LIEBHERR
CONSTRUCTION EQUIPMENT

LIEBHERR L538 036624-1268 - Diesel Engine

Sample No: LH0261114

Oil Type: PETRO CANADA SUPREME 5W30

JON M HALL COMPANY
1920 BOOTHE CIRCLE
LONGWOOD, FL
US 32750
Contact: SERVICE MANAGER

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F:

SAMPLE INFORMATION

Sample Number		**LH0261114**	LHMC125263	LHMC101614	---
Sample Date		**06 Sep 2023**	17 Apr 2018	30 Mar 2016	---
Machine Hours		**2104**	4025	0	---
Oil Hours		**0**	0	0	---
Oil Changed		**Not Changd**	N/A	N/A	---
Sample Status		**SEVERE**	NORMAL	ABNORMAL	---

OIL CONDITION

Visc @ 100°C	cSt	**6.9**	12.72	12.1	---
Oxidation (PA)	%	**46**	52	68	---

CONTAMINATION

Soot %	%	**0**	0.3	0.3	---
Nitration (PA)	%	**67**	58	75	---
Sulfation (PA)	%	**51**	50	58	---
Glycol	%	**NEG**	NEG	0.0	---
Fuel	%	**20.9**	<1.0	<1.0	---
Silicon	ppm	**6**	5	12	---
Sodium	ppm	**9**	4	7	---
Potassium	ppm	**11**	5	31	---

WEAR METALS

Iron	ppm	**51**	17	57	---
Copper	ppm	**3**	2	263	---
Lead	ppm	**1**	7	7	---
Tin	ppm	**0**	0	0	---
Aluminum	ppm	**8**	4	17	---
Chromium	ppm	**2**	<1	1	---
Molybdenum	ppm	**8**	115	174	---
Nickel	ppm	**<1**	<1	1	---
Titanium	ppm	**<1**	<1	<1	---
Silver	ppm	**0**	0	0	---
Manganese	ppm	**<1**	<1	3	---
Vanadium	ppm	**0**	0	0	---

ADDITIVES

Calcium	ppm	**1080**	1386	1432	---
Magnesium	ppm	**506**	498	636	---
Zinc	ppm	**625**	826	981	---
Phosphorus	ppm	**586**	718	845	---
Barium	ppm	**0**	0	<1	---
Boron	ppm	**71**	164	117	---

Diagnosis

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.All component wear rates are normal. Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Depot: JONLONLH
Unique No: 5641982
Signed: Kevin Marson
Report Date: 08 Sep 2023

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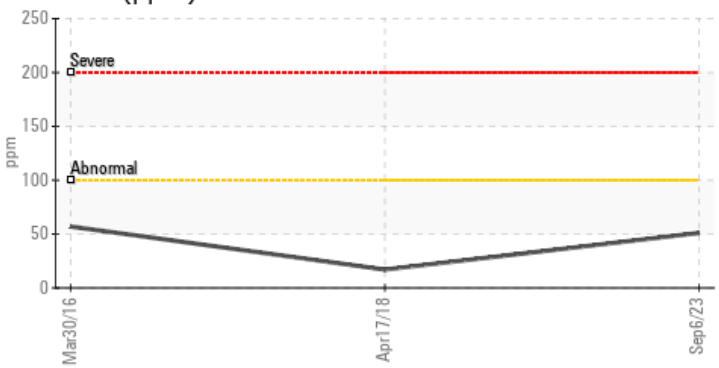
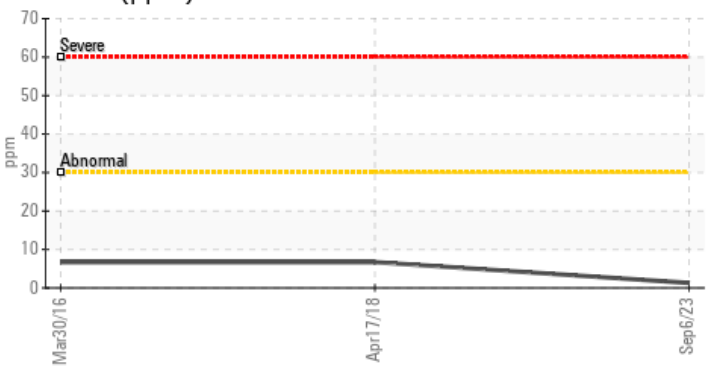
GRAPHS

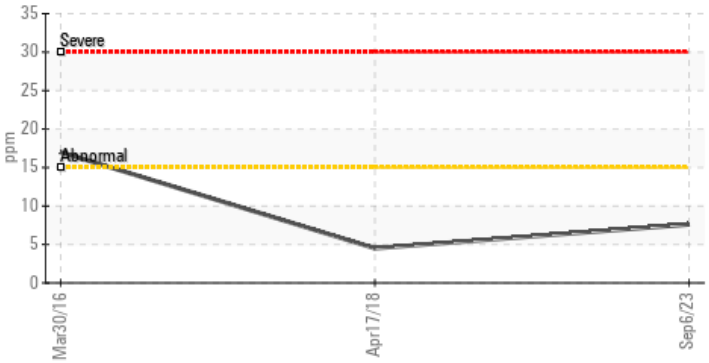
Iron (ppm)



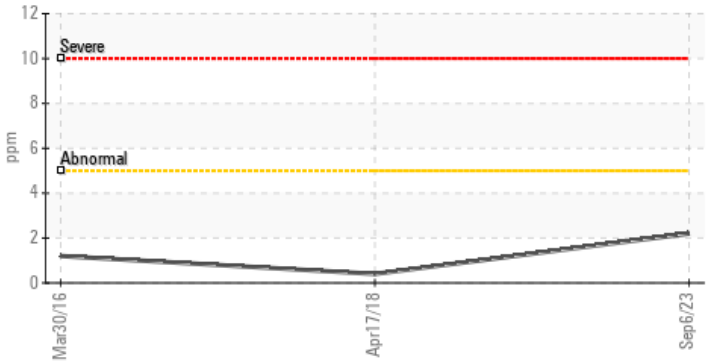
Lead (ppm)



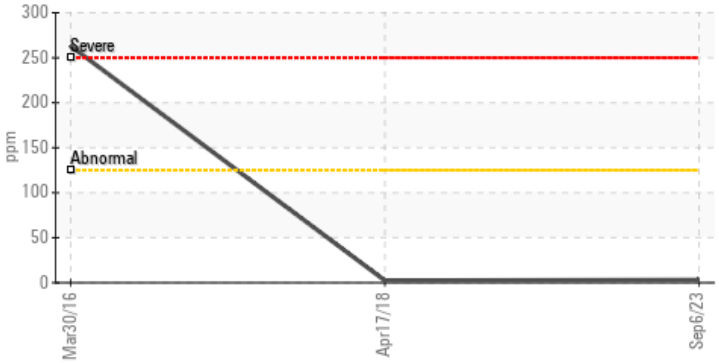
Aluminum (ppm)



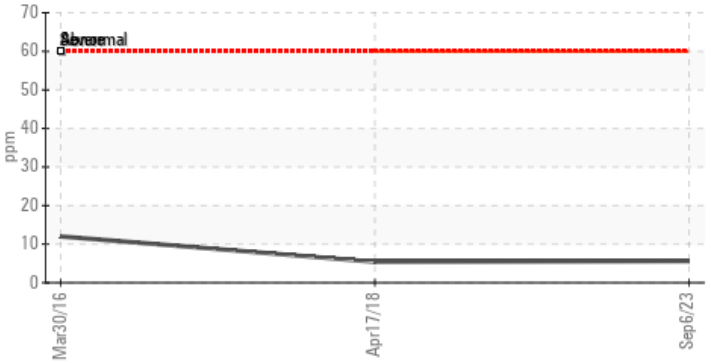
Chromium (ppm)



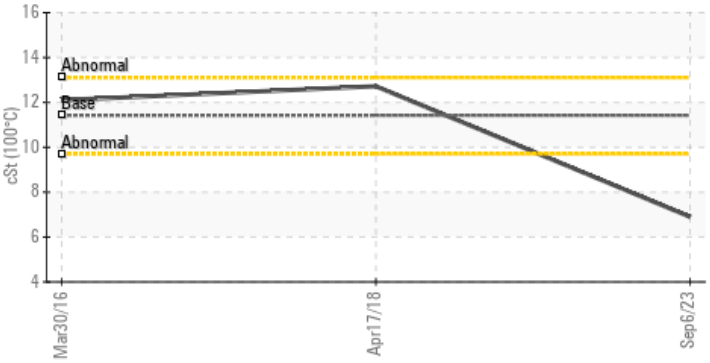
Copper (ppm)



Silicon (ppm)



Viscosity @ 100°C



Fuel Dilution