

WEAR ATTENTION CONTAMINATION ABNORMAL FLUID CONDITION NORMAL

Machine Id LIEBHERR 31226 Component Right Final Drive Fluid GEAR OIL LS 80W90 (1 QTS)

RECOMMENDATION

We advise that you check all areas where dirt can enter the system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

Elemental levels of silicon (Si) and aluminum (AI) indicate aluminasilicate (coarse dirt) ingress.

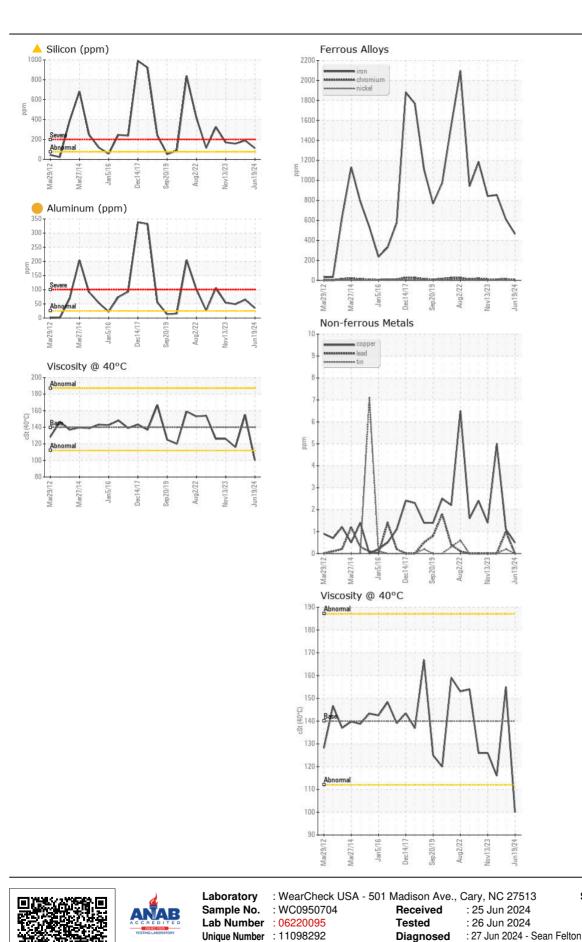
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

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		WC0950704	WC0905138	WC0905353
Sample Date		Client Info		19 Jun 2024	04 Mar 2024	16 Feb 2024
Machine Age	hrs	Client Info		12913	12671	12652
Oil Age	hrs	Client Info		750	50	500
Filter Age	hrs	Client Info		750	0	500
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
			500		A 010	• • • • •
Iron	ppm	ASTM D5185m	>500	464	▲ 610	▲ 854
Chromium	ppm	ASTM D5185m	>10	7	▲ 11 0	▲ 10 0
Nickel	ppm	ASTM D5185m	>10	2	3	2
Titanium	ppm	ASTM D5185m		2	4	2
Silver	ppm	ASTM D5185m	. 05	0	0	0
Aluminum	ppm	ASTM D5185m	>25	<b>3</b> 5	65	49
Lead	ppm	ASTM D5185m	>25	0	1	0
Copper	ppm	ASTM D5185m	>50	<1	1	5
Tin	ppm	ASTM D5185m	>10	0	<1	0
Vanadium	ppm	ASTM D5185m	NONE	0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>75	<b>112</b>	<b>1</b> 89	<b>1</b> 58
Potassium						
i otassium	ppm	ASTM D5185m	>20	9	16	14
Water	ppm	ASTM D5185m WC Method	>20 >0.2	9 NEG	16 NEG	14 NEG
	ppm scalar			-		
Water		WC Method	>0.2	NEG	NEG	NEG
Water Silt	scalar	WC Method *Visual	>0.2 NONE	NEG LIGHT	NEG NONE	NEG
Water Silt Debris	scalar scalar	WC Method *Visual *Visual	>0.2 NONE NONE	NEG LIGHT NONE	NEG NONE NONE	NEG NONE NONE
Water Silt Debris Sand/Dirt	scalar scalar scalar	WC Method *Visual *Visual *Visual	>0.2 NONE NONE NONE	NEG LIGHT NONE NONE	NEG NONE NONE NONE	NEG NONE NONE
Water Silt Debris Sand/Dirt Appearance	scalar scalar scalar scalar	WC Method *Visual *Visual *Visual *Visual	>0.2 NONE NONE NONE NORML	NEG LIGHT NONE NONE NORML	NEG NONE NONE NORML	NEG NONE NONE NORML
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water	scalar scalar scalar scalar scalar scalar	WC Method *Visual *Visual *Visual *Visual *Visual *Visual	>0.2 NONE NONE NORML NORML	NEG LIGHT NONE NONE NORML NORML NEG	NEG NONE NONE NORML NORML NEG	NEG NONE NONE NORML NORML NEG
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium	scalar scalar scalar scalar scalar scalar scalar	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m	>0.2 NONE NONE NORML NORML >0.2	NEG LIGHT NONE NORE NORML NEG	NEG NONE NONE NORML NORML NEG 9	NEG NONE NONE NORML NORML NEG 0
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron	scalar scalar scalar scalar scalar scalar ppm	WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m	>0.2 NONE NONE NORML NORML	NEG LIGHT NONE NORML NORML NEG 4 115	NEG NONE NONE NORML NORML NEG 9 127	NEG NONE NONE NORML NORML NEG 0 78
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium	scalar scalar scalar scalar scalar scalar ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m	>0.2 NONE NONE NORML NORML >0.2	NEG LIGHT NONE NORML NORML NEG 4 115 0	NEG NONE NONE NORML NORML NEG 9 127 <1	NEG NONE NONE NORML NORML NEG 0 78 <1
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum	scalar scalar scalar scalar scalar scalar ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m	>0.2 NONE NONE NORML NORML >0.2	NEG LIGHT NONE NORML NORML NEG 4 115	NEG NONE NONE NORML NORML NEG 9 127	NEG NONE NONE NORML NORML NEG 0 78 <1 11
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese	scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 NONE NONE NORML NORML >0.2	NEG LIGHT NONE NORML NORML NEG 4 115 0 14	NEG NONE NONE NORML NORML NEG 9 127 <1 7	NEG NONE NONE NORML NORML NEG 0 78 <1
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 NONE NONE NORML NORML >0.2	NEG LIGHT NONE NORML NORML NEG 4 115 0 14 3 3 73	NEG NONE NONE NORML NORML NEG 9 127 <1 7 6 21	NEG NONE NONE NORML NORML NEG 0 78 <1 11 6
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Malybdenum Manganese Magnesium	scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>&gt;0.2</li> <li>150</li> <li>10</li> <li>70</li> </ul>	NEG LIGHT NONE NORML NORML NEG 4 115 0 14 3 73 182	NEG NONE NONE NORML NORML NEG 9 127 <1 7 6 21 80	NEG NONE NONE NORML NORML NEG 0 78 <1 11 6 25 86
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>&gt;0.2</li> <li>150</li> <li>10</li> </ul>	NEG LIGHT NONE NORML NORML NEG 4 115 0 14 3 73 182 4046	NEG NONE NONE NORML NORML NEG 9 127 <1 7 6 21	NEG           NONE           NONE           NORML           NORML           NEG           0           78           <1           11           6           25
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NORME</li> <li>NORML</li> <li>&gt;0.2</li> <li>150</li> <li>150</li> <li>10</li> <li>70</li> <li>2000</li> <li>50</li> </ul>	NEG LIGHT NONE NORML NORML NEG 4 115 0 14 3 73 182 4046 186	NEG NONE NONE NORML NORML NEG 9 127 <1 7 <6 21 80 4721	NEG NONE NONE NORML NEG 0 78 <1 11 6 25 86 2660
Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm	WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	<ul> <li>&gt;0.2</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>&gt;0.2</li> <li>150</li> <li>150</li> <li>150</li> <li>20.2</li> <li>2000</li> </ul>	NEG LIGHT NONE NORML NORML NEG 4 115 0 14 3 73 182 4046	NEG NONE NONE NORML NORML NEG 9 127 <1 7 <1 7 6 21 80 80 4721 46	NEG NONE NONE NORML NORML NEG 0 78 <1 11 6 25 86 2660 69

Contact/Location: CHRIS CALTON - MSCDURLH



SULLIVAN EASTERN INC-LIEBHERR 2860 C SLATER RD MORRISVILLE, NC US 27560 Contact: CHRIS CALTON

Test Package : CONST Certificate L2367 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.

T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (919)484-2136

Contact/Location: CHRIS CALTON - MSCDURLH Page 2 of 2