



# LIEBHERR

## OIL ANALYSIS REPORT

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



Machine Id  
**LIEBHERR A924C 064060-1049**  
Component  
**Diesel Engine**  
Fluid  
**SHELL ROTELLA T 15W40 (8 GAL)**

### RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LHMC158132</b>	LH0157727	LH0157827
Sample Date		Client Info		<b>01 Sep 2022</b>	26 May 2021	09 Apr 2021
Machine Age	hrs	Client Info		<b>20945</b>	18120	17815
Oil Age	hrs	Client Info		<b>0</b>	305	500
Filter Age	hrs	Client Info		<b>0</b>	305	500
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>5</b>	4	3
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>1</b>	0	<1
Lead	ppm	ASTM D5185m	>30	<b>&lt;1</b>	<1	<1
Copper	ppm	ASTM D5185m	>125	<b>&lt;1</b>	<1	2
Tin	ppm	ASTM D5185m	>5	<b>0</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

### CONTAMINATION

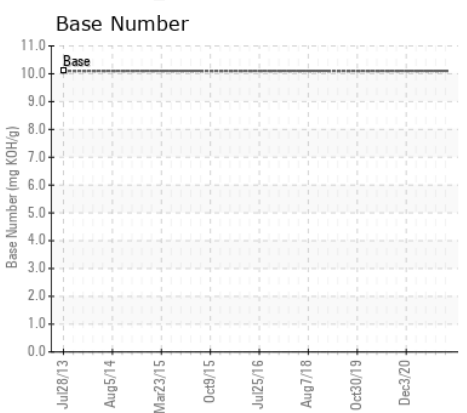
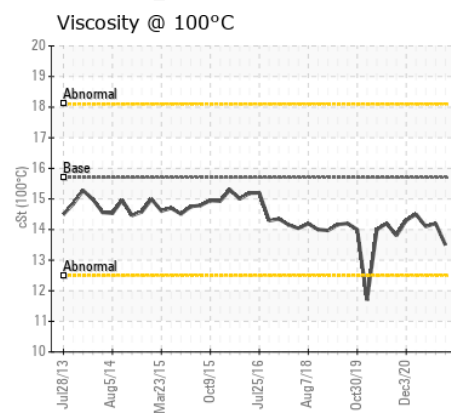
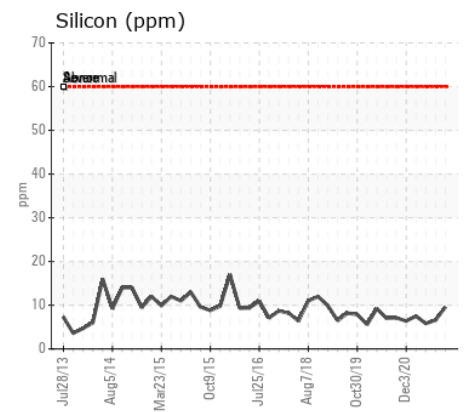
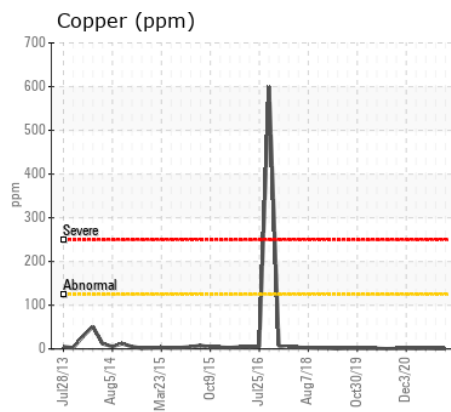
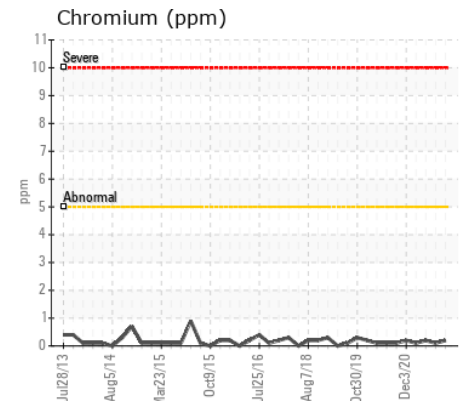
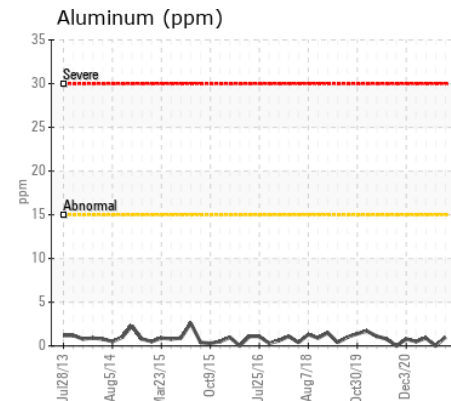
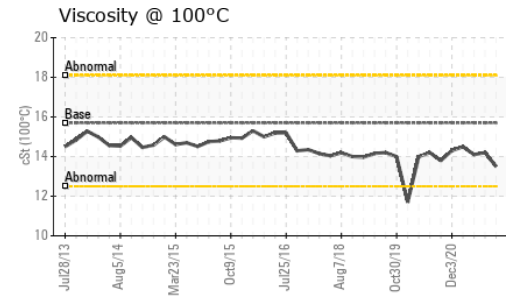
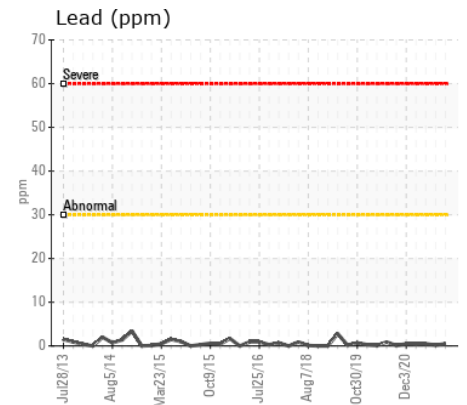
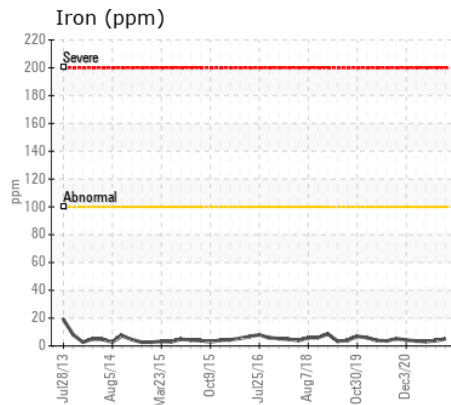
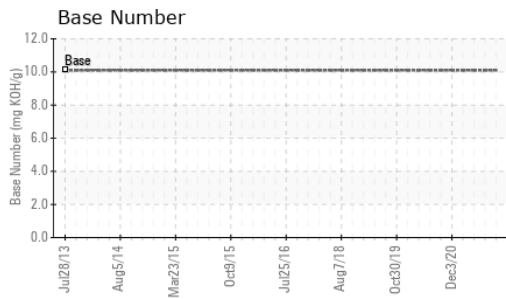
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	<b>10</b>	7	6
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	8	7
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.9</b>	0.6	0.7
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.1</b>	8.3	10.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>22.4</b>	22.9	24.4
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

### FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>1</b>	<1	1
Boron	ppm	ASTM D5185m	316	<b>79</b>	241	152
Barium	ppm	ASTM D5185m	0.0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	1.2	<b>54</b>	3	<1
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	24	<b>372</b>	23	20
Calcium	ppm	ASTM D5185m	2292	<b>1771</b>	2244	2313
Phosphorus	ppm	ASTM D5185m	1064	<b>1019</b>	1002	996
Zinc	ppm	ASTM D5185m	1160	<b>1264</b>	1178	1270
Sulfur	ppm	ASTM D5185m	4996	<b>3249</b>	2895	3309
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.8</b>	17.9	20.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	<b>9.3</b>	---	---
Visc @ 100°C	cSt	ASTM D445	15.7	<b>13.5</b>	14.2	14.1



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LHMC158132 **Received** : 14 Sep 2022  
**Lab Number** : 05641479 **Diagnosed** : 15 Sep 2022  
**Unique Number** : 10131009 **Diagnostician** : Wes Davis  
**Test Package** : MOB 1 ( Additional Tests: TBN )

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Certificate L2367  
 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)