



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
LIEBHERR 31248
 Component
Diesel Engine
 Fluid
LIEBHERR MOTOROIL 10W-40 LOW ASH (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0950654	WC0924548	WC0882771
Sample Date		Client Info		15 Jul 2024	17 Apr 2024	14 Dec 2023
Machine Age	hrs	Client Info		6427	5968	5481
Oil Age	hrs	Client Info		500	2000	1500
Filter Age	hrs	Client Info		500	2000	1500
Oil Changed		Client Info		Changed	Changed	N/A
Filter Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	7	6	5
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	4	1	2
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	2	3	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

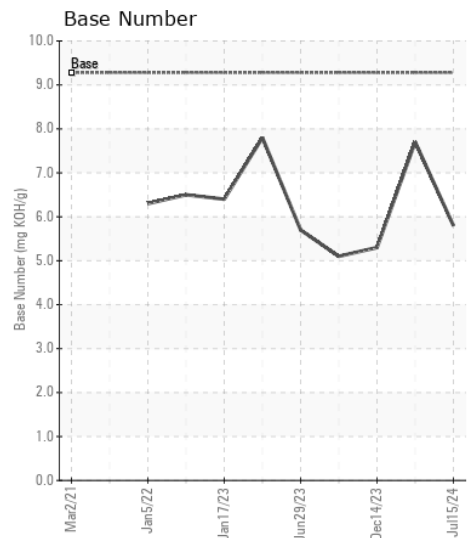
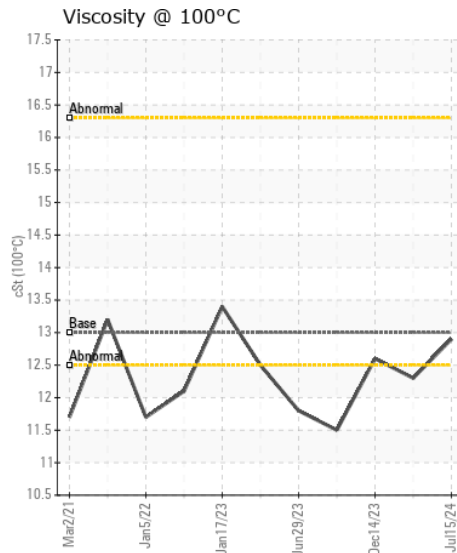
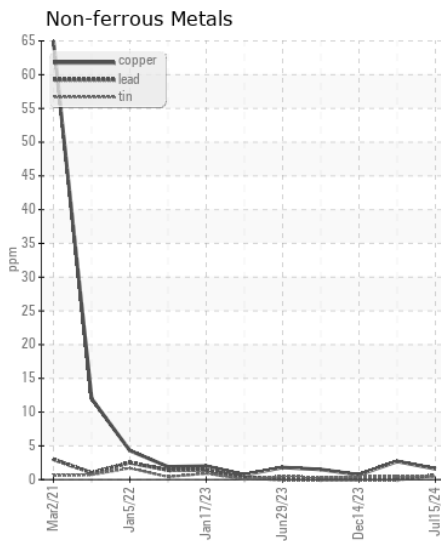
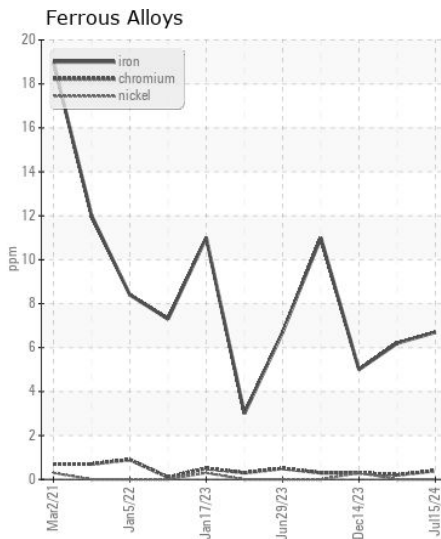
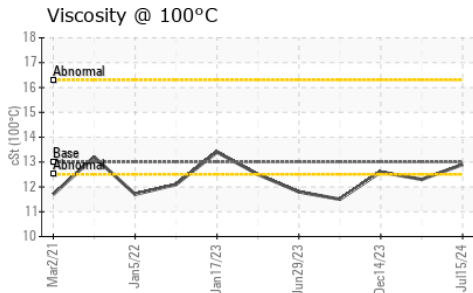
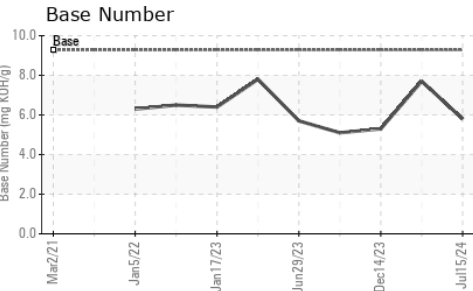
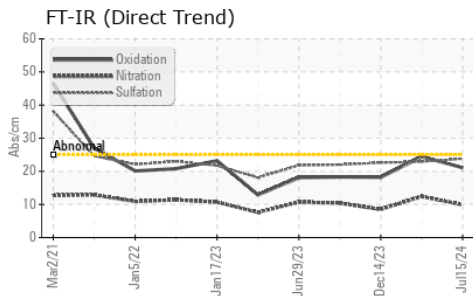
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	7	6	8
Potassium	ppm	ASTM D5185m	>20	3	<1	2
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	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	9.9	12.4	8.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.8	22.9	22.6
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 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	1
Boron	ppm	ASTM D5185m	169	172	91	212
Barium	ppm	ASTM D5185m	0	0	2	<1
Molybdenum	ppm	ASTM D5185m	2	77	45	71
Manganese	ppm	ASTM D5185m	<1	<1	1	<1
Magnesium	ppm	ASTM D5185m	724	497	841	495
Calcium	ppm	ASTM D5185m	1323	1430	1373	1369
Phosphorus	ppm	ASTM D5185m	678	948	779	1004
Zinc	ppm	ASTM D5185m	776	1158	932	1184
Sulfur	ppm	ASTM D5185m	2859	2843	2930	3095
Oxidation	Abs/.1mm	*ASTM D7414	>25	21.1	24.4	18.2
Base Number (BN)	mg KOH/g	ASTM D2896	9.28	5.8	7.7	5.3
Visc @ 100°C	cSt	ASTM D445	13.0	12.9	12.3	12.6



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0950654
Lab Number : 06239898
Unique Number : 11128732
Test Package : CONST (Additional Tests: TBN)

SULLIVAN EASTERN INC-LIEBHERR
 2860 C SLATER RD
 MORRISVILLE, NC
 US 27560
 Contact: CHRIS CALTON

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)

T: (919)484-2136
 F: (919)484-2136