



OIL ANALYSIS REPORT

WEAR
CONTAMINATION
FLUID CONDITION

ATTENTION
NORMAL
NORMAL

Machine Id
LIEBHERR 31221
Component
Swing Drive
Fluid
GEAR OIL SAE 80W90 (--- QTS)

RECOMMENDATION

The oil change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

WEAR

An increase in the copper level is noted. All other component wear rates are normal.

CONTAMINATION

There is no indication of any contamination in the oil.

FLUID CONDITION

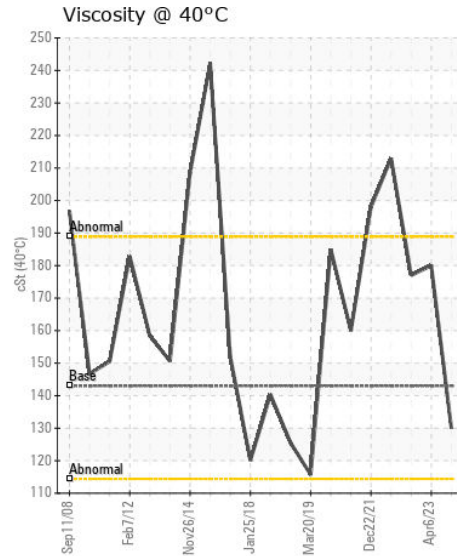
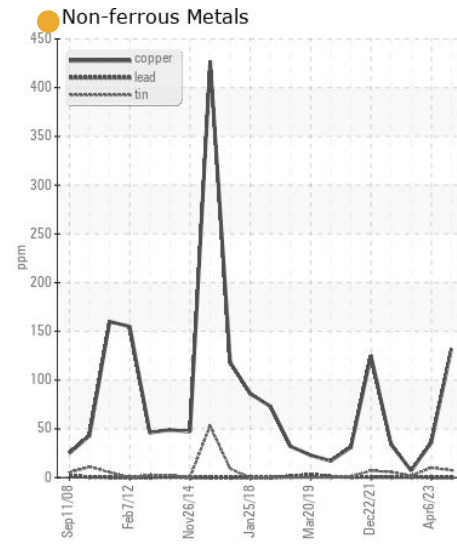
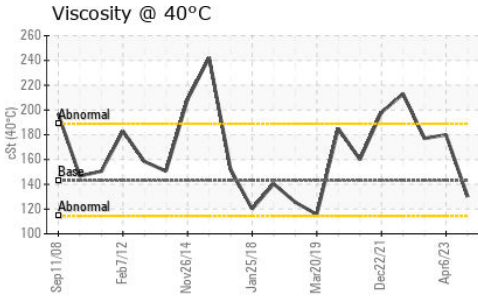
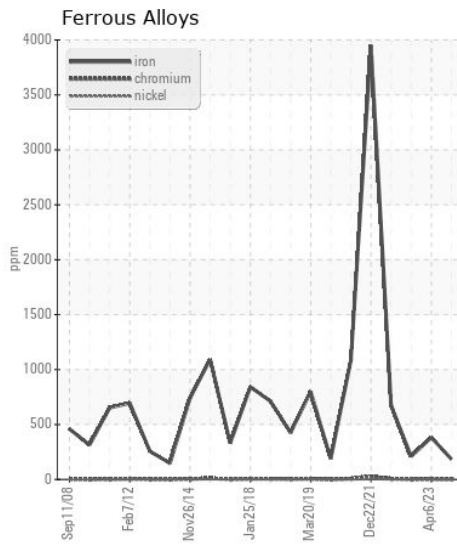
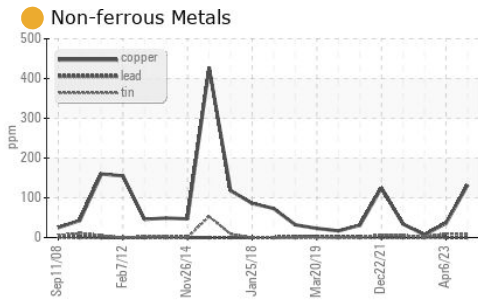
The condition of the oil is acceptable for the time in service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0950509	WC0786681	WC0689057
Sample Date		Client Info		08 Jul 2024	06 Apr 2023	14 Sep 2022
Machine Age	hrs	Client Info		11858	11778	11527
Oil Age	hrs	Client Info		1000	250	500
Filter Age	hrs	Client Info		1000	250	0
Oil Changed		Client Info		Changed	N/A	Changed
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				ATTENTION	ABNORMAL	NORMAL

Iron	ppm	ASTM D5185m	>400	185	● 382	210
Chromium	ppm	ASTM D5185m	>10	1	4	2
Nickel	ppm	ASTM D5185m	>10	0	<1	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	<1	<1	1
Lead	ppm	ASTM D5185m	>50	0	0	<1
Copper	ppm	ASTM D5185m	>200	● 132	36	7
Tin	ppm	ASTM D5185m	>10	8	▲ 10	2
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

Silicon	ppm	ASTM D5185m	>50	4	4	2
Potassium	ppm	ASTM D5185m	>20	0	<1	0
Water		WC Method	>0.2	NEG	NEG	NEG
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

Sodium	ppm	ASTM D5185m	>170	3	10	10
Boron	ppm	ASTM D5185m	400	90	10	6
Barium	ppm	ASTM D5185m	200	0	0	0
Molybdenum	ppm	ASTM D5185m	12	6	<1	<1
Manganese	ppm	ASTM D5185m		2	4	2
Magnesium	ppm	ASTM D5185m	12	20	2	0
Calcium	ppm	ASTM D5185m	150	269	13	13
Phosphorus	ppm	ASTM D5185m	1650	1375	2387	2119
Zinc	ppm	ASTM D5185m	125	108	13	6
Sulfur	ppm	ASTM D5185m	22500	20210	35659	25056
Visc @ 40°C	cSt	ASTM D445	143	130	180	177



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0950509
Lab Number : 06233621
Unique Number : 11117114
Test Package : CONST

Received : 11 Jul 2024
Tested : 12 Jul 2024
Diagnosed : 13 Jul 2024 - Don Baldrige

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

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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