



# LIEBHERR

## OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	SEVERE



Machine Id  
**LIEBHERR LH50M 1203-88008**  
Component  
**Diesel Engine**  
Fluid  
**LIEBHERR MOTOROIL 10W-40 (32 LTR)**

### RECOMMENDATION

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LH0268331</b>	LH0272191	LH0229239
Sample Date		Client Info		<b>09 Feb 2024</b>	01 Feb 2024	20 Jul 2022
Machine Age	hrs	Client Info		<b>10179</b>	7000	7000
Oil Age	hrs	Client Info		<b>500</b>	6268	732
Filter Age	hrs	Client Info		<b>500</b>	500	732
Oil Changed		Client Info		<b>Changed</b>	Changed	Filtered
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>SEVERE</b>	NORMAL	NORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>15</b>	40	56
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	2
Nickel	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	6	4
Lead	ppm	ASTM D5185m	>30	<b>2</b>	5	2
Copper	ppm	ASTM D5185m	>125	<b>19</b>	38	42
Tin	ppm	ASTM D5185m	>5	<b>2</b>	5	5
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

### CONTAMINATION

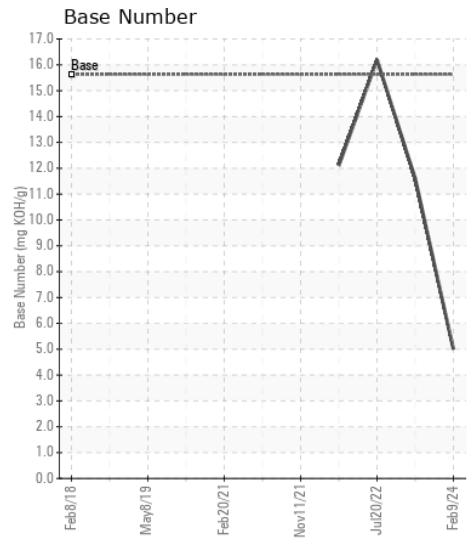
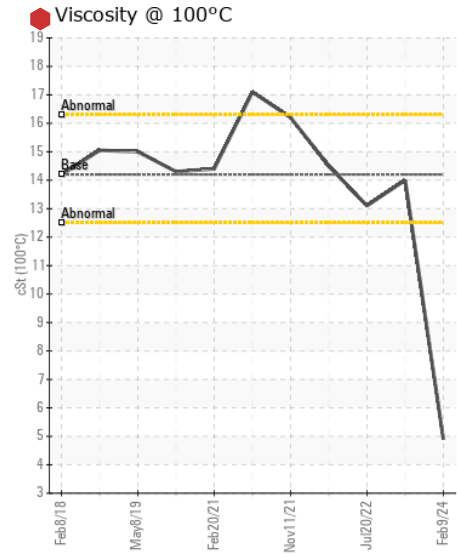
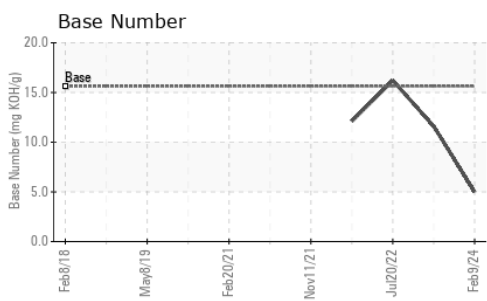
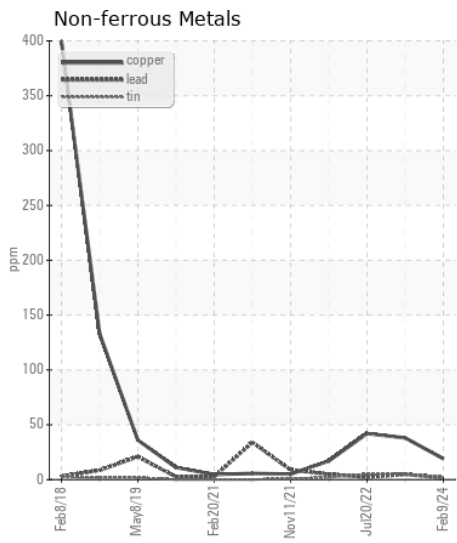
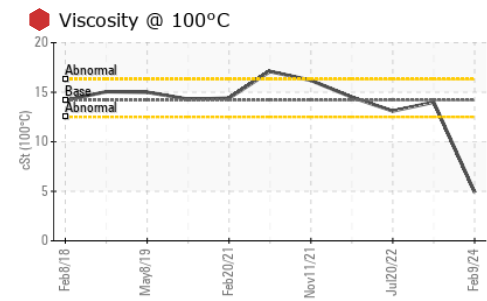
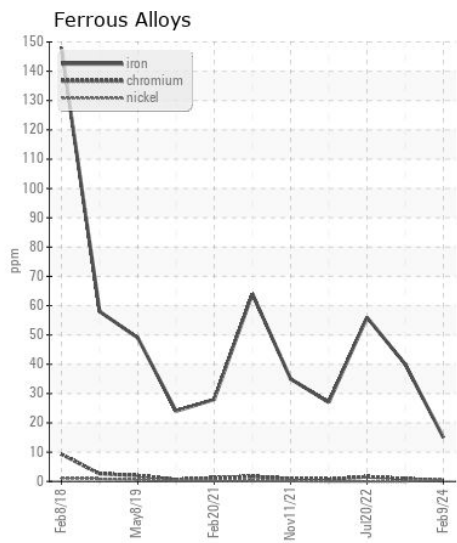
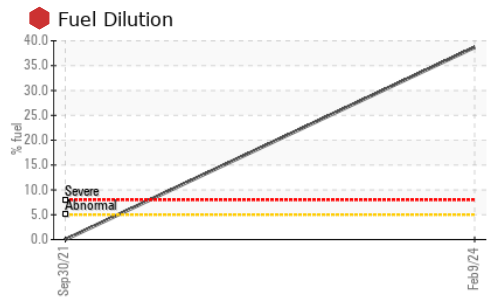
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Silicon	ppm	ASTM D5185m	>60	<b>6</b>	8	8
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	0	2
Fuel	%	ASTM D3524	>5	<b>38.7</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>0.4</b>	1.4	1.4
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.3</b>	14.8	19.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.3</b>	22.5	24.5
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. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		<b>0</b>	3	2
Boron	ppm	ASTM D5185m	245	<b>95</b>	128	192
Barium	ppm	ASTM D5185m	0	<b>13</b>	0	0
Molybdenum	ppm	ASTM D5185m	0	<b>2</b>	10	4
Manganese	ppm	ASTM D5185m	<1	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	36	<b>468</b>	576	84
Calcium	ppm	ASTM D5185m	4401	<b>871</b>	2915	4893
Phosphorus	ppm	ASTM D5185m	1067	<b>511</b>	992	1111
Zinc	ppm	ASTM D5185m	1183	<b>552</b>	1154	1315
Sulfur	ppm	ASTM D5185m	2591	<b>2237</b>	3101	3054
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>20.1</b>	20.1	19.8
Base Number (BN)	mg KOH/g	ASTM D2896	15.63	<b>5.0</b>	11.6	16.2
Visc @ 100°C	cSt	ASTM D445	14.2	<b>4.9</b>	14.0	13.1



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LH0268331 **Received** : 12 Feb 2024  
**Lab Number** : 06085743 **Tested** : 14 Feb 2024  
**Unique Number** : 10873188 **Diagnosed** : 14 Feb 2024 - Wes Davis  
**Test Package** : CONST ( Additional Tests: FuelDilution, PercentFuel, TBN )

**JR VINAGRO**  
 2208 PLAINFIELD PIKE  
 JOHNSTON, RI  
 US 02919  
 Contact: Service Manager

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)

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