



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ATTENTION

Machine Id
LIEBHERR 31255
 Component
Hydraulic System
 Fluid
LIEBHERR HYDRAULIC BASIC 68 (--- GAL)

RECOMMENDATION

The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0924660	WC0786397	WC0716023
Sample Date		Client Info		28 May 2024	25 Jul 2023	29 Jul 2022
Machine Age	hrs	Client Info		2206	1088	490
Oil Age	hrs	Client Info		2000	1000	490
Filter Age	hrs	Client Info		2000	1000	490
Oil Changed		Client Info		Not Changed	Changed	Not Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	ATTENTION	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	15	9	9
Chromium	ppm	ASTM D5185m	>10	2	<1	<1
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	<1	<1	<1
Lead	ppm	ASTM D5185m	>10	1	<1	1
Copper	ppm	ASTM D5185m	>75	12	9	7
Tin	ppm	ASTM D5185m	>10	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

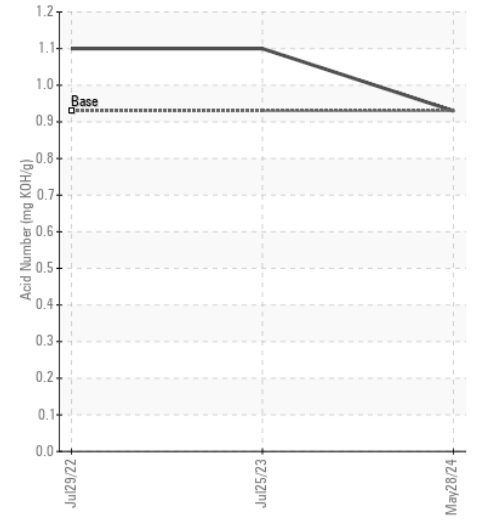
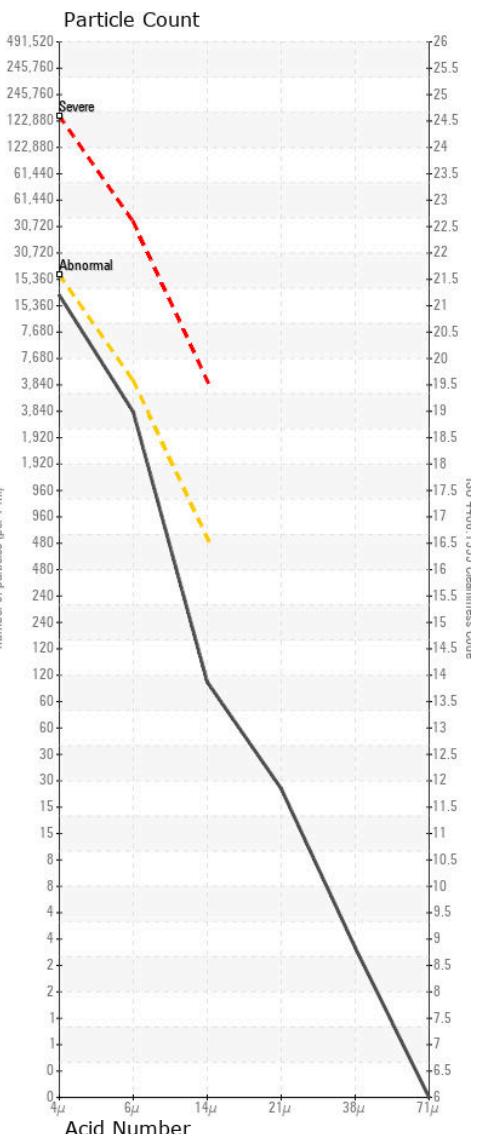
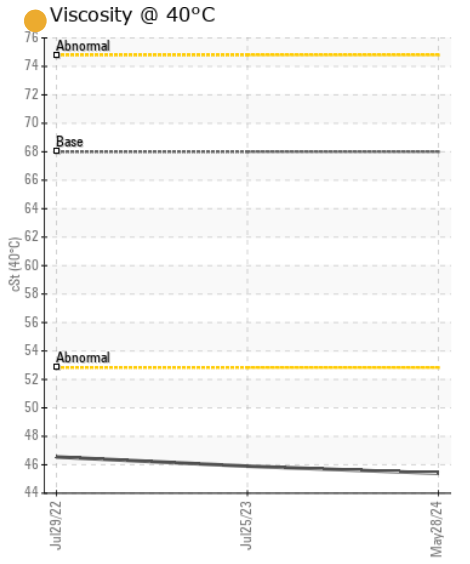
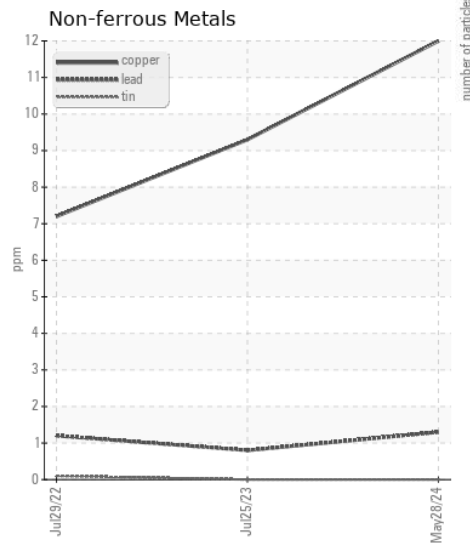
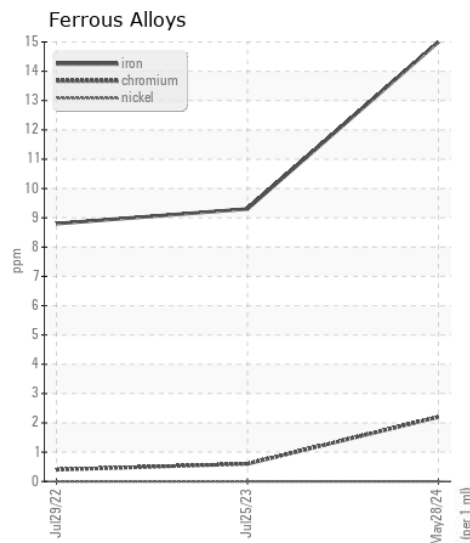
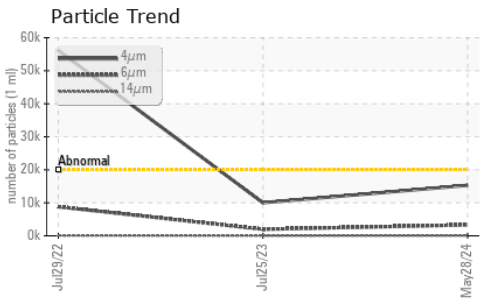
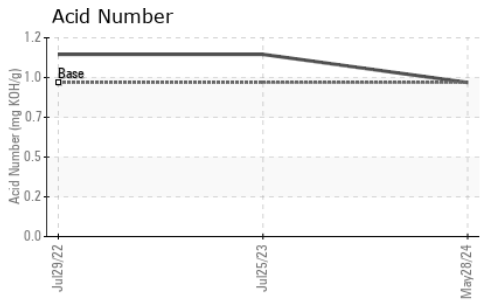
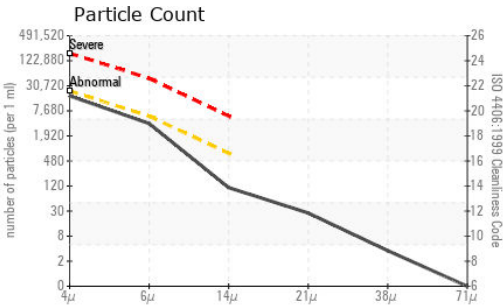
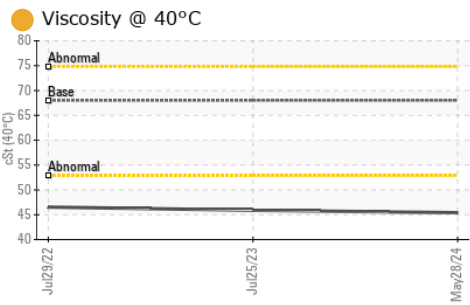
There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

Silicon	ppm	ASTM D5185m	>20	6	6	6
Potassium	ppm	ASTM D5185m	>20	<1	1	2
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>20000	15303	10016	▲ 56175
Particles >6µm		ASTM D7647	>5000	3324	1978	● 8808
Particles >14µm		ASTM D7647	>640	97	54	96
Particles >21µm		ASTM D7647	>160	24	11	10
Particles >38µm		ASTM D7647	>40	3	0	1
Particles >71µm		ASTM D7647	>10	0	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	21/19/14	21/18/13	▲ 23/20/14
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	VLITE
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

Viscosity of sample indicates oil is within ISO 46 range, advise investigate. Confirm oil type. The AN level is acceptable for this fluid.

Sodium	ppm	ASTM D5185m		4	4	0
Boron	ppm	ASTM D5185m	3	5	0	0
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	0	<1	<1	0
Manganese	ppm	ASTM D5185m	<1	<1	<1	<1
Magnesium	ppm	ASTM D5185m	8	6	8	6
Calcium	ppm	ASTM D5185m	1248	1195	1304	1247
Phosphorus	ppm	ASTM D5185m	385	539	565	550
Zinc	ppm	ASTM D5185m	429	606	683	688
Sulfur	ppm	ASTM D5185m	3431	4231	4313	3828
Acid Number (AN)	mg KOH/g	ASTM D8045	0.93	0.93	1.10	1.10
Visc @ 40°C	cSt	ASTM D445	68	45.4	● 45.9	● 46.55



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0924660
 Lab Number : 06195873
 Unique Number : 11057996
 Test Package : CONST

Received : 30 May 2024
 Tested : 02 Jun 2024
 Diagnosed : 02 Jun 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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