



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL



Area
BDT EQUIPMENT
Machine Id
LIEBHERR R938 52175-1650
Component
Swing Drive
Fluid
LIEBHERR GEAR BASIC 90 LS (--- GAL)

RECOMMENDATION

We advise that you check for the source of water entry. The oil change at the time of sampling has been noted. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

WEAR

All component wear rates are normal.

CONTAMINATION

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

FLUID CONDITION

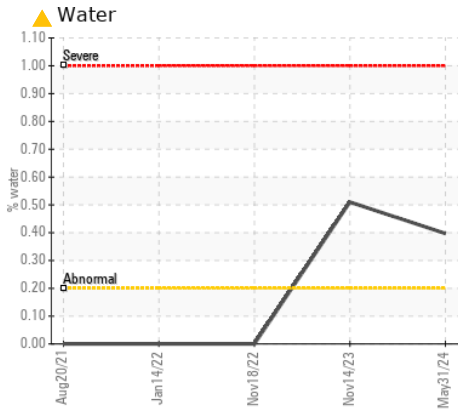
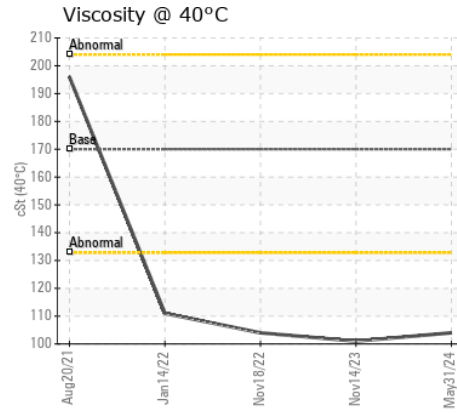
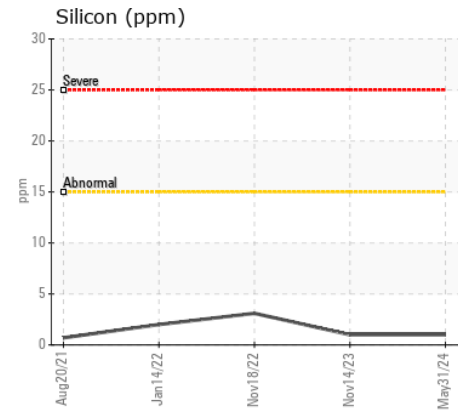
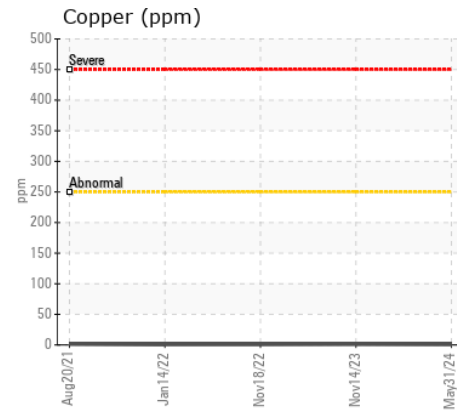
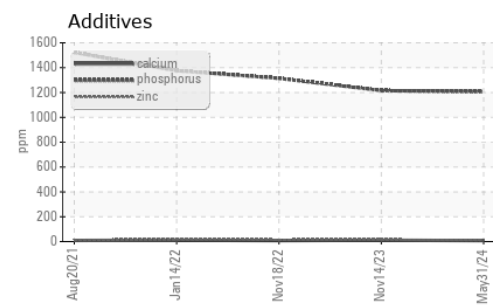
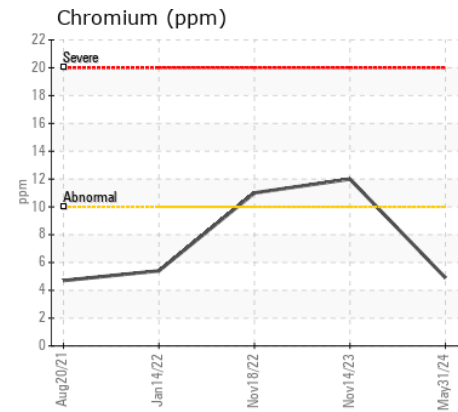
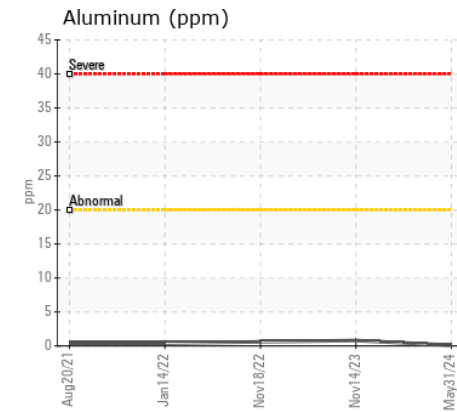
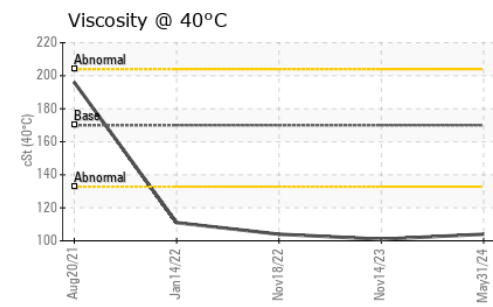
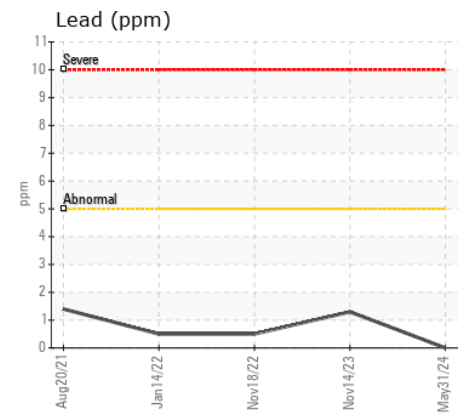
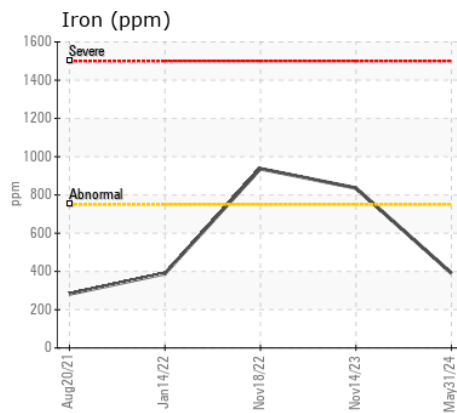
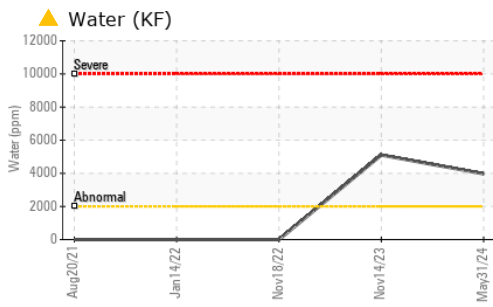
Additive levels indicate the addition of a different brand, or type of oil. The white residue present in the sample is oil additive precipitate. Viscosity of sample indicates oil is within SAE 75W90 range, advise investigate. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0290974	LH0278987	LH0247207
Sample Date		Client Info		31 May 2024	14 Nov 2023	18 Nov 2022
Machine Age	hrs	Client Info		3501	2870	1930
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

Iron	ppm	ASTM D5185(m)	>750	391	836	▲ 937
Chromium	ppm	ASTM D5185(m)	>10	5	12	▲ 11
Nickel	ppm	ASTM D5185(m)	>5	0	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	<1
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>20	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>5	0	1	<1
Copper	ppm	ASTM D5185(m)	>250	<1	1	<1
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE

Silicon	ppm	ASTM D5185(m)	>15	1	1	3
Potassium	ppm	ASTM D5185(m)	>20	<1	0	1
Water	%	ASTM D6304*	>0.2	▲ 0.397	▲ 0.510	---
ppm Water	ppm	ASTM D6304*	>2000	▲ 3973	▲ 5106.5	---
Silt	scalar	Visual*	NONE	NONE	VLITE	VLITE
Debris	scalar	Visual*	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	▲ WGOIL	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	▲ .2%	▲ .5%	NEG

Sodium	ppm	ASTM D5185(m)		<1	0	1
Boron	ppm	ASTM D5185(m)	0	136	176	154
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0	<1
Manganese	ppm	ASTM D5185(m)	0	3	7	8
Magnesium	ppm	ASTM D5185(m)	<1	2	2	<1
Calcium	ppm	ASTM D5185(m)	<1	8	11	8
Phosphorus	ppm	ASTM D5185(m)	2143	1207	1215	1314
Zinc	ppm	ASTM D5185(m)	<1	11	15	14
Sulfur	ppm	ASTM D5185(m)	23468	20432	20900	22500
Visc @ 40°C	cSt	ASTM D7279(m)	170	104	101	104



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0290974 **Received** : 04 Jun 2024
Lab Number : 02639679 **Tested** : 06 Jun 2024
Unique Number : 5788841 **Diagnosed** : 06 Jun 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: Bottom, KF)

BDT EQUIPMENT CORPORATION
 835 SAWMILL RD
 BLOOMINGDALE, ON
 CA N0B 1K0
 Contact: Service Manager

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

T:
F: