



LIEBHERR

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR LH50M 1203-88008
Component
Diesel Engine
Fluid
LIEBHERR 10W40 (32 LTR)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LHMC125434	---	---
Sample Date		Client Info		08 Feb 2018	---	---
Machine Age	hrs	Client Info		536	---	---
Oil Age	hrs	Client Info		536	---	---
Filter Age	hrs	Client Info		536	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				ABNORMAL	---	---

WEAR

The aluminum level is abnormal. The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other metal levels are typical for a new component breaking in.

Iron	ppm	ASTM D5185m	>100	148	---	---
Chromium	ppm	ASTM D5185m	>5	9	---	---
Nickel	ppm	ASTM D5185m	>5	1	---	---
Titanium	ppm	ASTM D5185m		1	---	---
Silver	ppm	ASTM D5185m		<1	---	---
Aluminum	ppm	ASTM D5185m	>15	▲ 131	---	---
Lead	ppm	ASTM D5185m	>30	3	---	---
Copper	ppm	ASTM D5185m	>125	▲ 400	---	---
Tin	ppm	ASTM D5185m	>5	3	---	---
Vanadium	ppm	ASTM D5185m		<1	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

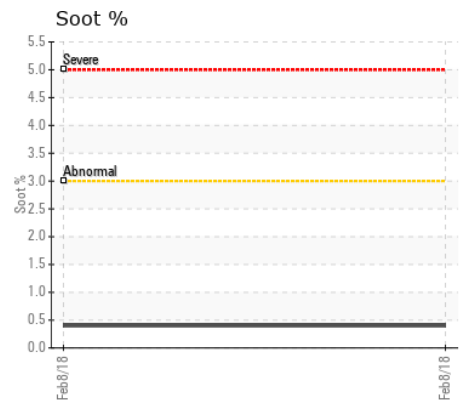
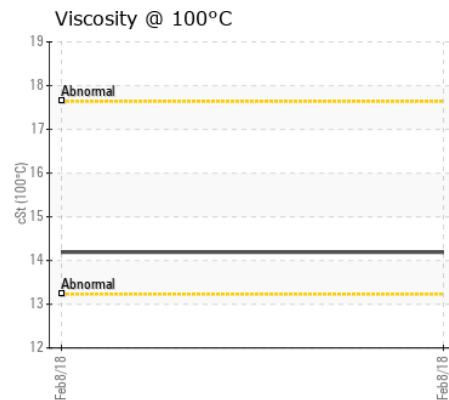
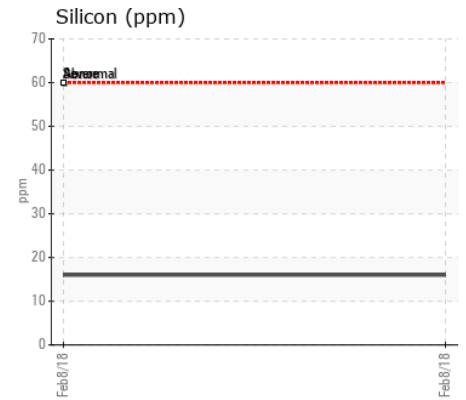
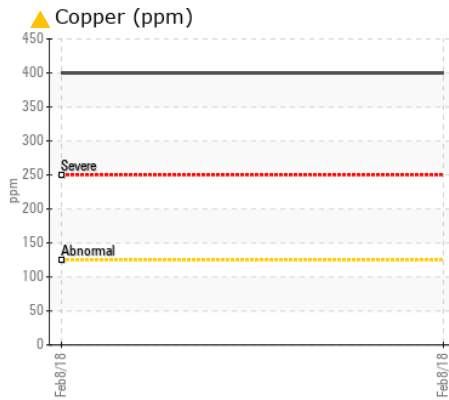
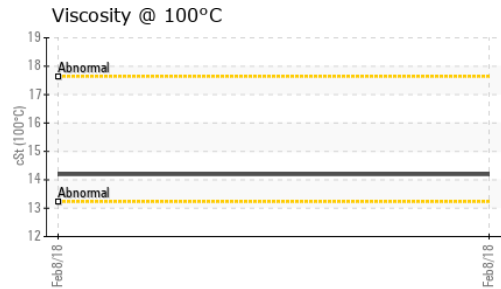
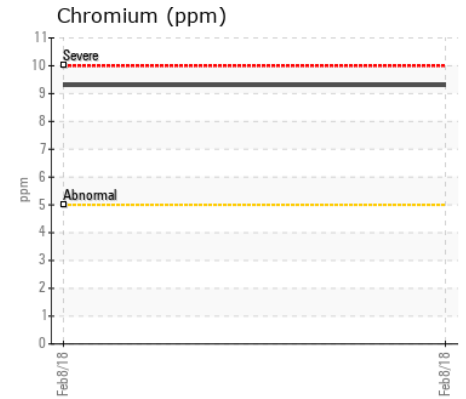
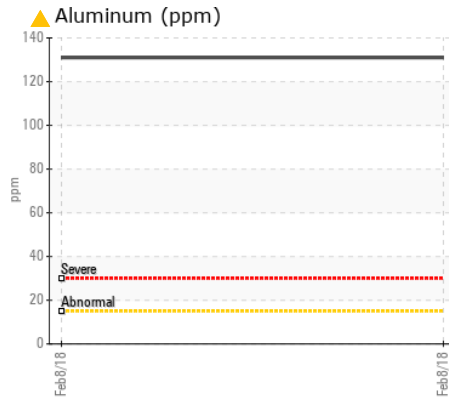
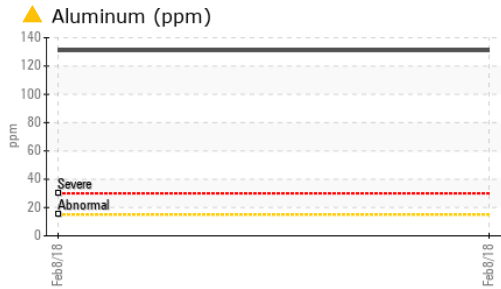
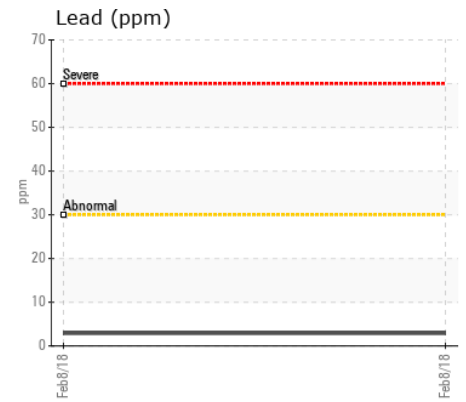
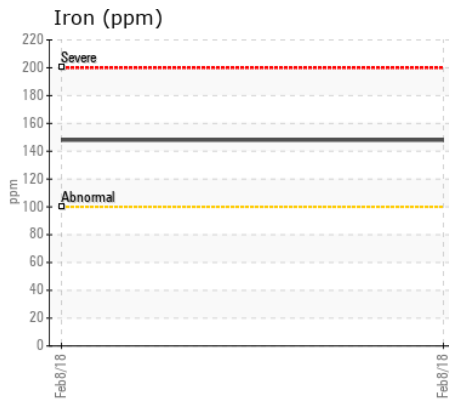
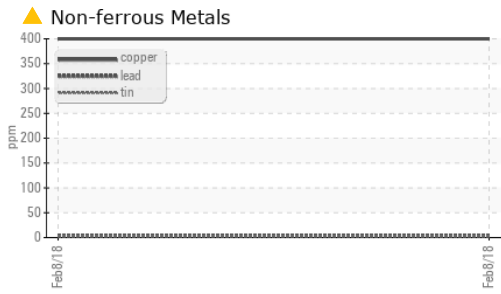
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	16	---	---
Potassium	ppm	ASTM D5185m	>20	6	---	---
Fuel		WC Method	>5	<1.0	---	---
Water		WC Method	>0.2	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844	>3	0.4	---	---
Nitration	Abs/cm	*ASTM D7624	>25	12.	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>35	24.	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.2	NEG	---	---

FLUID CONDITION

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

Sodium	ppm	ASTM D5185m		5	---	---
Boron	ppm	ASTM D5185m		34	---	---
Barium	ppm	ASTM D5185m		26	---	---
Molybdenum	ppm	ASTM D5185m		0	---	---
Manganese	ppm	ASTM D5185m		4	---	---
Magnesium	ppm	ASTM D5185m		20	---	---
Calcium	ppm	ASTM D5185m		2421	---	---
Phosphorus	ppm	ASTM D5185m		709	---	---
Zinc	ppm	ASTM D5185m		805	---	---
Sulfur	ppm	ASTM D5185m		2006	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	21.	---	---
Visc @ 100°C	cSt	ASTM D445		14.19	---	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LHMC125434 **Received** : 16 Feb 2018
Lab Number : 04408875 **Diagnosed** : 19 Feb 2018
Unique Number : 8097558 **Diagnostician** : Jonathan Hester
Test Package : MOB 1

JR VINAGRO
 2208 PLAINFIELD PIKE
 JOHNSTON, RI
 US 02919
 Contact: Service Manager

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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F: