

WEAR SEVERE CONTAMINATION ABNORMAL FLUID CONDITION NORMAL

Machine Id LIEBHERR 31226 Component Swing Drive Fluid GEAR OIL SAE 80W90 (2 QTS)

RECOMMENDATION

We advise that you check for the source of water entry. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

WEAR

The iron level is severe. Gear wear is indicated.

CONTAMINATION

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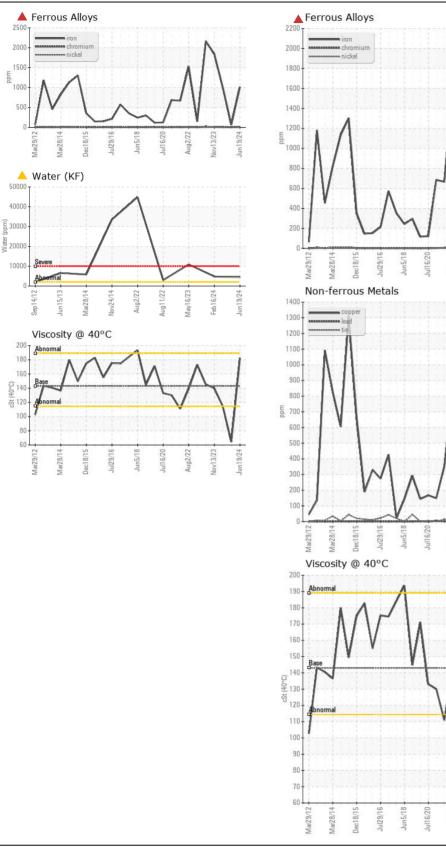
There is a moderate concentration of water present in the oil.

FLUID CONDITION

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

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Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0913602	WC0905131	WC0905362
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	100	500
Filter Age	hrs	Client Info		750	0	500
Oil Changed		Client Info		Changed	Not Changd	Changed
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				SEVERE	ATTENTION	SEVERE
Iron	ppm	ASTM D5185m	>400	1 014	66	9 93
Chromium	ppm	ASTM D5185m	>10	6	1	8
Nickel	ppm	ASTM D5185m	>10	<1	<1	1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	9	4	2
Lead	ppm	ASTM D5185m	>50	38	1	0
Copper	ppm	ASTM D5185m	>200	115	19	4 86
Tin	ppm	ASTM D5185m	>10	2	2	▲ 34
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>50	33	15	6
Potassium	ppm	ASTM D5185m	>20	4	3	2
Water						
	%	ASTM D6304	>0.2	A 0.447		🔺 0.477
ppm Water	% ppm	ASTM D6304 ASTM D6304	>0.2 >2000	0.4474470		▲ 0.477▲ 4770
ppm Water Silt						
••	ppm	ASTM D6304	>2000	4470		4 770
Silt	ppm scalar	ASTM D6304 *Visual	>2000 NONE	▲ 4470 NONE	 NONE	A 4770
Silt Debris	ppm scalar scalar	ASTM D6304 *Visual *Visual	>2000 NONE NONE	A 4470 NONE NONE	 NONE NONE	A770 LIGHT NONE NONE
Silt Debris Sand/Dirt	ppm scalar scalar scalar	ASTM D6304 *Visual *Visual *Visual	>2000 NONE NONE NONE	A4470 NONE NONE NONE	 NONE NONE	A770 LIGHT NONE NONE
Silt Debris Sand/Dirt Appearance	ppm scalar scalar scalar scalar	ASTM D6304 *Visual *Visual *Visual *Visual	>2000 NONE NONE NONE NORML	A 4470 NONE NONE NONE NORML	NONE NONE NONE NORML	4770LIGHTNONENONENORML
Silt Debris Sand/Dirt Appearance Odor	ppm scalar scalar scalar scalar scalar	ASTM D6304 *Visual *Visual *Visual *Visual *Visual	>2000 NONE NONE NORML NORML	A 4470 NONE NONE NONE NORML NORML	NONE NONE NONE NORML NORML	 4770 LIGHT NONE NORML NORML
Silt Debris Sand/Dirt Appearance Odor Emulsified Water	ppm scalar scalar scalar scalar scalar scalar	ASTM D6304 *Visual *Visual *Visual *Visual *Visual *Visual	>2000 NONE NONE NORML NORML >0.2	 4470 NONE NONE NORML NORML 0.2% 	NONE NONE NONE NORML NORML NEG	 4770 LIGHT NONE NORML 0.2%
Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium	ppm scalar scalar scalar scalar scalar scalar	ASTM D6304 *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m	>2000 NONE NONE NORML NORML >0.2	 4470 NONE NONE NORML NORML 0.2% 3 	 NONE NONE NORML NORML NEG	 ▲ 4770 LIGHT NONE NORML NORML ▲ 0.2%
Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron	ppm scalar scalar scalar scalar scalar scalar ppm	ASTM D6304 *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m	>2000 NONE NONE NORM NORM >0.2 >170 400	 4470 NONE NONE NORML NORML 0.2% 3 7 	 NONE NONE NORML NORML NEG <1 17	 4770 LIGHT NONE NORML NORML 0.2% 0 45
Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium	ppm scalar scalar scalar scalar scalar ppm ppm	ASTM D6304 *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m	>2000 NONE NONE NORML NORML >0.2 >170 400 200	 4470 NONE NONE NORML NORML 0.2% 3 7 24 	 NONE NONE NORML NORML NEG <1 17 <1	 4770 LIGHT NONE NORML 0.2% 0 45 0
Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum	ppm scalar scalar scalar scalar scalar scalar ppm ppm	ASTM D6304 *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m	>2000 NONE NONE NORML NORML >0.2 >170 400 200	 4470 NONE NONE NORML NORML 0.2% 3 7 24 1 	 NONE NONE NORML NORML NEG <1 17 <1 4	 4770 LIGHT NONE NORML NORML 0.2% 0 45 0 8
Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm	ASTM D6304 *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>2000 NONE NONE NORML NORML >0.2 >170 400 200 12	 4470 NONE NONE NORML NORML 0.2% 3 7 24 1 10 	 NONE NONE NORML NORML NEG <1 17 <1 4 1	 4770 LIGHT NONE NORML NORML 0.2% 0 45 0 8 12
Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm	ASTM D6304 *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>2000 NONE NONE NORML >0.2 >170 400 200 12	 4470 NONE NORML NORML 0.2% 3 7 24 1 10 5 	 NONE NONE NORML NORML NEG <1 17 <1 4 1 1 17	 4770 LIGHT NONE NORML NORML 0.2% 0 45 0 8 12 17
Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Malybdenum Manganese Magnesium Calcium	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm	ASTM D6304 *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	 >2000 NONE NONE NORML >0.2 >170 400 200 12 12 150 	 4470 NONE NONE NORML NORML 0.2% 3 7 24 1 10 5 9 	 NONE NONE NORML NORML NEG <1 17 <1 4 1 17 166	 4770 LIGHT NONE NORML NORML 0.2% 0 45 0 45 0 8 12 17 72
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 ppm	ASTM D6304 *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	 >2000 NONE NONE NORML >0.2 >170 400 200 12 12 150 1650 	 4470 NONE NONE NORML NORML 0.2% 3 7 24 1 10 5 9 2411 	 NONE NONE NORML NORML NEG <1 17 <1 4 1 17 166 772	 4770 LIGHT NONE NORML NORML 0.2% 0 45 0 45 12 17 72 2282

Contact/Location: CHRIS CALTON - MSCDURLH



SULLIVAN EASTERN INC-LIEBHERR Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : WC0913602 Received : 25 Jun 2024 2860 C SLATER RD Lab Number : 06220097 Tested : 26 Jun 2024 MORRISVILLE, NC Unique Number : 11098294 Diagnosed : 27 Jun 2024 - Sean Felton US 27560 Test Package : CONST (Additional Tests: KF) Contact: CHRIS CALTON 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

Aug2/22

Aug2/22 Vov13/23

Aug2/22 -Nov13/23 - Jun19/24

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