

WEAR SEVERE CONTAMINATION NORMAL FLUID CONDITION NORMAL



Machine Id LIEBHERR L566 074234-1758

Front Differential

{not provided} (--- GAL)

## RECOMMENDATION

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. The fluid was not specified, however, a fluid match indicates that this fluid is SAE 50 Gear Oil. Please confirm the oil type and grade, and specify the brand of the oil on your next sample.

## WEAR

Copper and tin and tin ppm levels are severe. Lead ppm levels are abnormal. Thrust washer and/or bearing/bushing wear is indicated. Light concentration of visible metal present.

## CONTAMINATION

There is no indication of any contamination in the oil.

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## 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		LH0155024		
Sample Date		Client Info		29 Dec 2023		
Machine Age	hrs	Client Info		1395		
Oil Age	hrs	Client Info		0		
Filter Age	hrs	Client Info		0		
Oil Changed		Client Info		Changed		
Filter Changed		Client Info		N/A		
Sample Status				SEVERE		
			1000	005		
Iron	ppm	ASTM D5185(m)	>1200	265		
Chromium	ppm	ASTM D5185(m)	>20	2 4		
Nickel	ppm	ASTM D5185(m)	>4	-		
Titanium	ppm	ASTM D5185(m)		0		
Silver	ppm	ASTM D5185(m)	× F	0		
Aluminum	ppm	ASTM D5185(m)	>5	3		
Lead	ppm	ASTM D5185(m)	>4	▲ 4		
Copper	ppm	ASTM D5185(m)	>40	<ul> <li>151</li> <li>0</li> </ul>		
Tin	ppm	ASTM D5185(m)	>4	9		
Vanadium	ppm	ASTM D5185(m)	NONE	0		
White Metal	scalar	Visual*	NONE			
Yellow Metal	scalar	Visual*	NONE	NONE		
Silicon	ppm	ASTM D5185(m)	>50	NONE 30		
Silicon	ppm	ASTM D5185(m)	>50	30	 	
Silicon Potassium	ppm	ASTM D5185(m) ASTM D5185(m)	>50 >20	30 1	 	
Silicon Potassium Water	ppm ppm	ASTM D5185(m) ASTM D5185(m) WC Method	>50 >20 >.2	30 1 NEG		
Silicon Potassium Water Silt	ppm ppm scalar	ASTM D5185(m) ASTM D5185(m) WC Method Visual*	>50 >20 >.2 NONE	30 1 NEG NONE		
Silicon Potassium Water Silt Debris	ppm ppm scalar scalar	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual*	>50 >20 >.2 NONE NONE	30 1 NEG NONE NONE		  
Silicon Potassium Water Silt Debris Sand/Dirt	ppm ppm scalar scalar scalar	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual*	>50 >20 >.2 NONE NONE NONE	30 1 NEG NONE NONE NONE		    
Silicon Potassium Water Silt Debris Sand/Dirt Appearance	ppm ppm scalar scalar scalar scalar	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual*	>50 >20 >.2 NONE NONE NONE NORML	30 1 NEG NONE NONE NONE NORML		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water	ppm ppm scalar scalar scalar scalar scalar scalar	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual*	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORE NORML NEG		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium	ppm ppm scalar scalar scalar scalar scalar scalar	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* Visual*	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron	ppm ppm scalar scalar scalar scalar scalar scalar gpm	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m)	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8 3		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium	ppm ppm scalar scalar scalar scalar scalar scalar ppm ppm	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m)	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8 3 0		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium	ppm ppm scalar scalar scalar scalar scalar scalar ppm ppm	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8 3 0 0		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum	ppm ppm scalar scalar scalar scalar scalar scalar ppm ppm	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8 3 0 0 0 34		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	ppm ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8 3 0 0 0 34 4		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	ppm ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8 3 0 0 34 4 4		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8 3 0 0 34 4 6 2212		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8 3 0 0 0 34 4 6 2212 34		
Silicon Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>50 >20 >.2 NONE NONE NONE NORML NORML	30 1 NEG NONE NONE NORML NORML NEG 8 3 0 0 34 4 6 2212		



