



# LIEBHERR

## OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	MARGINAL
FLUID CONDITION	NORMAL

Machine Id  
**LIEBHERR HSE55 184606 (S/N 124606)**

Component  
**Diesel Engine**

Fluid  
**PETRO CANADA 10W40 (46 LTR)**

### RECOMMENDATION

We advise that you check for the source of the coolant leak. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LH0265988</b>	LH0270246	LH0234990
Sample Date		Client Info		<b>16 Jan 2024</b>	15 Sep 2023	21 Jul 2022
Machine Age	hrs	Client Info		<b>35913</b>	35581	33904
Oil Age	hrs	Client Info		<b>0</b>	0	0
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Not Chngd</b>	Changed	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>MARGINAL</b>	ABNORMAL	SEVERE

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>100	<b>5</b>	26	5
Chromium	ppm	ASTM D5185(m)	>5	<b>0</b>	<1	0
Nickel	ppm	ASTM D5185(m)	>5	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185(m)		<b>0</b>	<1	0
Silver	ppm	ASTM D5185(m)	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185(m)	>15	<b>1</b>	1	<1
Lead	ppm	ASTM D5185(m)	>30	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185(m)	>125	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185(m)	>5	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0

### CONTAMINATION

Test for glycol is positive. There is a light concentration of glycol present in the oil.

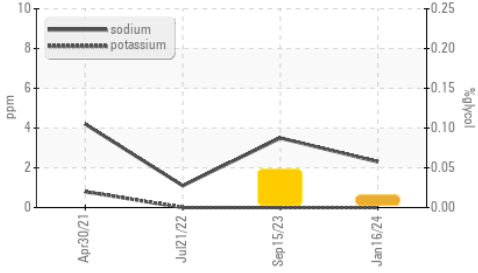
Silicon	ppm	ASTM D5185(m)	>60	<b>5</b>	4	4
Potassium	ppm	ASTM D5185(m)	>20	<b>0</b>	0	0
Fuel		WC Method	>5	<b>&lt;1.0</b>	▲ 2.4	● 20
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	%	ASTM D7922*		▲ <b>0.016</b>	▲ 0.048	NEG
Soot %	%	ASTM D7844*	>3	<b>0</b>	0.4	0
Nitration	Abs/cm	ASTM D7624*	>20	<b>4.9</b>	7.9	6.1
Sulfation	Abs/.1mm	ASTM D7415*	>30	<b>18.2</b>	20.7	17.7
Emulsified Water	scalar	Visual*	>0.2	<b>NEG</b>	▲ .5%	NEG

### FLUID CONDITION

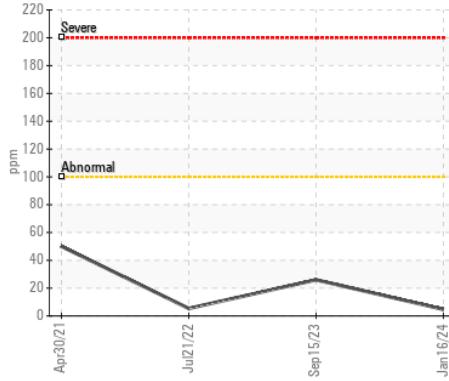
The condition of the oil is acceptable for the time in service. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185(m)	>20	<b>2</b>	4	1
Boron	ppm	ASTM D5185(m)		<b>1</b>	7	6
Barium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185(m)		<b>55</b>	65	45
Manganese	ppm	ASTM D5185(m)		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185(m)		<b>933</b>	1076	741
Calcium	ppm	ASTM D5185(m)		<b>1083</b>	1186	820
Phosphorus	ppm	ASTM D5185(m)		<b>1011</b>	1107	746
Zinc	ppm	ASTM D5185(m)		<b>1147</b>	1272	887
Sulfur	ppm	ASTM D5185(m)		<b>2761</b>	2545	2168
Oxidation	Abs/.1mm	ASTM D7414*	>25	<b>13.4</b>	16.5	12.2
Visc @ 100°C	cSt	ASTM D7279(m)		<b>14.6</b>	14.8	● 8.4

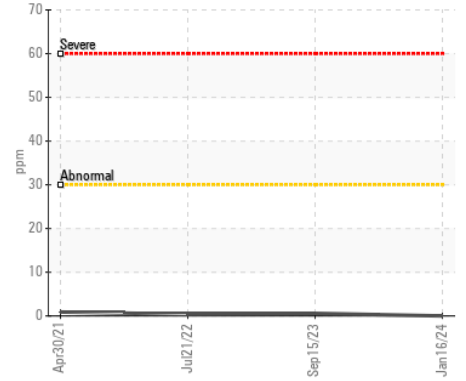
▲ Glycol Contamination



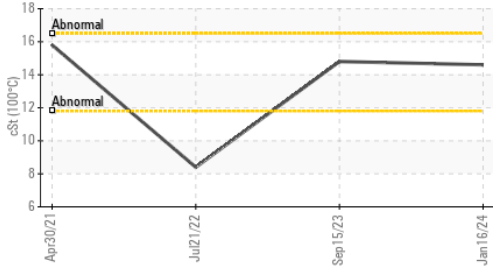
Iron (ppm)



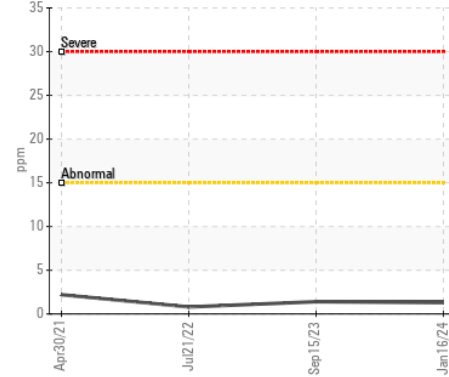
Lead (ppm)



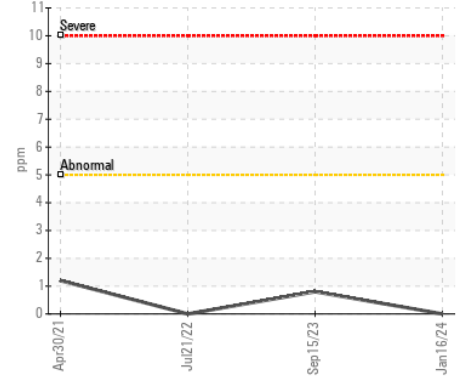
Viscosity @ 100°C



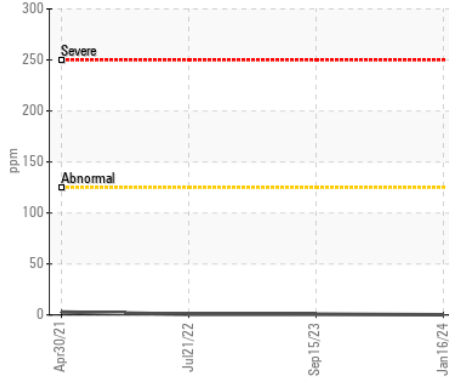
Aluminum (ppm)



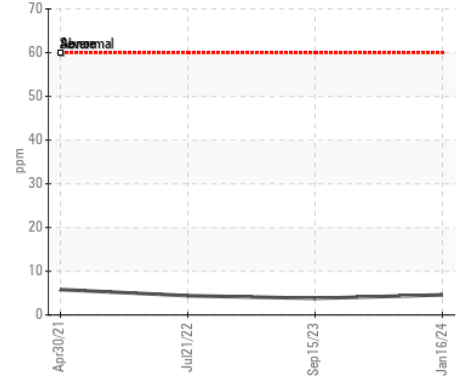
Chromium (ppm)



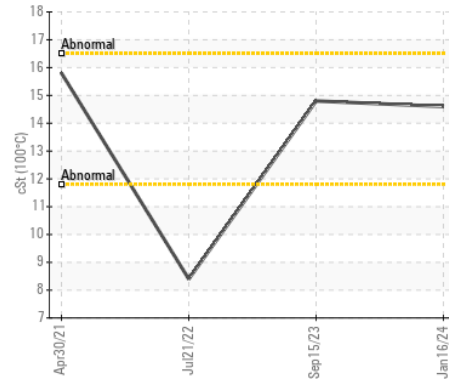
Copper (ppm)



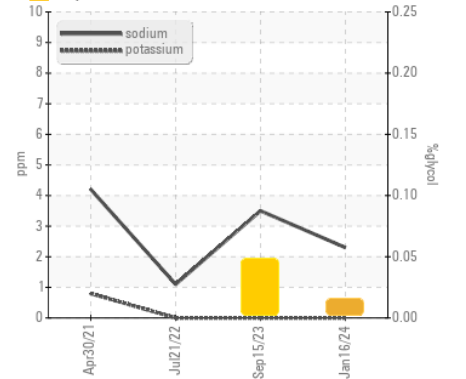
Silicon (ppm)



Viscosity @ 100°C



▲ Glycol Contamination



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : LH0265988 **Received** : 17 Jan 2024  
**Lab Number** : 02609197 **Diagnosed** : 18 Jan 2024  
**Unique Number** : 5710283 **Diagnostician** : Kevin Marson  
**Test Package** : MOB 1

**HIGGS & HIGGS**  
 RR # 4  
 ST THOMAS, ON  
 CA N5P 3S8  
 Contact: Bernie Higgs

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.

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