



# LIEBHERR

## OIL ANALYSIS REPORT

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



Machine Id  
**LIEBHERR R938 050886-1650**

Component  
**Hydraulic System**

Fluid  
**LIEBHERR HYDRAULIC HVI (--- GAL)**

### RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LH0267311</b>	LH0258263	LH0258963
Sample Date		Client Info		<b>19 Dec 2023</b>	08 Oct 2023	09 Aug 2023
Machine Age	hrs	Client Info		<b>2998</b>	431	1993
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>Not Changd</b>	Not Changd	Not Changd
Filter Changed		Client Info		<b>Not Changd</b>	Not Changd	Not Changd
Sample Status				<b>NORMAL</b>	ATTENTION	ABNORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	<b>16</b>	7	16
Chromium	ppm	ASTM D5185m	>15	<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>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>8	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>5	<b>1</b>	0	1
Copper	ppm	ASTM D5185m	>15	<b>8</b>	7	7
Tin	ppm	ASTM D5185m	>5	<b>0</b>	0	0
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

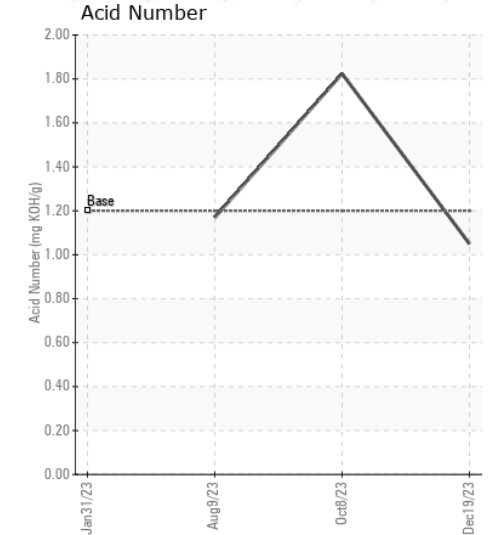
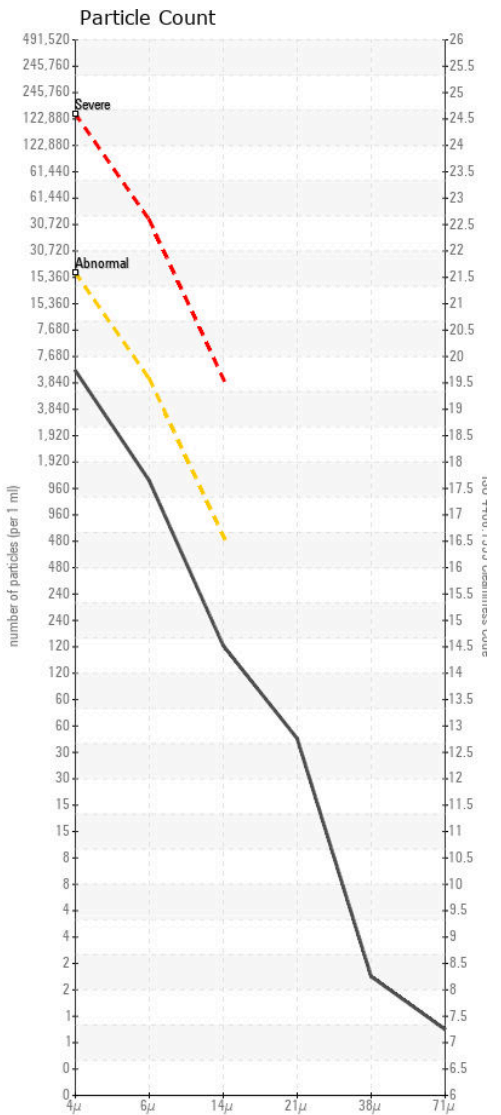
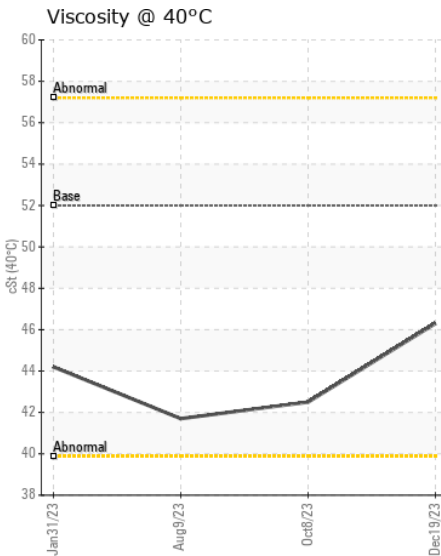
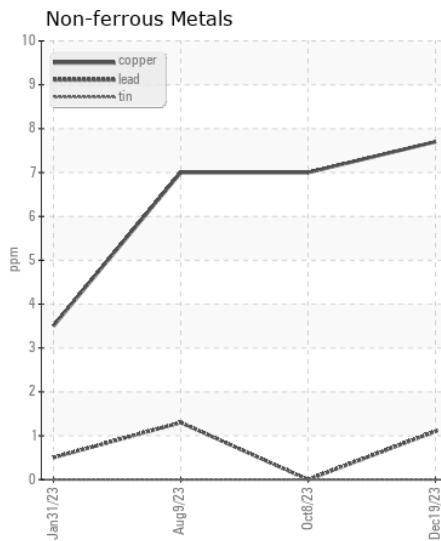
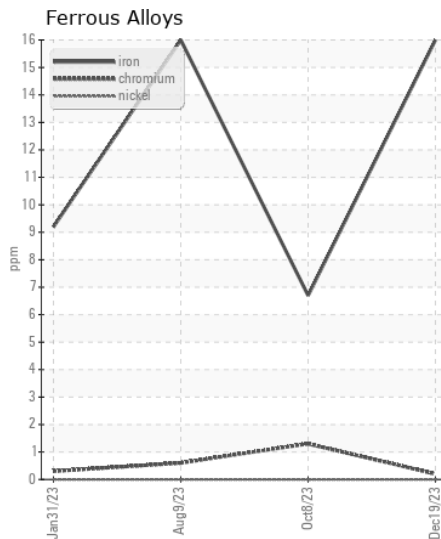
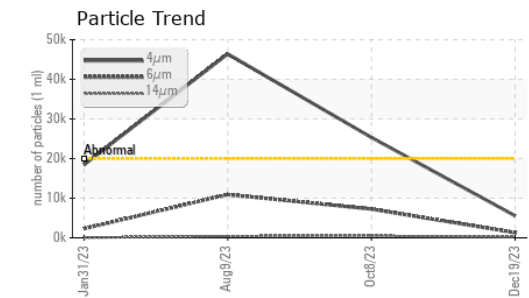
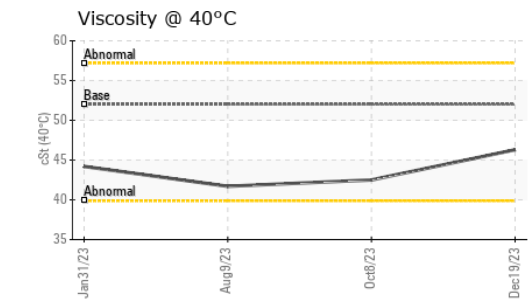
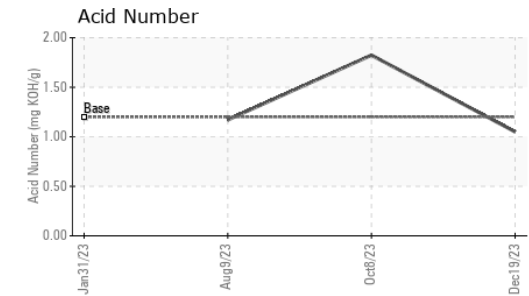
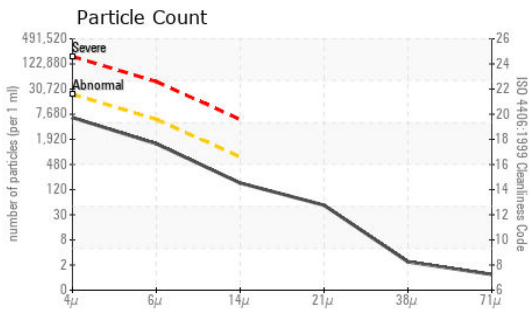
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

Silicon	ppm	ASTM D5185m	>25	<b>7</b>	6	8
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	1	2
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Particles >4µm		ASTM D7647	>20000	<b>5561</b>	▲ 25326	▲ 46388
Particles >6µm		ASTM D7647	>5000	<b>1315</b>	▲ 7262	▲ 10916
Particles >14µm		ASTM D7647	>640	<b>152</b>	500	425
Particles >21µm		ASTM D7647	>160	<b>45</b>	113	78
Particles >38µm		ASTM D7647	>40	<b>2</b>	4	2
Particles >71µm		ASTM D7647	>10	<b>1</b>	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	<b>20/18/14</b>	▲ 22/20/16	▲ 23/21/16
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>LIGHT</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	>0.1	<b>NEG</b>	NEG	NEG

### FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>&lt;1</b>	4	3
Boron	ppm	ASTM D5185m		<b>0</b>	0	0
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>0</b>	0	0
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m	7	<b>6</b>	9	8
Calcium	ppm	ASTM D5185m	1500	<b>1656</b>	1335	1859
Phosphorus	ppm	ASTM D5185m	750	<b>738</b>	618	821
Zinc	ppm	ASTM D5185m	820	<b>855</b>	705	993
Sulfur	ppm	ASTM D5185m	4000	<b>5129</b>	4162	6343
Acid Number (AN)	mg KOH/g	ASTM D8045	1.2	<b>1.05</b>	1.824	1.17
Visc @ 40°C	cSt	ASTM D445	52	<b>46.3</b>	42.5	41.7



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LH0267311 **Received** : 12 Jan 2024  
**Lab Number** : 06060183 **Diagnosed** : 16 Jan 2024  
**Unique Number** : 10831565 **Diagnostician** : Wes Davis  
**Test Package** : CONST

**M&F CONCRETE PRODUCTS CO**  
 4002 CATLETT RD  
 CATLETT, VA  
 US 20119  
 Contact: Service Manager

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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F: