



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	ABNORMAL
FLUID CONDITION	ATTENTION

Machine Id
LIEBHERR LR 1600/2 CR6604 - 4.2 (S/N 074564)

Component
Winch

Fluid
GEAR OIL ISO 220 (--- GAL)

RECOMMENDATION

We advise that you check all areas where dirt can enter the system. We advise that you check for the source of water entry. We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

WEAR

Gear wear is indicated.

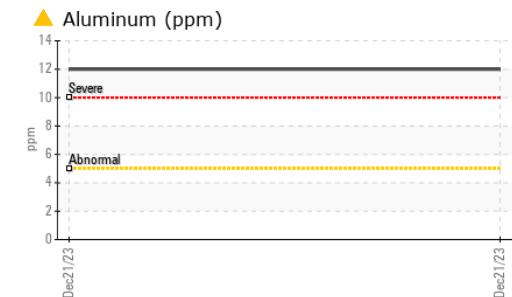
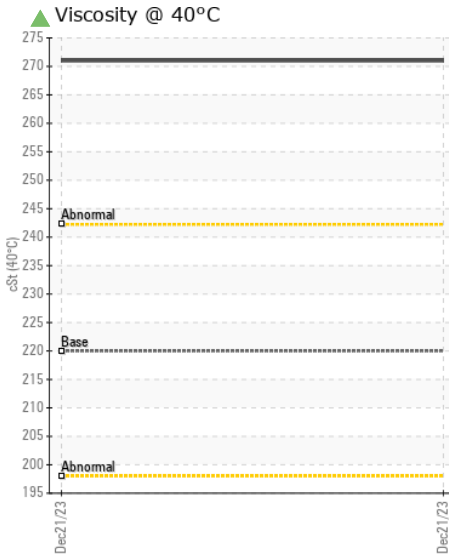
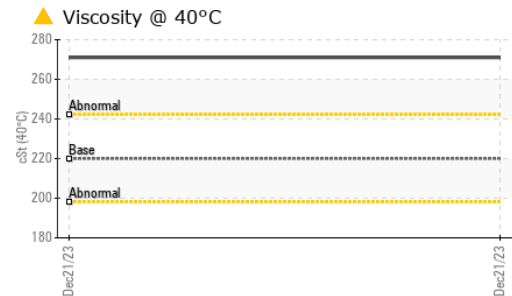
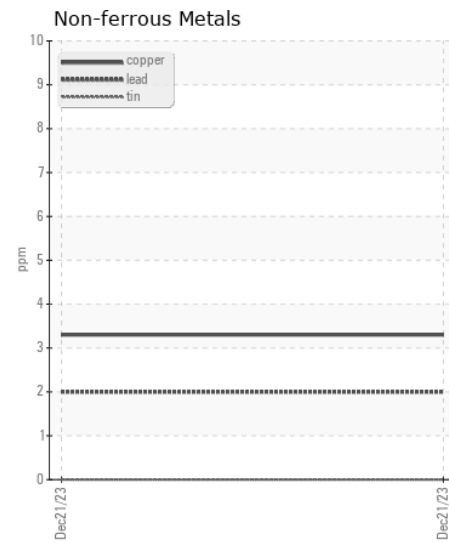
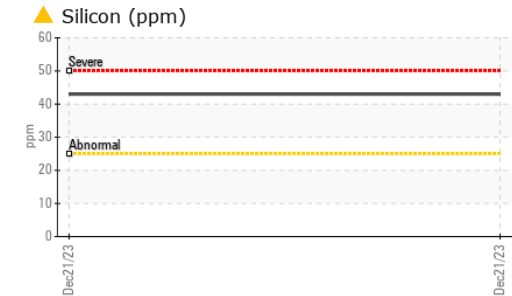
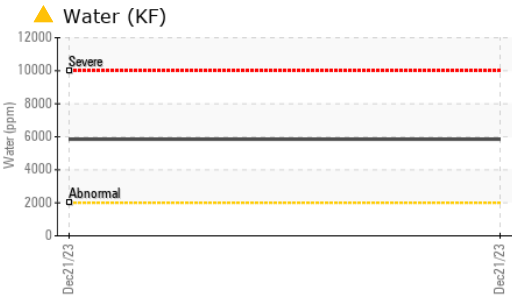
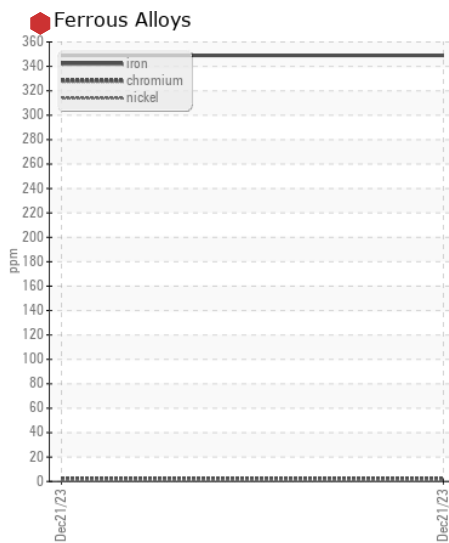
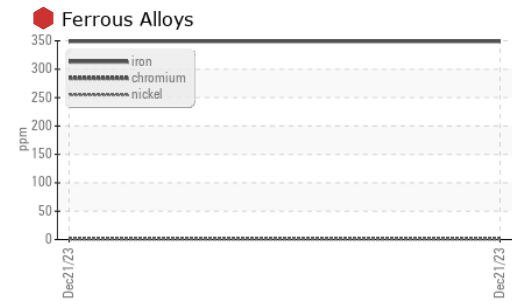
CONTAMINATION

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. There is a moderate concentration of water present in the oil.

FLUID CONDITION

The oil viscosity is higher than normal. 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		WC0867411	---	---
Sample Date		Client Info		21 Dec 2023	---	---
Machine Age	hrs	Client Info		14914	---	---
Oil Age	hrs	Client Info		0	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		N/A	---	---
Filter Changed		Client Info		N/A	---	---
Sample Status				SEVERE	---	---
Iron	ppm	ASTM D5185m	>150	349	---	---
Chromium	ppm	ASTM D5185m	>10	2	---	---
Nickel	ppm	ASTM D5185m	>10	<1	---	---
Titanium	ppm	ASTM D5185m		<1	---	---
Silver	ppm	ASTM D5185m		0	---	---
Aluminum	ppm	ASTM D5185m	>5	12	---	---
Lead	ppm	ASTM D5185m	>15	2	---	---
Copper	ppm	ASTM D5185m	>80	3	---	---
Tin	ppm	ASTM D5185m		0	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---
Silicon	ppm	ASTM D5185m	>25	43	---	---
Potassium	ppm	ASTM D5185m	>20	6	---	---
Water	%	ASTM D6304	>0.2	0.585	---	---
ppm Water	ppm	ASTM D6304	>2000	5850	---	---
Silt	scalar	*Visual	NONE	LIGHT	---	---
Debris	scalar	*Visual	NONE	LIGHT	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.2	0.2%	---	---
Sodium	ppm	ASTM D5185m		0	---	---
Boron	ppm	ASTM D5185m	50	35	---	---
Barium	ppm	ASTM D5185m	15	0	---	---
Molybdenum	ppm	ASTM D5185m	15	0	---	---
Manganese	ppm	ASTM D5185m		2	---	---
Magnesium	ppm	ASTM D5185m	50	6	---	---
Calcium	ppm	ASTM D5185m	50	19	---	---
Phosphorus	ppm	ASTM D5185m	350	642	---	---
Zinc	ppm	ASTM D5185m	100	129	---	---
Sulfur	ppm	ASTM D5185m	12500	14878	---	---
Visc @ 40°C	cSt	ASTM D445	220	271	---	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0867411 **Received** : 10 Jan 2024
Lab Number : 06057507 **Diagnosed** : 12 Jan 2024
Unique Number : 10823456 **Diagnostician** : Sean Felton
Test Package : CONST (Additional Tests: KF)

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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)