

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

## LIEBHERR LH110 1227-155752

Component Rear Right Wheel Hub

GEAR OIL SAE 80W90 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

## WEAR

All component wear rates are normal.

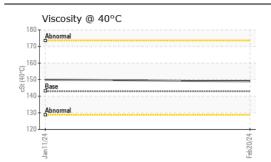
## CONTAMINATION

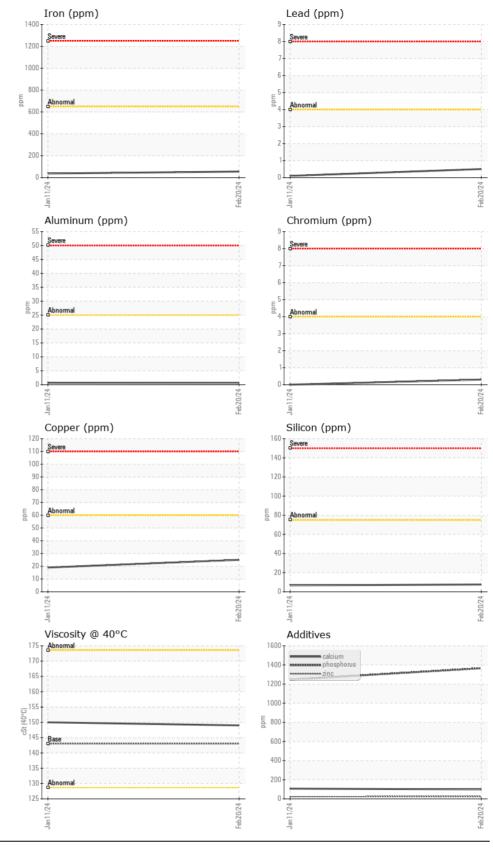
There is no indication of any contamination in the oil.

## FLUID CONDITION

The condition of the oil is acceptable for the time in service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0280579	LH0280568	
Sample Date		Client Info		20 Feb 2024	11 Jan 2024	
Machine Age	hrs	Client Info		1022	507	
Oil Age	hrs	Client Info		0	0	
Filter Age	hrs	Client Info		0	0	
Oil Changed		Client Info		Changed	Not Changd	
Filter Changed		Client Info		None	N/A	
Sample Status				NORMAL	NORMAL	
			050		07	
Iron	ppm	ASTM D5185m	>650	55	37	
Chromium	ppm	ASTM D5185m	>4	<1	0	
Nickel	ppm	ASTM D5185m	>4	0	<1	
Titanium	ppm	ASTM D5185m	>4	0	0	
Silver	ppm	ASTM D5185m	05	<1	0	
Aluminum	ppm	ASTM D5185m	>25	<1	<1	
Lead	ppm	ASTM D5185m	>4	<1	<1	
Copper	ppm	ASTM D5185m	>60	25	19	
Tin	ppm	ASTM D5185m	>4	0	<1	
Vanadium	ppm	ASTM D5185m		<1	0	
White Metal	scalar	*Visual	NONE	LIGHT	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Silicon	ppm	ASTM D5185m	>75	8	7	
Silicon Potassium	ppm ppm	ASTM D5185m ASTM D5185m	>75 >20	8 0	7	
				-		
Potassium		ASTM D5185m	>20	0	1	
Potassium Water	ppm	ASTM D5185m WC Method	>20 >0.2	0 NEG	1 NEG	
Potassium Water Silt	ppm scalar	ASTM D5185m WC Method *Visual	>20 >0.2 NONE	0 NEG LIGHT	1 NEG NONE	
Potassium Water Silt Debris	ppm scalar scalar	ASTM D5185m WC Method *Visual *Visual	>20 >0.2 NONE NONE	0 NEG LIGHT NONE	1 NEG NONE LIGHT	
Potassium Water Silt Debris Sand/Dirt	ppm scalar scalar scalar	ASTM D5185m WC Method *Visual *Visual *Visual	>20 >0.2 NONE NONE NONE	0 NEG LIGHT NONE NONE	1 NEG NONE LIGHT NONE	   
Potassium Water Silt Debris Sand/Dirt Appearance	ppm scalar scalar scalar scalar	ASTM D5185m WC Method *Visual *Visual *Visual *Visual	>20 >0.2 NONE NONE NONE	0 NEG LIGHT NONE NONE NORML	1 NEG NONE LIGHT NONE NORML	   
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water	ppm scalar scalar scalar scalar scalar	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual	>20 >0.2 NONE NONE NONE NORML NORML >0.2	0 NEG LIGHT NONE NONE NORML NORML NEG	1 NEG NONE LIGHT NONE NORML NORML NEG	     
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium	ppm scalar scalar scalar scalar scalar scalar	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m	>20 >0.2 NONE NONE NORML NORML >0.2	0 NEG LIGHT NONE NORML NORML NEG 2	1 NEG NONE LIGHT NORML NORML NEG 4	     
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron	ppm scalar scalar scalar scalar scalar scalar ppm	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m	>20 >0.2 NONE NONE NORML >0.2 >170 400	0 NEG LIGHT NONE NORML NORML NEG 2 4	1 NEG NONE LIGHT NORML NORML NEG 4 5	
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium	ppm scalar scalar scalar scalar scalar scalar ppm ppm	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m	>20 >0.2 NONE NONE NORML NORML >0.2 >170 400 200	0 NEG LIGHT NONE NORML NORML NEG 2 4 <1	1 NEG NONE LIGHT NORML NORML NEG 4 5 2	
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum	ppm scalar scalar scalar scalar scalar ppm ppm ppm	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m	>20 >0.2 NONE NONE NORML >0.2 >170 400	0 NEG LIGHT NONE NORML NORML NEG 2 4 <1 <1	1 NEG NONE LIGHT NORML NORML NEG 4 5 2 2 0	
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >0.2 NONE NONE NORML >0.2 >170 400 200 12	0 NEG LIGHT NONE NORML NORML NEG 2 4 <1 <1 <1 2	1 NEG NONE LIGHT NORML NORML NEG 4 5 2 2 0 2	
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Barium Molybdenum Manganese Magnesium	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >0.2 NONE NONE NORML NORML >0.2 >170 400 200 12	0 NEG LIGHT NONE NORML NORML NEG 2 4 <1 <1 <1 2 0	1 NEG NONE LIGHT NORML NORML NEG 4 5 2 0 2 0 2 2 2	
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >0.2 NONE NONE NORML NORML >0.2 >170 400 200 12 12	0 NEG LIGHT NONE NORML NORML NEG 2 4 <1 <1 2 (1 2 0 99	1 NEG NONE LIGHT NORML NORML NEG 4 5 2 0 2 0 2 2 2 107	
Potassium Water Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Barium Molybdenum Manganese Magnesium Calcium	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >0.2 NONE NONE NORML >0.2 >170 400 200 12 12 12 150 1650	0 NEG LIGHT NONE NORML NORML NEG 2 4 <1 <1 2 ( 1 2 0 99 1365	1 NEG NONE LIGHT NORML NORML NEG 4 5 2 0 2 2 0 2 2 107 1246	
Potassium Water Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Boron Barium Malybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >0.2 NONE NONE NORML >0.2 >170 400 200 12 12 12 150 1650 125	0 NEG LIGHT NONE NORML NORML NEG 2 4 <1 <1 <1 2 0 99 1365 24	1 NEG NONE LIGHT NORML NORML NEG 4 5 2 0 2 2 0 2 2 107 1246 23	
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >0.2 NONE NONE NORML >0.2 >170 400 200 12 12 12 150 1650	0 NEG LIGHT NONE NORML NORML NEG 2 4 <1 <1 2 ( 1 2 0 99 1365	1 NEG NONE LIGHT NORML NORML NEG 4 5 2 0 2 2 0 2 2 107 1246	







 Lab Number : 06100513
 Tested : 27 Feb 2024

 Unique Number : 10898743
 Diagnosed : 27 Feb 2024 - Wes Davis

 Certificate 12367
 Test Package : MOBCE
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 To discuss this sample report, contact Customer Service at 1-800-237-1369.
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 \* - 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)

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received

: 26 Feb 2024

4301 IVERSON TRINITY, AL US 35601 Contact: CHIP OAKES

**KINDER MORGAN** 

T: (256)350-0006 F: (256)355-5250

Laboratory

Sample No.

: LH0280579

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