



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR LH40M MH-12 (S/N 142301)
Component
Diesel Engine
Fluid
LIEBHERR MOTOROIL 5W-30 LOW ASH (32 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0272201	LH0258582	---
Sample Date		Client Info		01 Feb 2024	30 Oct 2023	---
Machine Age	hrs	Client Info		2954	0	---
Oil Age	hrs	Client Info		2954	0	---
Filter Age	hrs	Client Info		0	0	---
Oil Changed		Client Info		N/A	N/A	---
Filter Changed		Client Info		N/A	N/A	---
Sample Status				NORMAL	ABNORMAL	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	9	43	---
Chromium	ppm	ASTM D5185m	>5	<1	2	---
Nickel	ppm	ASTM D5185m	>5	0	<1	---
Titanium	ppm	ASTM D5185m		<1	0	---
Silver	ppm	ASTM D5185m	>3	0	0	---
Aluminum	ppm	ASTM D5185m	>15	2	2	---
Lead	ppm	ASTM D5185m	>30	2	4	---
Copper	ppm	ASTM D5185m	>125	14	▲ 171	---
Tin	ppm	ASTM D5185m	>5	1	2	---
Vanadium	ppm	ASTM D5185m		<1	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

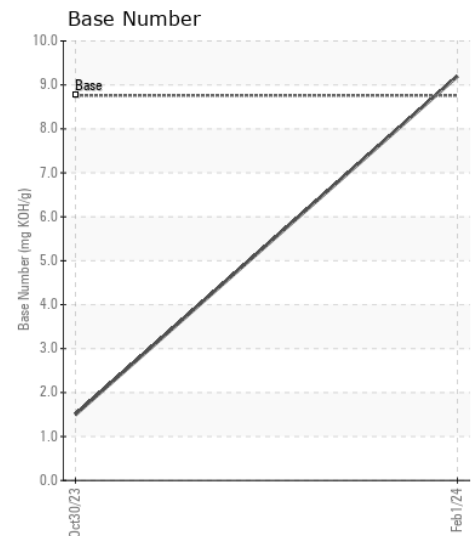
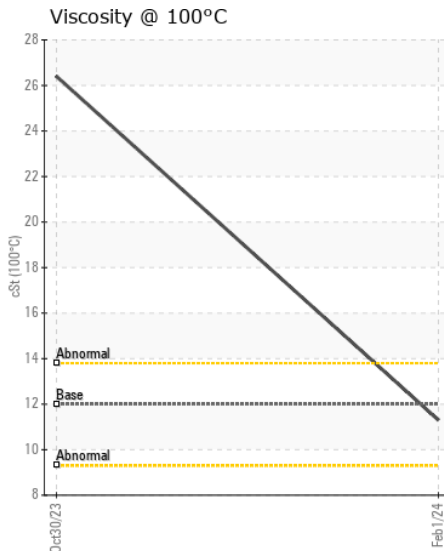
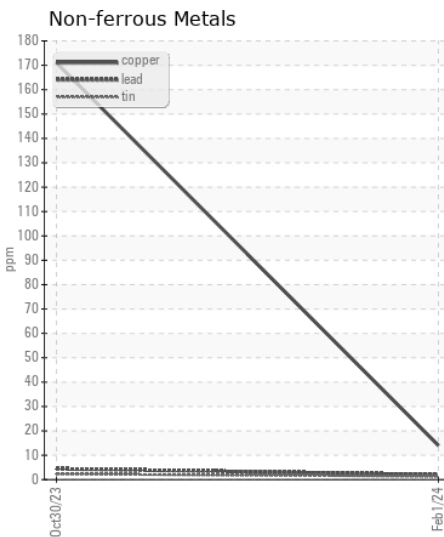
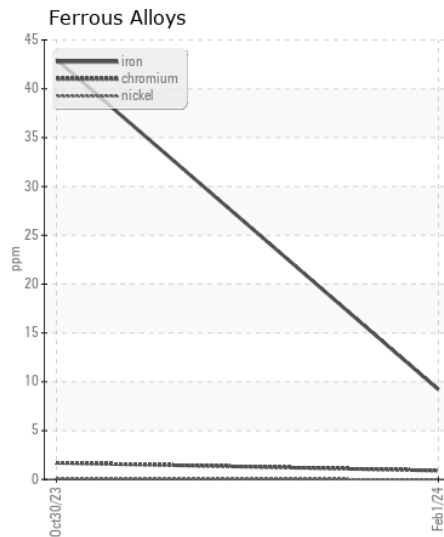
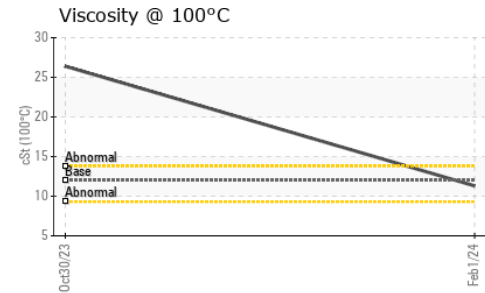
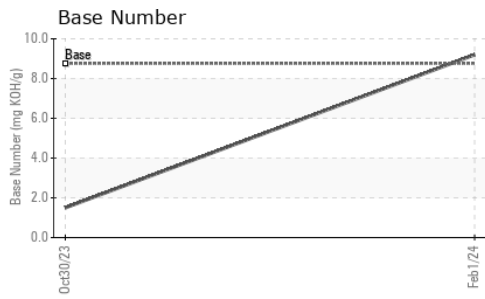
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	10	24	---
Potassium	ppm	ASTM D5185m	>20	0	<1	---
Fuel		WC Method	>5	<1.0	<1.0	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844	>3	0.1	0.2	---
Nitration	Abs/cm	*ASTM D7624	>20	12.0	15.4	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.1	36.3	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	---

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		2	3	---
Boron	ppm	ASTM D5185m	2	153	28	---
Barium	ppm	ASTM D5185m	0	<1	25	---
Molybdenum	ppm	ASTM D5185m	<1	21	48	---
Manganese	ppm	ASTM D5185m	<1	<1	1	---
Magnesium	ppm	ASTM D5185m	12	362	856	---
Calcium	ppm	ASTM D5185m	2224	3137	1315	---
Phosphorus	ppm	ASTM D5185m	635	1042	935	---
Zinc	ppm	ASTM D5185m	718	1238	1123	---
Sulfur	ppm	ASTM D5185m	1694	2771	3443	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.9	52.1	---
Base Number (BN)	mg KOH/g	ASTM D2896	8.76	9.2	▲ 1.5	---
Visc @ 100°C	cSt	ASTM D445	12.0	11.3	▲ 26.4	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0272201 **Received** : 08 Feb 2024
Lab Number : 06084289 **Tested** : 09 Feb 2024
Unique Number : 10871734 **Diagnosed** : 12 Feb 2024 - Don Baldrige
Test Package : CONST (Additional Tests: TBN)

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: