ASTM D5185m	1372	882	1346	1289
Sulfur	ppm	ASTM D5185m	5428	2897	3085	2744
Oxidation	Abs/.1mm	*ASTM D7414	>25	24.7	19.4	14.1
Base Number (BN)	mg KOH/g	ASTM D2896	8.0	43.0	---	---
Visc @ 100°C	cSt	ASTM D445	15.0	118	15.1	14.39



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VCP06152513 **Received** : 17 Apr 2024
Lab Number : 06152513 **Tested** : 23 Apr 2024
Unique Number : 10982591 **Diagnosed** : 23 Apr 2024 - Jonathan Hester
Test Package : MOB 1 (Additional Tests: Glycol, TBN)
 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)

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