



# LIEBHERR

## OIL ANALYSIS REPORT

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



Machine Id  
**LIEBHERR R938 050294-1650**  
Component  
**Right Final Drive**  
Fluid  
**GEAR OIL SAE 75W90 (--- GAL)**

### RECOMMENDATION

We advise that you check all areas where dirt can enter the system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### WEAR

Chromium and iron ppm levels are abnormal. Aluminum ppm levels are noted. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

### CONTAMINATION

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The water content is negligible. High amount of ingressed dirt has caused abrasive wear to the component.

### FLUID CONDITION

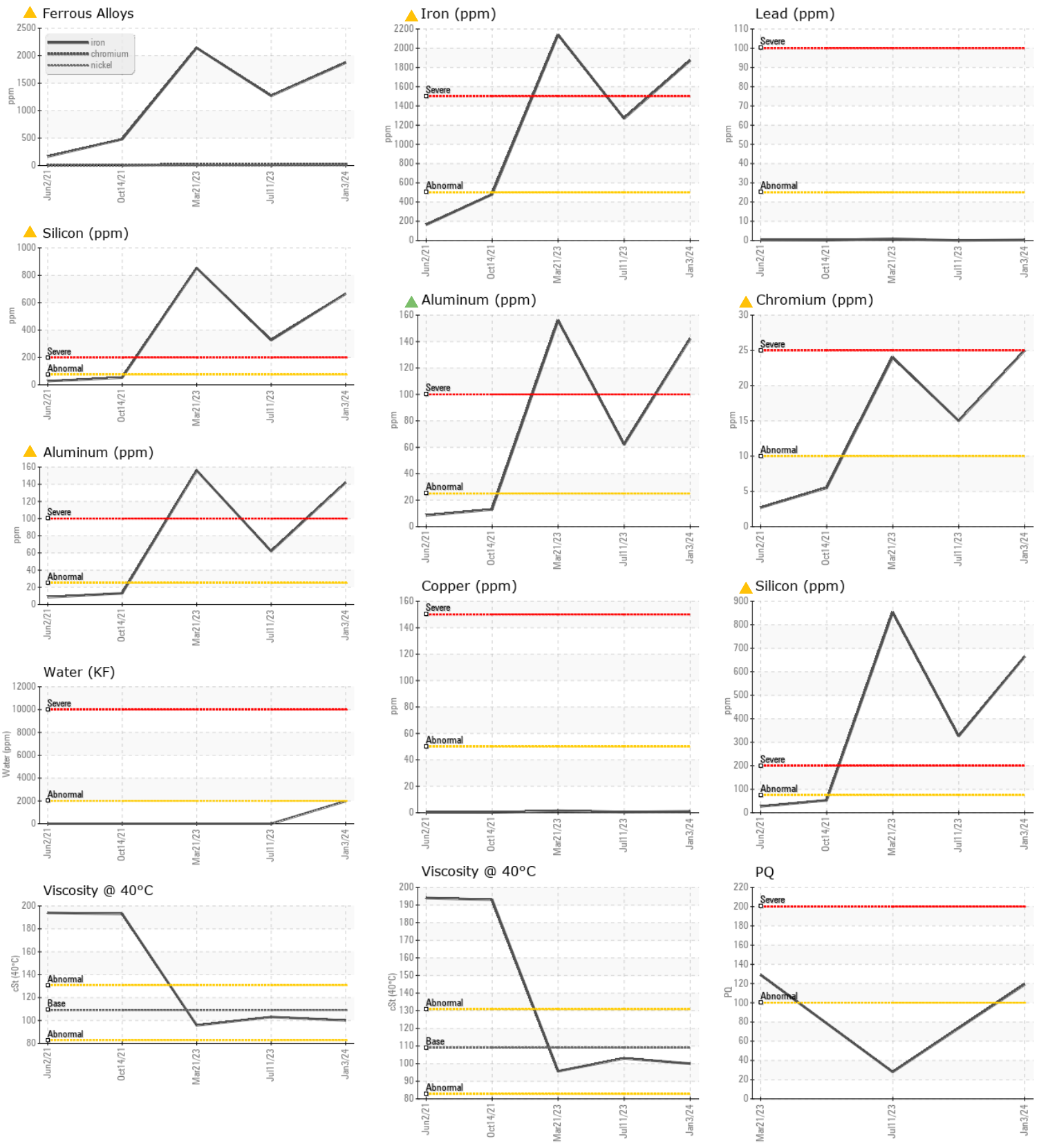
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LH0172355</b>	LH0172346	LH0257072
Sample Date		Client Info		<b>03 Jan 2024</b>	11 Jul 2023	21 Mar 2023
Machine Age	hrs	Client Info		<b>4951</b>	4478	4098
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>	Not Changd	Changed
Filter Changed		Client Info		<b>None</b>	None	None
Sample Status				<b>ABNORMAL</b>	ABNORMAL	SEVERE

PQ		ASTM D8184*		<b>119</b>	28	129
Iron	ppm	ASTM D5185(m)	>500	<b>▲ 1872</b>	▲ 1269	▲ 2140
Chromium	ppm	ASTM D5185(m)	>10	<b>▲ 25</b>	▲ 15	▲ 24
Nickel	ppm	ASTM D5185(m)	>10	<b>1</b>	<1	2
Titanium	ppm	ASTM D5185(m)		<b>8</b>	4	8
Silver	ppm	ASTM D5185(m)		<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185(m)	>25	<b>▲ 142</b>	▲ 62	▲ 156
Lead	ppm	ASTM D5185(m)	>25	<b>&lt;1</b>	0	<1
Copper	ppm	ASTM D5185(m)	>50	<b>1</b>	<1	2
Tin	ppm	ASTM D5185(m)	>10	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	<1	<1
White Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE

Silicon	ppm	ASTM D5185(m)	>75	<b>▲ 665</b>	▲ 326	▲ 853
Potassium	ppm	ASTM D5185(m)	>20	<b>56</b>	24	59
Water	%	ASTM D6304*	>0.2	<b>0.197</b>	---	---
ppm Water	ppm	ASTM D6304*	>2000	<b>1978</b>	---	---
Silt	scalar	Visual*	NONE	<b>VLITE</b>	LIGHT	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>.2%</b>	NEG	NEG

Sodium	ppm	ASTM D5185(m)		<b>27</b>	14	36
Boron	ppm	ASTM D5185(m)	400	<b>260</b>	267	143
Barium	ppm	ASTM D5185(m)	200	<b>0</b>	<1	0
Molybdenum	ppm	ASTM D5185(m)	12	<b>1</b>	1	2
Manganese	ppm	ASTM D5185(m)		<b>16</b>	10	16
Magnesium	ppm	ASTM D5185(m)	12	<b>208</b>	115	221
Calcium	ppm	ASTM D5185(m)	150	<b>581</b>	301	639
Phosphorus	ppm	ASTM D5185(m)	1650	<b>1205</b>	1286	1254
Zinc	ppm	ASTM D5185(m)	125	<b>16</b>	13	26
Sulfur	ppm	ASTM D5185(m)	22500	<b>21380</b>	20877	24468
Visc @ 40°C	cSt	ASTM D7279(m)	109	<b>100</b>	103	▲ 95.7



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : LH0172355 **Received** : 11 Jan 2024  
**Lab Number** : 02608291 **Diagnosed** : 15 Jan 2024  
**Unique Number** : 5709377 **Diagnostician** : Kevin Marson  
**Test Package** : MOBCE ( Additional Tests: KF, PQ, Visual )  
 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.

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