



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ATTENTION

Machine Id
LIEBHERR LTR1100 HC1110 (S/N 97351)

Component
Diesel Engine

Fluid
DIESEL ENGINE OIL SAE 5W40 (8 GAL)

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		WC0873436	WC0823667	WC0784931
Sample Date		Client Info		08 Feb 2024	29 Sep 2023	20 Apr 2023
Machine Age	hrs	Client Info		11988	11568	11025
Oil Age	hrs	Client Info		0	543	437
Filter Age	hrs	Client Info		0	543	437
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	4	4	6
Chromium	ppm	ASTM D5185m	>5	<1	0	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	<1	1
Lead	ppm	ASTM D5185m	>30	<1	<1	0
Copper	ppm	ASTM D5185m	>125	2	3	2
Tin	ppm	ASTM D5185m	>5	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Fuel content negligible. There is no indication of any contamination in the oil.

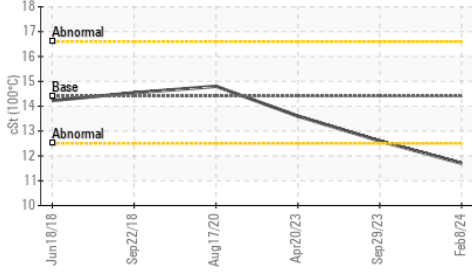
Silicon	ppm	ASTM D5185m	>60	8	5	8
Potassium	ppm	ASTM D5185m	>20	2	2	2
Fuel	%	ASTM D3524	>5	0.7	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	7.1	8.5	8.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.2	21.0	20.6
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

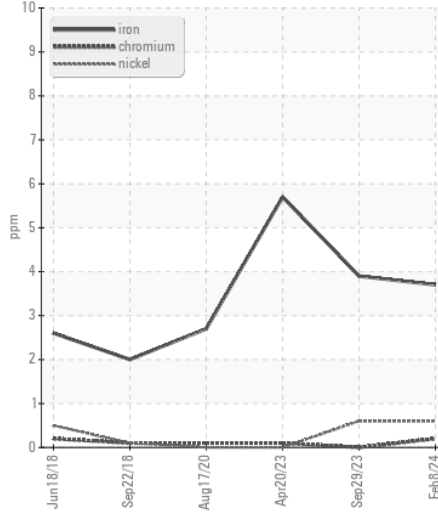
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sodium	ppm	ASTM D5185m	>44	0	0	1
Boron	ppm	ASTM D5185m	250	107	57	134
Barium	ppm	ASTM D5185m	10	14	0	0
Molybdenum	ppm	ASTM D5185m	100	45	6	56
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	351	612	595
Calcium	ppm	ASTM D5185m	3000	1760	1330	1558
Phosphorus	ppm	ASTM D5185m	1150	981	749	963
Zinc	ppm	ASTM D5185m	1350	1143	928	1203
Sulfur	ppm	ASTM D5185m	4250	3742	2760	3790
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.7	19.3	16.9
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	8.0	8.3	9.0
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 11.7	12.6	13.6

▲ Viscosity @ 100°C



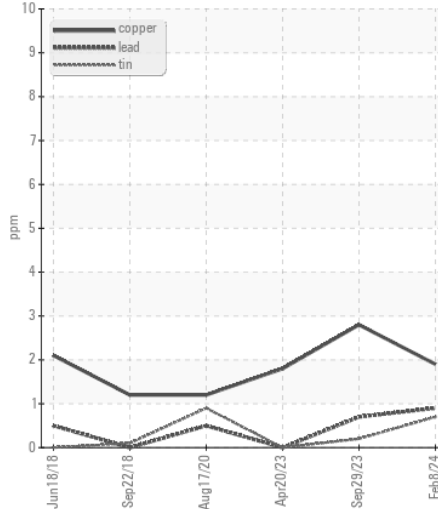
Ferrous Alloys



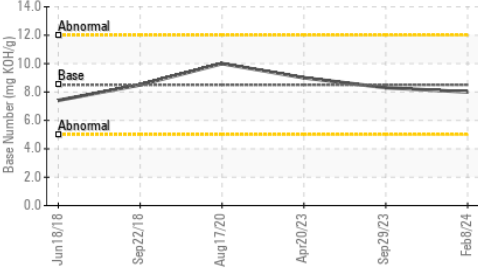
Fuel Dilution



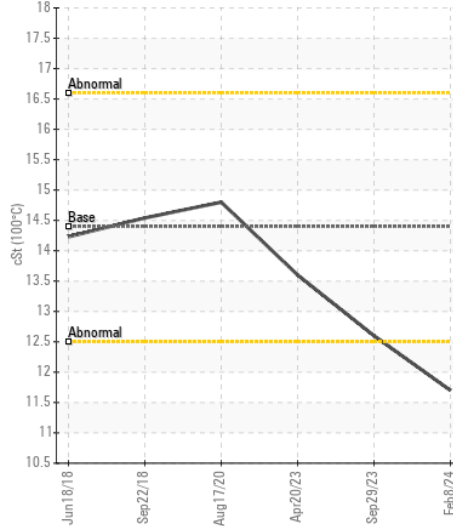
Non-ferrous Metals



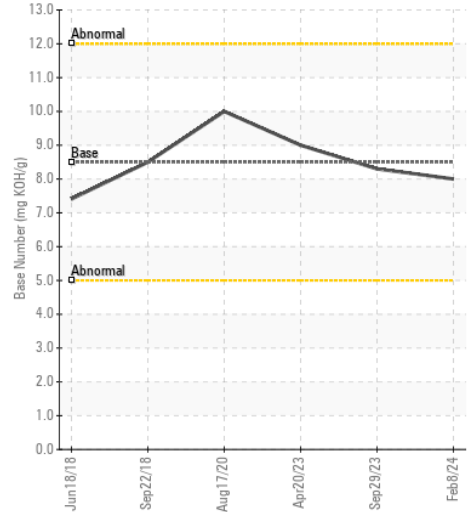
Base Number



▲ Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0873436 **Received** : 12 Feb 2024
Lab Number : 06086547 **Tested** : 14 Feb 2024
Unique Number : 10873992 **Diagnosed** : 14 Feb 2024 - Don Baldrige
Test Package : CONST (Additional Tests: FuelDilution, PercentFuel, TBN)

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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)