



# LIEBHERR

## OIL ANALYSIS REPORT

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



Machine Id  
**LIEBHERR LH110 1227-155752**  
Component  
**Rear Right Wheel Hub**  
Fluid  
**GEAR OIL SAE 80W90 (--- GAL)**

### RECOMMENDATION

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LH0267273</b>	LH0267541	LH0280590
Sample Date		Client Info		<b>10 Jun 2024</b>	20 May 2024	18 Apr 2024
Machine Age	hrs	Client Info		<b>2998</b>	2578	1980
Oil Age	hrs	Client Info		<b>967</b>	547	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>N/A</b>	N/A	N/A
Sample Status				<b>ATTENTION</b>	ATTENTION	ATTENTION

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>650	<b>52</b>	38	51
Chromium	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m		<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m	>25	<b>2</b>	1	<1
Lead	ppm	ASTM D5185m	>4	<b>0</b>	<1	0
Copper	ppm	ASTM D5185m	>60	<b>13</b>	9	14
Tin	ppm	ASTM D5185m	>4	<b>0</b>	0	0
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

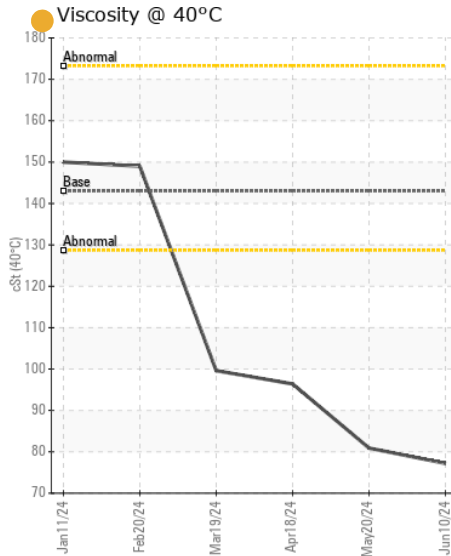
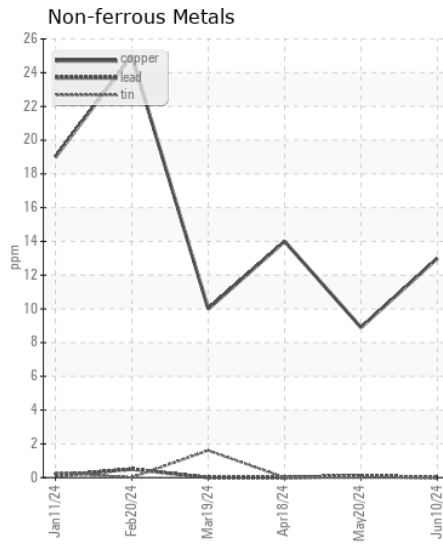
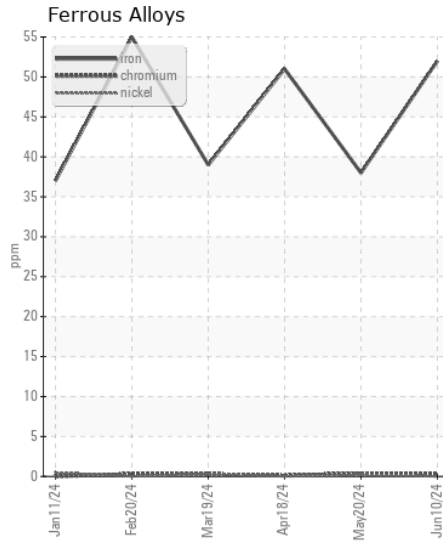
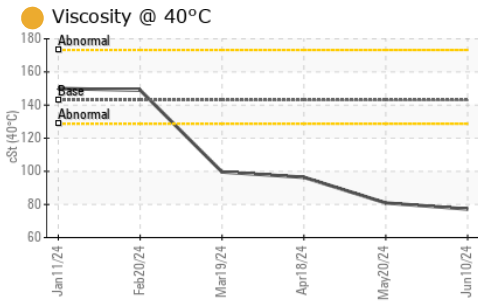
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>75	<b>5</b>	5	5
Potassium	ppm	ASTM D5185m	>20	<b>1</b>	1	0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Silt	scalar	*Visual	NONE	<b>MODER</b>	NONE	MODER
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 oil viscosity is lower than normal. Confirm oil type.

Sodium	ppm	ASTM D5185m	>170	<b>0</b>	2	<1
Boron	ppm	ASTM D5185m	400	<b>9</b>	10	0
Barium	ppm	ASTM D5185m	200	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	12	<b>3</b>	5	1
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	1
Magnesium	ppm	ASTM D5185m	12	<b>46</b>	44	4
Calcium	ppm	ASTM D5185m	150	<b>229</b>	233	183
Phosphorus	ppm	ASTM D5185m	1650	<b>419</b>	407	481
Zinc	ppm	ASTM D5185m	125	<b>187</b>	171	105
Sulfur	ppm	ASTM D5185m	22500	<b>11556</b>	13096	16597
Visc @ 40°C	cSt	ASTM D445	143	<b>77.2</b>	80.9	96.4



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LH0267273  
**Lab Number** : 06216175  
**Unique Number** : 11089039  
**Test Package** : CONST

**Received** : 20 Jun 2024  
**Tested** : 21 Jun 2024  
**Diagnosed** : 23 Jun 2024 - Don Baldrige

**KINDER MORGAN**  
 4301 IVERSON  
 TRINITY, AL  
 US 35601

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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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