



# LIEBHERR

## OIL ANALYSIS REPORT

WEAR	<b>ABNORMAL</b>
CONTAMINATION	<b>ABNORMAL</b>
FLUID CONDITION	<b>NORMAL</b>



Machine Id  
**LIEBHERR R922 56035**

Component  
**Hydraulic System**

Fluid  
**PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (180 LTR)**

### RECOMMENDATION

We advise that you check for visible metal particles in the oil. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LH0242008</b>	LH0250610	LH0260497
Sample Date		Client Info		<b>21 Dec 2023</b>	25 Sep 2023	31 Aug 2023
Machine Age	hrs	Client Info		<b>1506</b>	959	814
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 Changd</b>	Not Changd	Not Changd
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>ABNORMAL</b>	SEVERE	SEVERE

### WEAR

Copper and lead ppm levels are abnormal. Moderate concentration of visible metal present. Cylinder wear is indicated. Bearing and/or bushing wear is indicated.

Iron	ppm	ASTM D5185(m)	>50	<b>8</b>	7	9
Chromium	ppm	ASTM D5185(m)	>15	<b>7</b>	▲ 12	▲ 14
Nickel	ppm	ASTM D5185(m)	>5	<b>&lt;1</b>	<1	0
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)		<b>&lt;1</b>	<1	0
Aluminum	ppm	ASTM D5185(m)	>8	<b>2</b>	<1	1
Lead	ppm	ASTM D5185(m)	>5	▲ <b>7</b>	5	5
Copper	ppm	ASTM D5185(m)	>15	▲ <b>55</b>	38	35
Tin	ppm	ASTM D5185(m)	>5	<b>2</b>	2	2
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0
White Metal	scalar	Visual*	NONE	▲ <b>VLITE</b>	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE

### CONTAMINATION

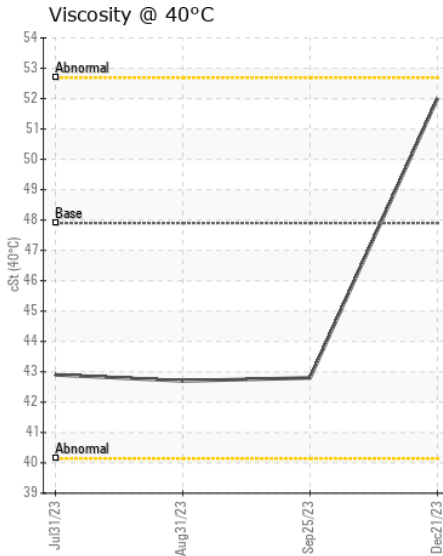
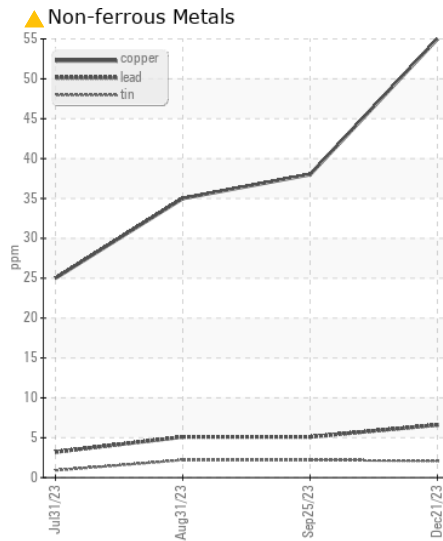
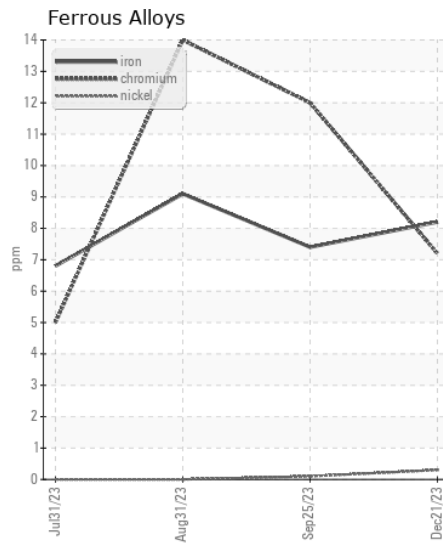
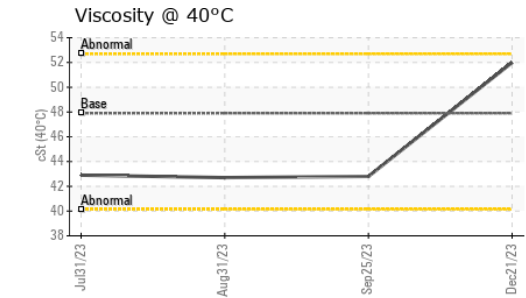
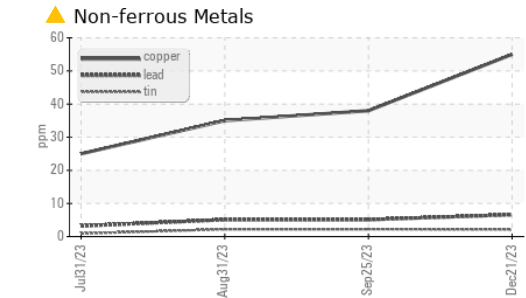
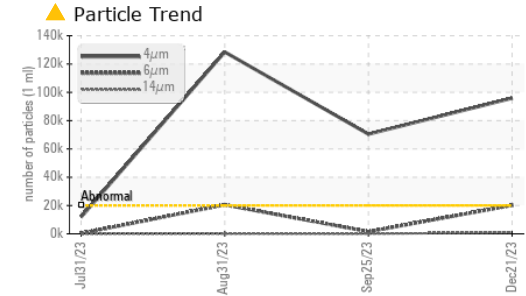
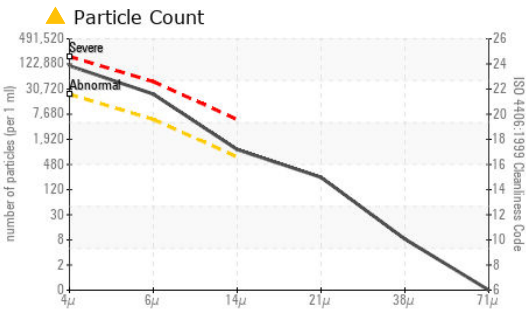
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

Silicon	ppm	ASTM D5185(m)	>25	<b>8</b>	7	7
Potassium	ppm	ASTM D5185(m)	>20	<b>2</b>	<1	2
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Particles >4µm		ASTM D7647	>20000	▲ <b>95889</b>	● 70433	● 128504
Particles >6µm		ASTM D7647	>5000	▲ <b>20169</b>	▲ 1510	● 20508
Particles >14µm		ASTM D7647	>640	▲ <b>959</b>	16	94
Particles >21µm		ASTM D7647	>160	<b>208</b>	4	13
Particles >38µm		ASTM D7647	>40	<b>7</b>	1	1
Particles >71µm		ASTM D7647	>10	<b>0</b>	1	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ <b>24/22/17</b>	● 23/18/11	● 24/22/14
Silt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	<b>NEG</b>	NEG	NEG

### FLUID CONDITION

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185(m)		<b>3</b>	3	2
Boron	ppm	ASTM D5185(m)	0	<b>&lt;1</b>	<1	<1
Barium	ppm	ASTM D5185(m)	0	<b>0</b>	<1	0
Molybdenum	ppm	ASTM D5185(m)	0	<b>0</b>	0	0
Manganese	ppm	ASTM D5185(m)	1	<b>0</b>	0	<1
Magnesium	ppm	ASTM D5185(m)	0	<b>3</b>	4	4
Calcium	ppm	ASTM D5185(m)	100	<b>1201</b>	1222	1325
Phosphorus	ppm	ASTM D5185(m)	670	<b>589</b>	600	646
Zinc	ppm	ASTM D5185(m)	850	<b>682</b>	692	683
Sulfur	ppm	ASTM D5185(m)	1600	<b>2610</b>	2486	2642
Visc @ 40°C	cSt	ASTM D7279(m)	47.9	<b>52.0</b>	42.8	42.7



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : LH0242008  
**Lab Number** : 02607159  
**Unique Number** : 5708245  
**Test Package** : MOB 1 ( Additional Tests: Bottom, BottomAnalysis, FilterPatch, PrtCount, PrtFilter )

**MITCHELL METAL RECYCLING**  
 12100 MITCHELL RD  
 RICHMOND, BC  
 CA V6V 1MB

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.

Contact: Service Manager

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