



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
LIEBHERR LTM1110 S1 AT3389 (S/N 043389)

Component
Diesel Engine

Fluid
DIESEL ENGINE OIL 10W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		HPL0004133	HPL0003245	HPL0000473
Sample Date		Client Info		09 Jan 2024	01 Jun 2023	10 Jun 2022
Machine Age	hrs	Client Info		3042	2296	803
Oil Age	hrs	Client Info		0	730	803
Filter Age	hrs	Client Info		0	730	803
Oil Changed		Client Info		N/A	Changed	Changed
Filter Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	ATTENTION

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	7	6	20
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	1
Aluminum	ppm	ASTM D5185m	>15	5	1	2
Lead	ppm	ASTM D5185m	>30	<1	1	2
Copper	ppm	ASTM D5185m	>125	3	3	19
Tin	ppm	ASTM D5185m	>5	0	<1	2
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

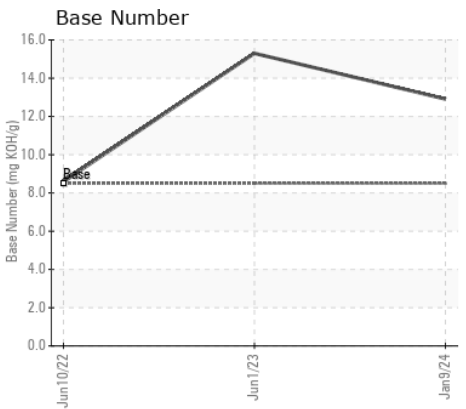
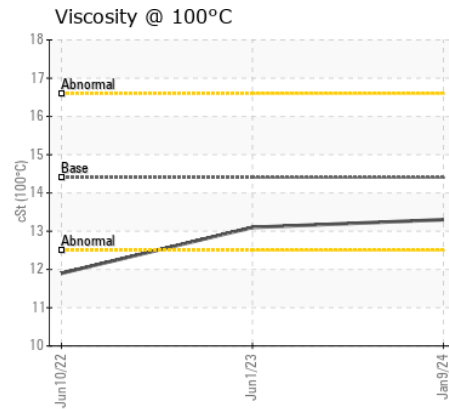
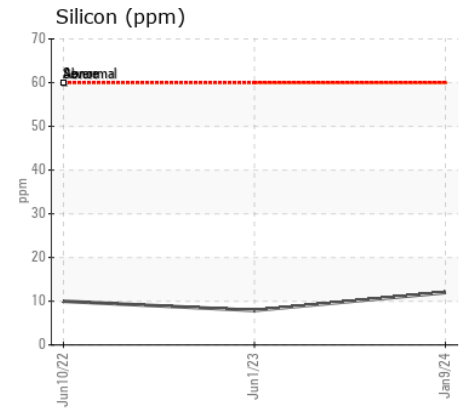
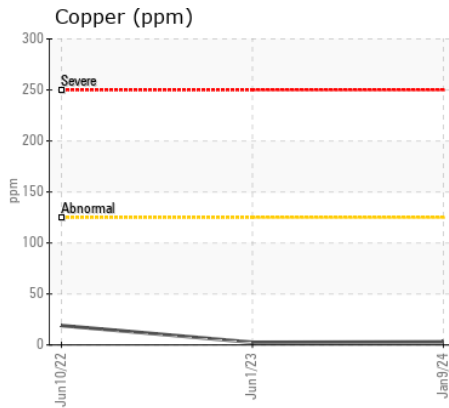
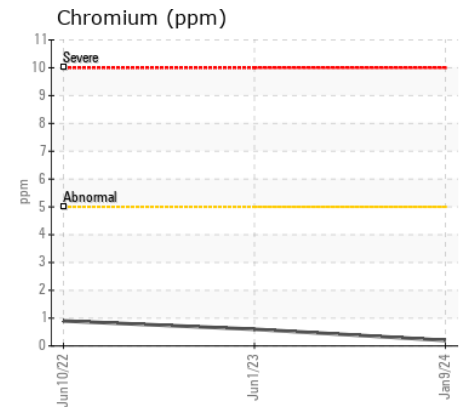
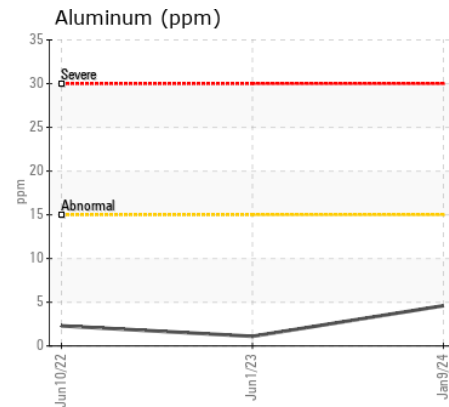
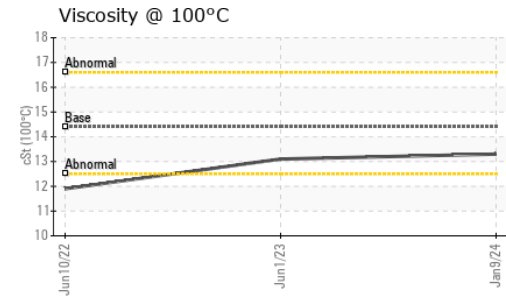
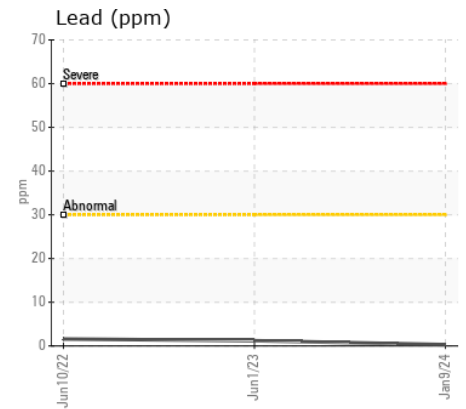
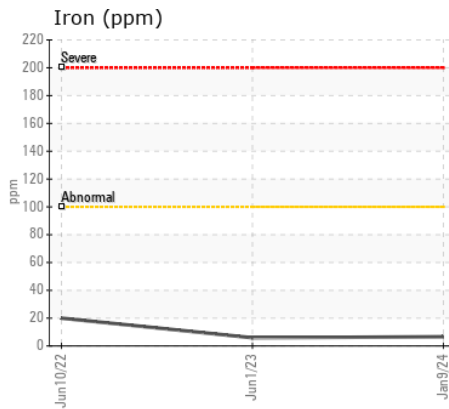
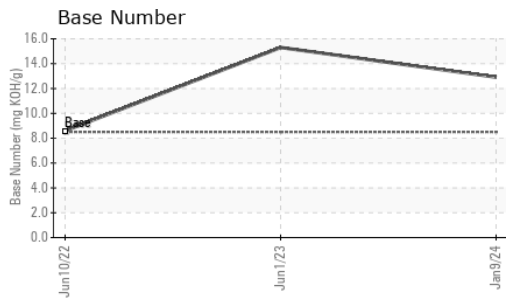
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	12	8	10
Potassium	ppm	ASTM D5185m	>20	2	0	0
Fuel		WC Method	>5	<1.0	<1.0	1.2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	11.8	11.9	12.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	37.1	38.2	39.1
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		0	2	2
Boron	ppm	ASTM D5185m	250	0	0	106
Barium	ppm	ASTM D5185m	10	0	0	17
Molybdenum	ppm	ASTM D5185m	100	623	570	47
Manganese	ppm	ASTM D5185m		<1	<1	4
Magnesium	ppm	ASTM D5185m	450	1002	1060	865
Calcium	ppm	ASTM D5185m	3000	2585	2678	1398
Phosphorus	ppm	ASTM D5185m	1150	1050	1075	642
Zinc	ppm	ASTM D5185m	1350	1253	1351	873
Sulfur	ppm	ASTM D5185m	4250	8176	10622	2257
Oxidation	Abs/.1mm	*ASTM D7414	>25	40.4	41.0	49.9
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	12.91	15.30	8.59
Visc @ 100°C	cSt	ASTM D445	14.4	13.3	13.1	▲ 11.9



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HPL0004133 **Received** : 10 Jan 2024
Lab Number : 06057460 **Diagnosed** : 12 Jan 2024
Unique Number : 10823409 **Diagnostician** : Sean Felton
Test Package : MOB 2

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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)