



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR A934 046361-1006
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (30 QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LHMC121706	LHMC134107	LH0166195
Sample Date		Client Info		07 Jun 2024	14 Jul 2021	01 Mar 2021
Machine Age	hrs	Client Info		15147	15146	15596
Oil Age	hrs	Client Info		143	500	0
Filter Age	hrs	Client Info		143	500	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	ATTENTION

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>66	18	28	9
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>8	2	2	<1
Lead	ppm	ASTM D5185m	>10	0	5	<1
Copper	ppm	ASTM D5185m	>74	21	2	<1
Tin	ppm	ASTM D5185m	>4	2	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

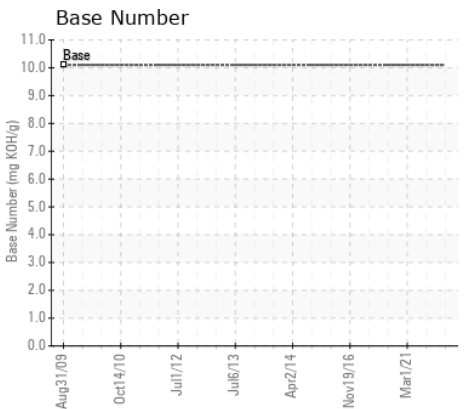
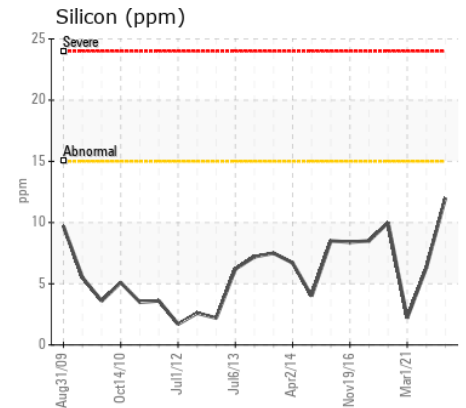
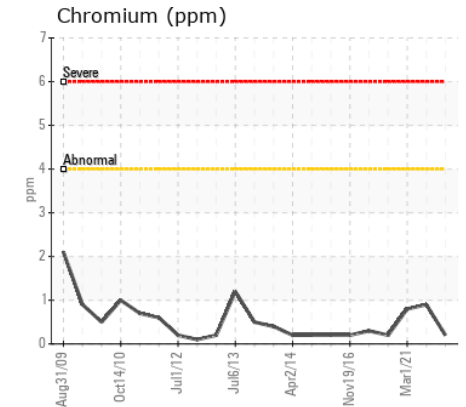
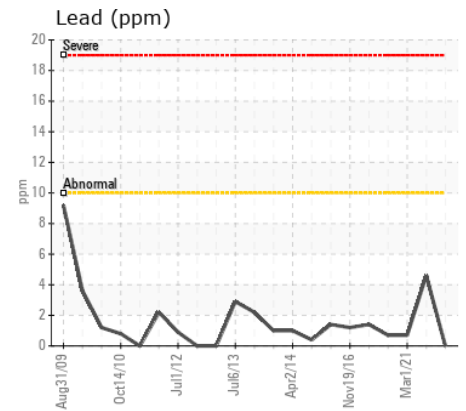
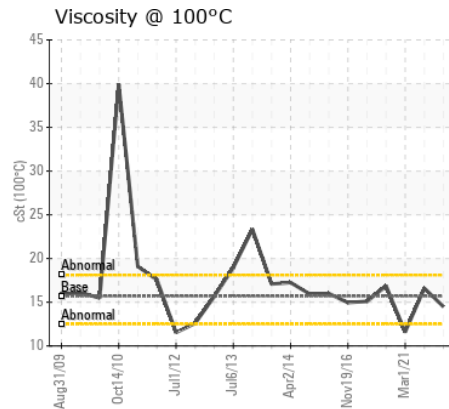
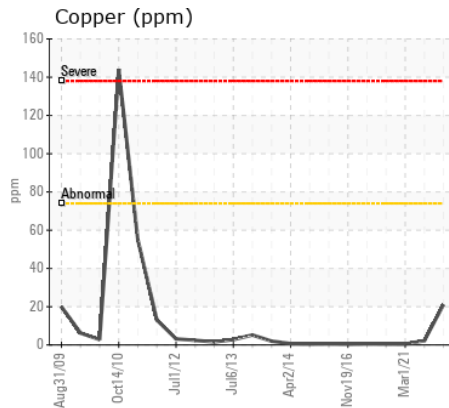
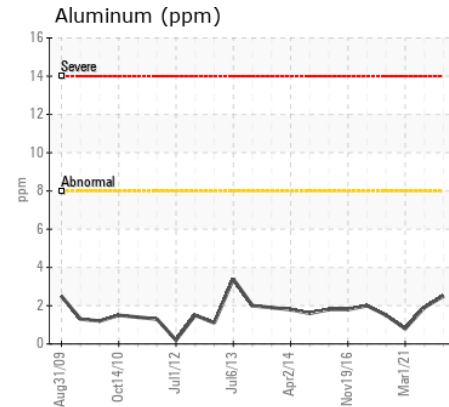
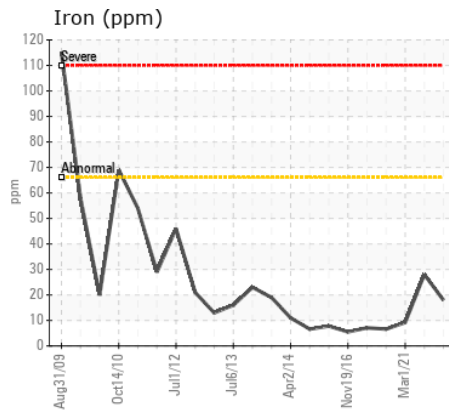
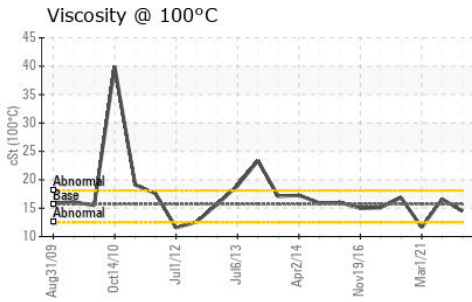
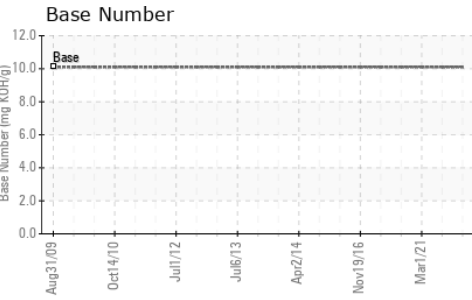
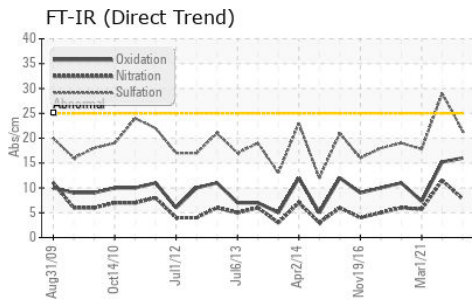
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>15	12	6	2
Potassium	ppm	ASTM D5185m	>20	8	10	<1
Fuel		WC Method	>5	<1.0	0.3	0.2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1	▲ 5.7	1.6
Nitration	Abs/cm	*ASTM D7624	>20	7.8	11.5	5.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.5	29	17.8
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 acceptable for the time in service.

Sodium	ppm	ASTM D5185m		3	3	1
Boron	ppm	ASTM D5185m	316	110	2	2
Barium	ppm	ASTM D5185m	0.0	0	<1	0
Molybdenum	ppm	ASTM D5185m	1.2	<1	7	7
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	24	32	139	111
Calcium	ppm	ASTM D5185m	2292	2279	1698	1212
Phosphorus	ppm	ASTM D5185m	1064	986	814	621
Zinc	ppm	ASTM D5185m	1160	1143	861	730
Sulfur	ppm	ASTM D5185m	4996	4039	2463	1901
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.0	15.2	7.3
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.0	---	---
Visc @ 100°C	cSt	ASTM D445	15.7	14.5	▲ 16.6	● 11.6



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LHMC121706
Lab Number : 06212726
Unique Number : 11085590
Test Package : MOB 1 (Additional Tests: TBN)

Received : 17 Jun 2024
Tested : 19 Jun 2024
Diagnosed : 19 Jun 2024 - Angela Borella

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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