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LIEBHERR

OIL ANALYSIS REPORT

WEAR	MARGINAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
LIEBHERR LH50 083207-1203
Component
Diesel Engine
Fluid
KLONDIKE HEAVY DUTY 15W40 (--- GAL)

RECOMMENDATION

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

WEAR

Tin ppm levels are marginal. All other component wear rates are normal.

CONTAMINATION

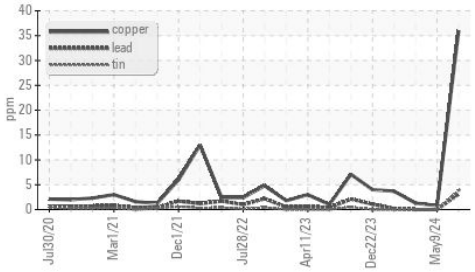
There is no indication of any contamination in the oil.

FLUID CONDITION

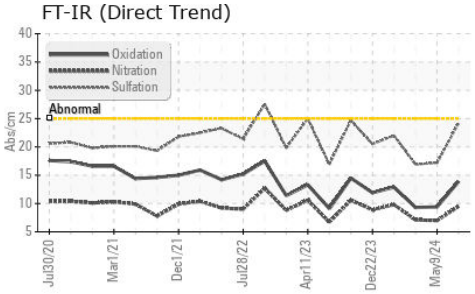
The condition of the oil is acceptable for the time in service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		**LH0270336**	LH0270335	LH0276189
Sample Date		Client Info		**03 Jul 2024**	09 May 2024	17 Apr 2024
Machine Age	hrs	Client Info		**20795**	20200	20101
Oil Age	hrs	Client Info		**0**	0	0
Filter Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Changed**	Not Changd	Not Changd
Filter Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**MARGINAL**	NORMAL	NORMAL
Iron	ppm	ASTM D5185(m)	>66	**18**	7	6
Chromium	ppm	ASTM D5185(m)	>4	**<1**	0	0
Nickel	ppm	ASTM D5185(m)	>4	**<1**	0	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)	>3	**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>8	**6**	4	5
Lead	ppm	ASTM D5185(m)	>10	**3**	0	0
Copper	ppm	ASTM D5185(m)	>74	**36**	<1	1
Tin	ppm	ASTM D5185(m)	>4	▲ **4**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Silicon	ppm	ASTM D5185(m)	>15	**4**	3	4
Potassium	ppm	ASTM D5185(m)	>20	**<1**	1	1
Fuel		WC Method	>5	**<1.0**	<1.0	<1.0
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG
Soot %	%	ASTM D7844*	>3	**1.3**	0.4	0.4
Nitration	Abs/cm	ASTM D7624*	>20	**9.5**	7.0	7.1
Sulfation	Abs/.1mm	ASTM D7415*	>30	**24.2**	17.2	16.9
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Sodium	ppm	ASTM D5185(m)		**2**	1	2
Boron	ppm	ASTM D5185(m)	70	**2**	5	5
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**3**	2	2
Manganese	ppm	ASTM D5185(m)		**<1**	0	0
Magnesium	ppm	ASTM D5185(m)	50	**32**	35	36
Calcium	ppm	ASTM D5185(m)	2000	**2015**	2187	2157
Phosphorus	ppm	ASTM D5185(m)	1000	**771**	796	829
Zinc	ppm	ASTM D5185(m)	1100	**894**	954	965
Sulfur	ppm	ASTM D5185(m)	3400	**2719**	2787	2824
Oxidation	Abs/.1mm	ASTM D7414*	>25	**13.9**	9.4	9.3
Visc @ 100°C	cSt	ASTM D7279(m)	14.8	**13.7**	13.2	13.3

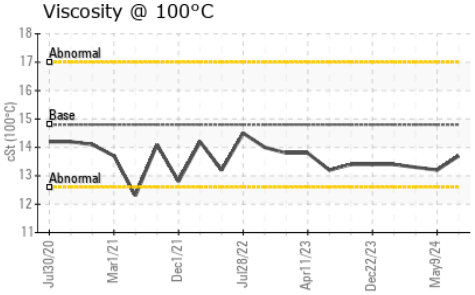
Non-ferrous Metals



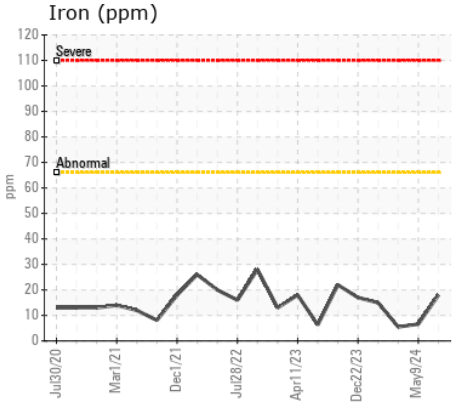
FT-IR (Direct Trend)



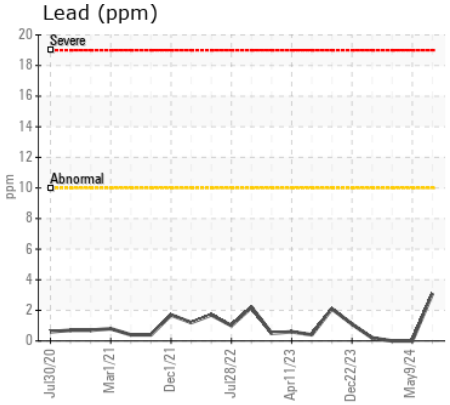
Viscosity @ 100°C



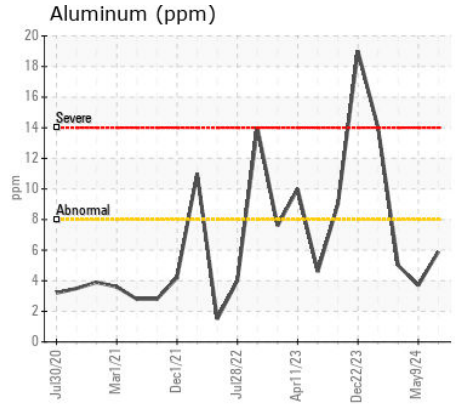
Iron (ppm)



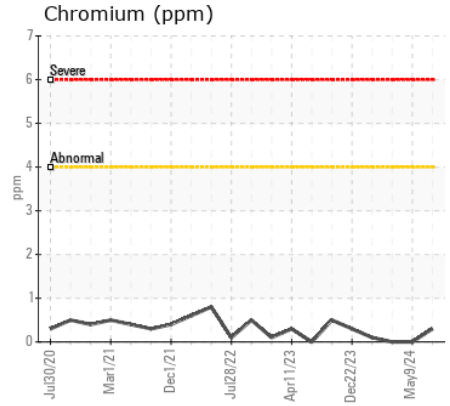
Lead (ppm)



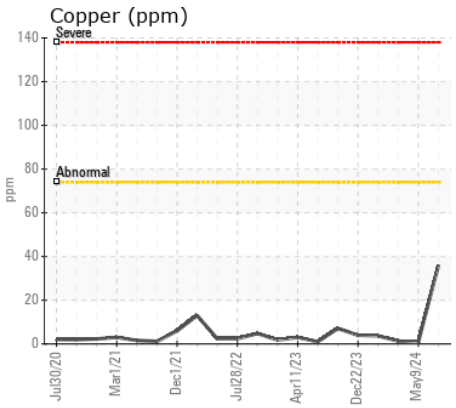
Aluminum (ppm)



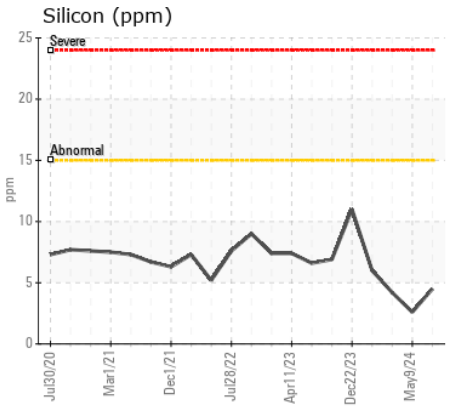
Chromium (ppm)



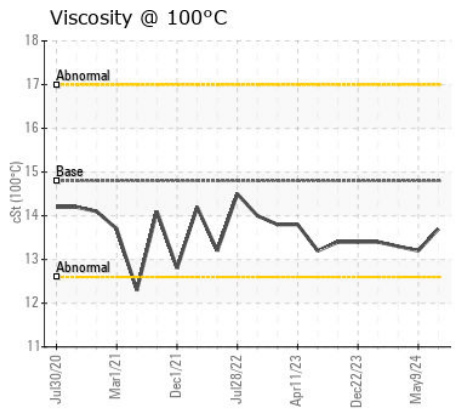
Copper (ppm)



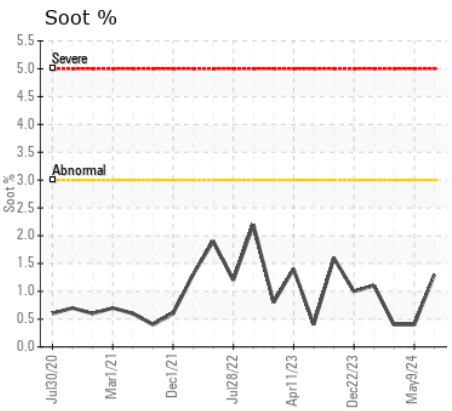
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0270336
Lab Number : 02645831
Unique Number : 5803370
Test Package : MOB 1

Received : 05 Jul 2024
Tested : 05 Jul 2024
Diagnosed : 05 Jul 2024 - Kevin Marson

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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