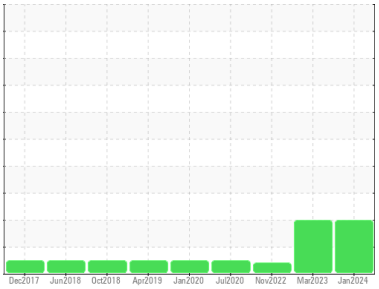
OIL ANALYSIS REPORT

Area
AMR-Cheyenne
Machine Id
24009 LIEBHERR A944CHD 041196
Component
Swing Drive
Fluid
LIEBHERR GEAR BASIC 90 LS (3 GAL)

Sample Rating Trend



WATER

DIAGNOSIS

Recommendation
We advise that you check for the source of water entry. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

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

Fluid Condition
The oil viscosity is higher than normal. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**DJJ0020043**	DJJ0013566	DJJ0003357
Sample Date		Client Info		**25 Jan 2024**	10 Mar 2023	17 Nov 2022
Machine Age	hrs	Client Info		**20966**	20390	19900
Oil Age	hrs	Client Info		**0**	1000	500
Oil Changed		Client Info		**Not Changd**	Changed	Not Changd
Sample Status				**ABNORMAL**	ATTENTION	ATTENTION

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>2150	**1300**	1716	1255
Chromium	ppm	ASTM D5185m	>20	**17**	20	17
Nickel	ppm	ASTM D5185m	>5	**6**	7	5
Titanium	ppm	ASTM D5185m		**<1**	0	<1
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>2	**2**	3	3
Lead	ppm	ASTM D5185m	>10	**0**	4	0
Copper	ppm	ASTM D5185m	>685	**669**	469	380
Tin	ppm	ASTM D5185m	>30	**17**	20	17
Antimony	ppm	ASTM D5185m	>5	**---**	---	---
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**<1**	<1	0
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	0	**2**	2	2
Manganese	ppm	ASTM D5185m	0	**8**	11	8
Magnesium	ppm	ASTM D5185m	<1	**1**	2	0
Calcium	ppm	ASTM D5185m	<1	**20**	12	9
Phosphorus	ppm	ASTM D5185m	2143	**2391**	2116	2192
Zinc	ppm	ASTM D5185m	<1	**27**	20	32
Sulfur	ppm	ASTM D5185m	23468	**31750**	25056	29835

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>15	**7**	6	6
Sodium	ppm	ASTM D5185m		**0**	1	2
Potassium	ppm	ASTM D5185m	>20	**2**	<1	0
Water	%	ASTM D6304	>0.2	▲ **0.394**	▲ 0.272	---
ppm Water	ppm	ASTM D6304	>2000	▲ **3940**	▲ 2720	---

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
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	▲ **0.2%**	0.2%	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

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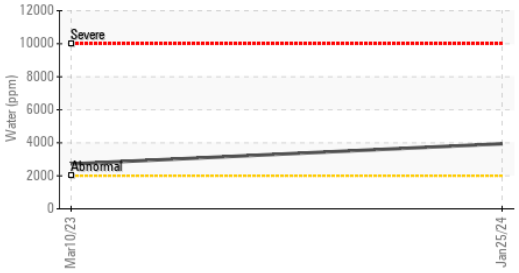
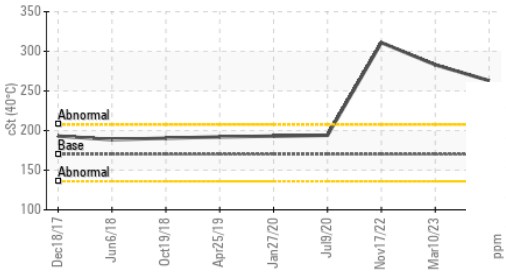
Water (KF)



Viscosity @ 40°C

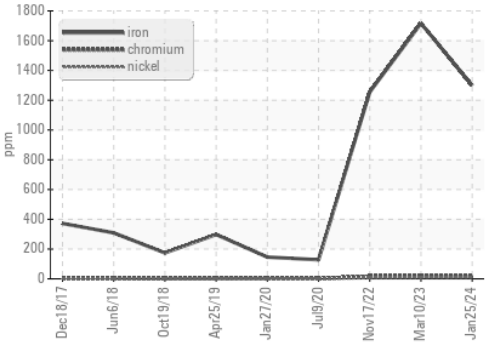


FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	170	▲ **263**	▲ 283	▲ 311

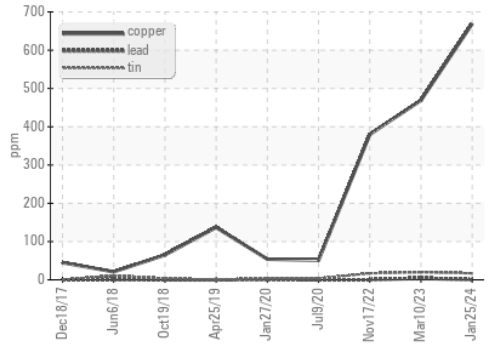
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color			*no image*	*no image*	*no image*
Bottom			*no image*	*no image*	*no image*

GRAPHS

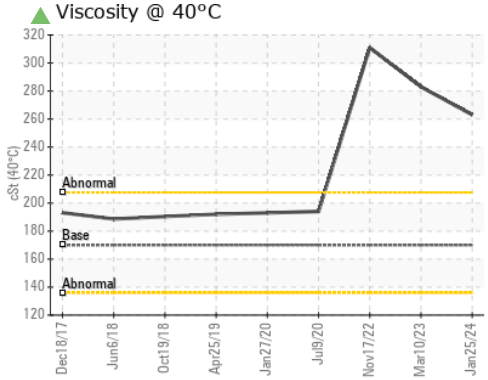
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 40°C



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : DJJ0020043 **Recieved** : 31 Jan 2024
Lab Number : 06076097 **Diagnosed** : 01 Feb 2024
Unique Number : 10858188 **Diagnostician** : Sean Felton
Test Package : CONST (Additional Tests: KF)

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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