



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR R934 025778-918
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 5W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0273812	LH0174631	LH0190477
Sample Date		Client Info		12 Apr 2024	03 May 2021	09 Apr 2021
Machine Age	hrs	Client Info		4594	3827	3853
Oil Age	hrs	Client Info		0	5	0
Filter Age	hrs	Client Info		0	5	0
Oil Changed		Client Info		Changed	Not Changd	Changed
Filter Changed		Client Info		Changed	Not Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	42	8	10
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	0
Titanium	ppm	ASTM D5185m		16	17	1
Silver	ppm	ASTM D5185m	>3	0	<1	1
Aluminum	ppm	ASTM D5185m	>15	2	0	<1
Lead	ppm	ASTM D5185m	>30	4	<1	<1
Copper	ppm	ASTM D5185m	>125	8	1	2
Tin	ppm	ASTM D5185m	>5	1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

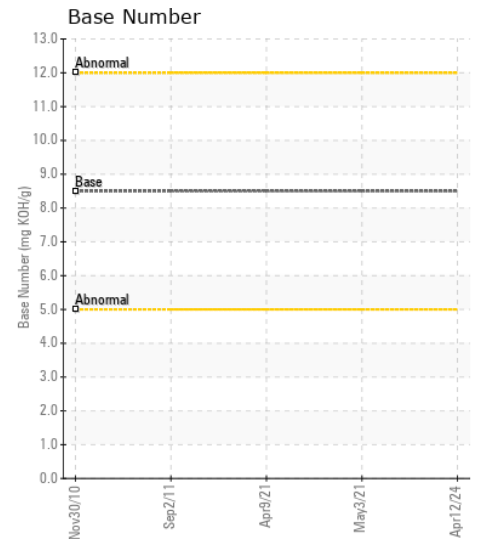
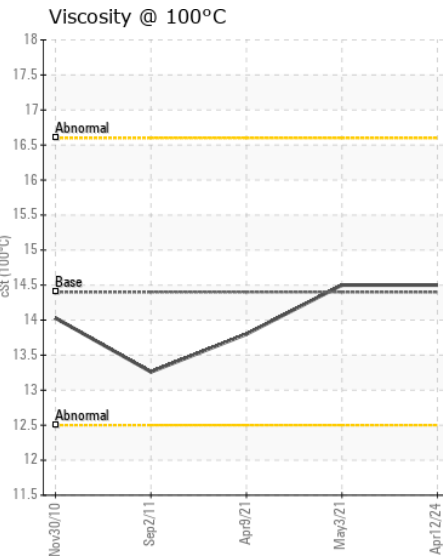
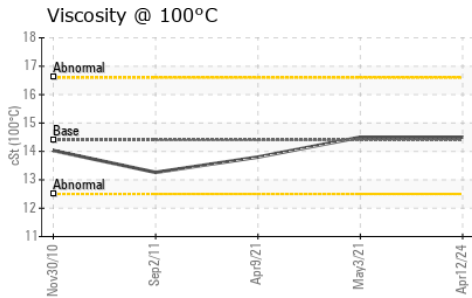
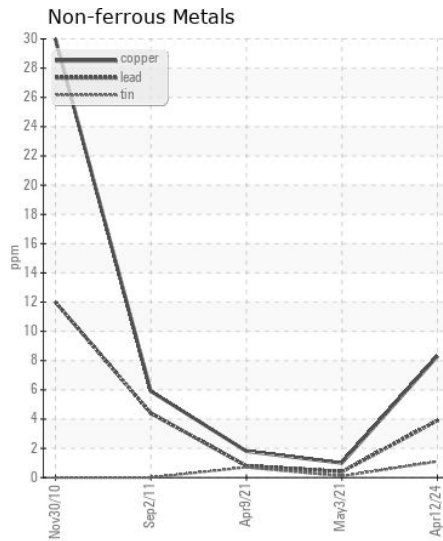
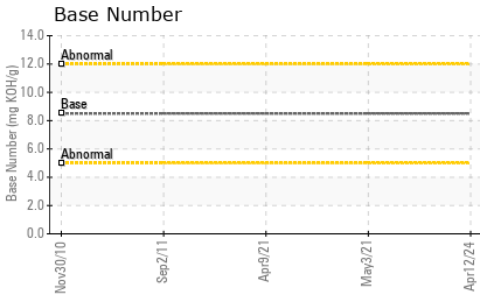
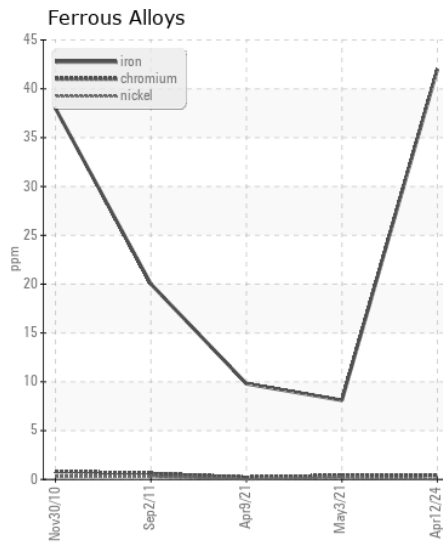
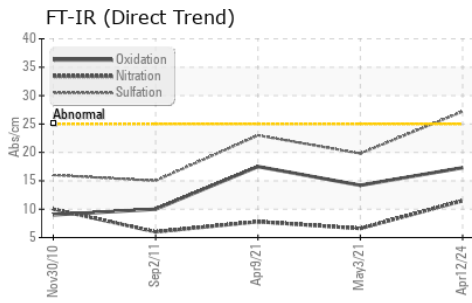
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	8	9	2
Potassium	ppm	ASTM D5185m	>20	8	4	6
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	2.8	0.3	0.8
Nitration	Abs/cm	*ASTM D7624	>20	11.5	6.6	7.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	27.2	19.8	23
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

FLUID CONDITION

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

Sodium	ppm	ASTM D5185m	>44	15	12	26
Boron	ppm	ASTM D5185m	250	50	125	162
Barium	ppm	ASTM D5185m	10	0	0	0
Molybdenum	ppm	ASTM D5185m	100	5	11	2
Manganese	ppm	ASTM D5185m		1	<1	<1
Magnesium	ppm	ASTM D5185m	450	420	427	49
Calcium	ppm	ASTM D5185m	3000	1763	1743	2167
Phosphorus	ppm	ASTM D5185m	1150	910	875	940
Zinc	ppm	ASTM D5185m	1350	1055	930	1109
Sulfur	ppm	ASTM D5185m	4250	3829	2936	3001
Oxidation	Abs/.1mm	*ASTM D7414	>25	17.3	14.2	17.5
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	5.0	---	---
Visc @ 100°C	cSt	ASTM D445	14.4	14.5	14.5	13.8



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : LH0273812

Lab Number : 06153688

Unique Number : 10983766

Test Package : CONST (Additional Tests: TBN)

Received : 18 Apr 2024

Tested : 19 Apr 2024

Diagnosed : 19 Apr 2024 - Wes Davis

AMERICAN STATE EQUIPMENT CO.

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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)