



# LIEBHERR

## OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>



Machine Id  
**LIEBHERR R936LC 042165-1148**  
Component  
**Diesel Engine**  
Fluid  
**DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

### RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LH0135489</b>	LH0135533	LH0135511
Sample Date		Client Info		<b>04 Apr 2024</b>	12 Aug 2020	03 Mar 2020
Machine Age	hrs	Client Info		<b>8036</b>	3416	2873
Oil Age	hrs	Client Info		<b>0</b>	0	0
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>100	<b>41</b>	19	19
Chromium	ppm	ASTM D5185(m)	>5	<b>1</b>	<1	1
Nickel	ppm	ASTM D5185(m)	>5	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185(m)		<b>&lt;1</b>	88	96
Silver	ppm	ASTM D5185(m)	>3	<b>0</b>	<1	<1
Aluminum	ppm	ASTM D5185(m)	>15	<b>7</b>	4	5
Lead	ppm	ASTM D5185(m)	>30	<b>1</b>	1	<1
Copper	ppm	ASTM D5185(m)	>125	<b>11</b>	6	7
Tin	ppm	ASTM D5185(m)	>5	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	<1	<1
White Metal	scalar	Visual*	NONE	<b>NONE</b>	---	---
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	---	---

### CONTAMINATION

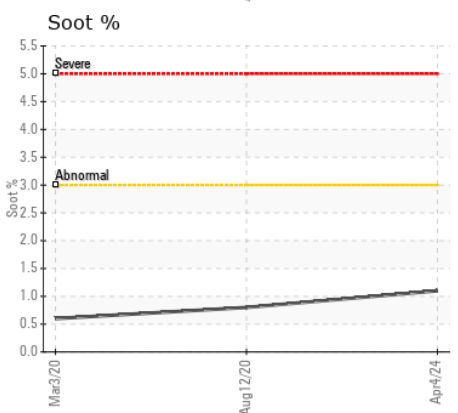
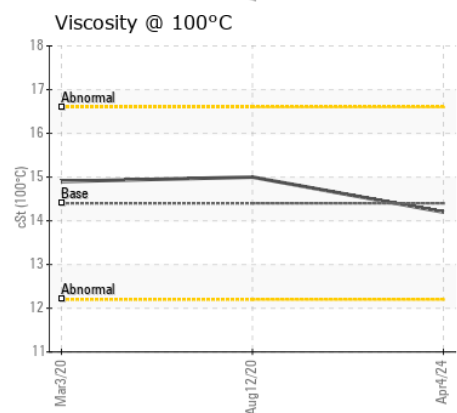
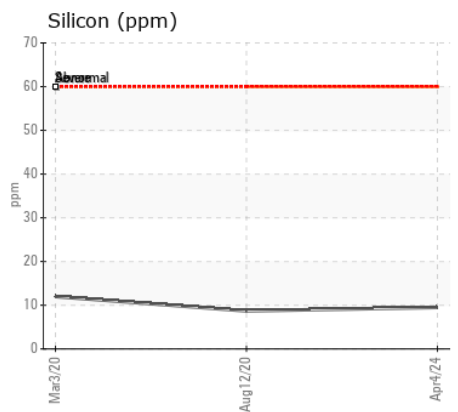
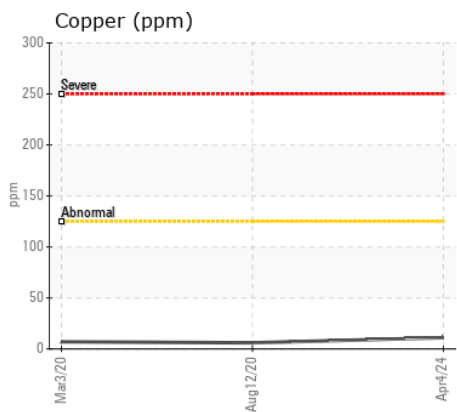
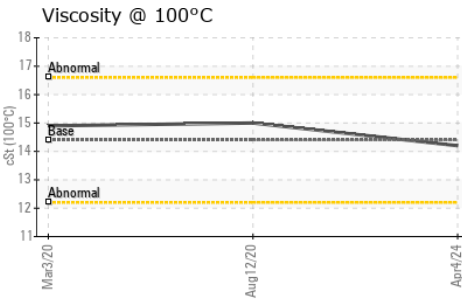
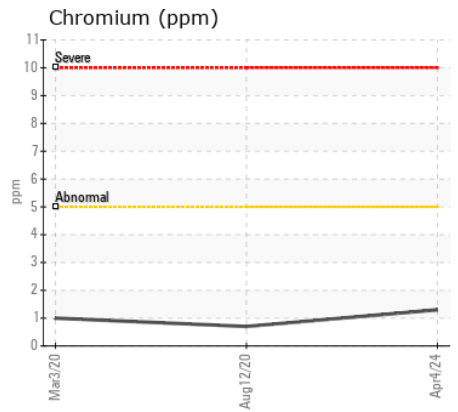
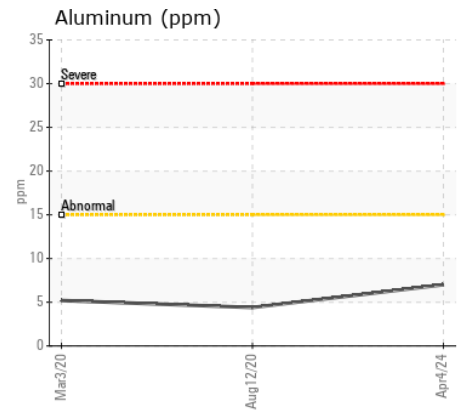
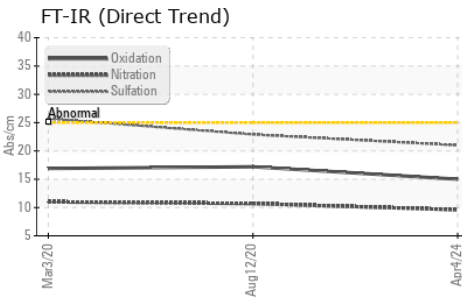
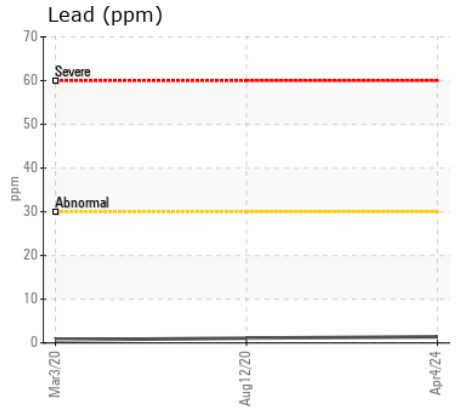
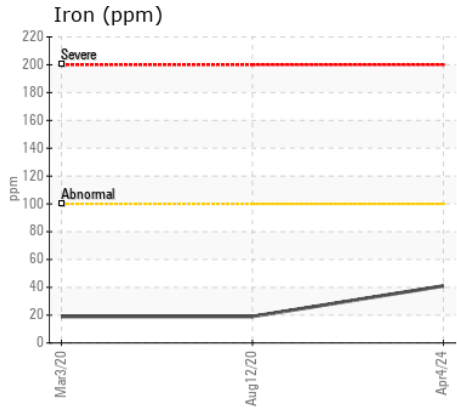
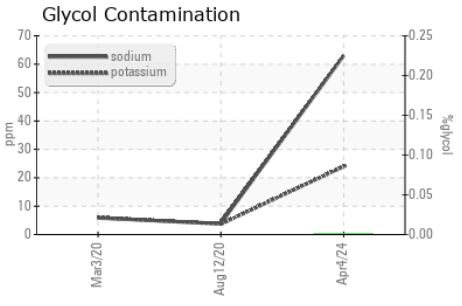
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185(m)	>60	<b>10</b>	9	12
Potassium	ppm	ASTM D5185(m)	>20	<b>24</b>	4	6
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	%	ASTM D7922*		<b>0.0</b>	NEG	NEG
Soot %	%	ASTM D7844*	>3	<b>1.1</b>	0.8	0.6
Nitration	Abs/cm	ASTM D7624*	>20	<b>9.6</b>	10.7	11.0
Sulfation	Abs/.1mm	ASTM D7415*	>30	<b>21.0</b>	22.9	25.7
Silt	scalar	Visual*	NONE	<b>VLITE</b>	---	---
Debris	scalar	Visual*	NONE	<b>VLITE</b>	---	---
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	---	---
Appearance	scalar	Visual*	NORML	<b>NORML</b>	---	---
Odor	scalar	Visual*	NORML	<b>NORML</b>	---	---
Emulsified Water	scalar	Visual*	>0.2	<b>NEG</b>	NEG	NEG

### FLUID CONDITION

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

Sodium	ppm	ASTM D5185(m)	>158	<b>63</b>	4	6
Boron	ppm	ASTM D5185(m)	250	<b>3</b>	53	71
Barium	ppm	ASTM D5185(m)	10	<b>&lt;1</b>	<1	<1
Molybdenum	ppm	ASTM D5185(m)	100	<b>65</b>	1	<1
Manganese	ppm	ASTM D5185(m)		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185(m)	450	<b>853</b>	424	428
Calcium	ppm	ASTM D5185(m)	3000	<b>1206</b>	1735	1781
Phosphorus	ppm	ASTM D5185(m)	1150	<b>1000</b>	971	1035
Zinc	ppm	ASTM D5185(m)	1350	<b>1185</b>	1225	1214
Sulfur	ppm	ASTM D5185(m)	4250	<b>2552</b>	3257	3322
Oxidation	Abs/.1mm	ASTM D7414*	>25	<b>15.0</b>	17.2	16.9
Visc @ 100°C	cSt	ASTM D7279(m)	14.4	<b>14.2</b>	15.0	14.9



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : LH0135489 **Received** : 16 Apr 2024  
**Lab Number** : 02629115 **Tested** : 16 Apr 2024  
**Unique Number** : 5762247 **Diagnosed** : 16 Apr 2024 - Wes Davis  
**Test Package** : MOBCE ( Additional Tests: Glycol, Visual )

**MOOREFIELD EXCAVATING LTD.**  
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To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.