



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
AMR-Manchester
 Machine Id
146889 LIEBHERR 146889
 Component
Diesel Engine
 Fluid
LIEBHERR MOTOROIL 5W30 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		DJJ0013964	DJJ0003546	---
Sample Date		Client Info		27 Mar 2024	08 Nov 2023	---
Machine Age	hrs	Client Info		1079	518	---
Oil Age	hrs	Client Info		250	250	---
Filter Age	hrs	Client Info		250	250	---
Oil Changed		Client Info		Changed	Changed	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				NORMAL	NORMAL	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	4	3	---
Chromium	ppm	ASTM D5185m	>5	0	<1	---
Nickel	ppm	ASTM D5185m	>5	0	0	---
Titanium	ppm	ASTM D5185m		0	0	---
Silver	ppm	ASTM D5185m	>3	0	0	---
Aluminum	ppm	ASTM D5185m	>15	<1	2	---
Lead	ppm	ASTM D5185m	>30	0	0	---
Copper	ppm	ASTM D5185m	>125	<1	33	---
Tin	ppm	ASTM D5185m	>5	0	<1	---
Vanadium	ppm	ASTM D5185m		0	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

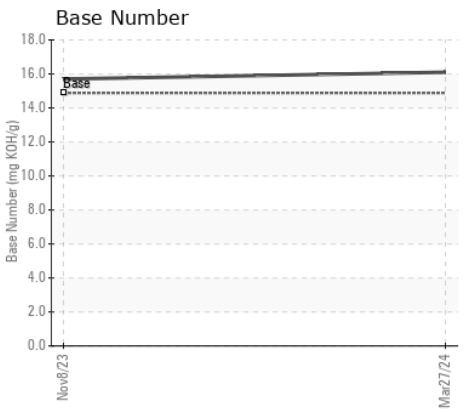
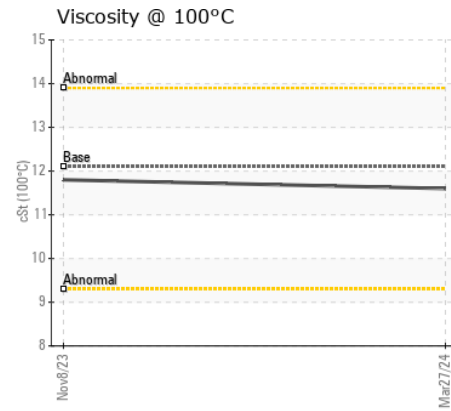
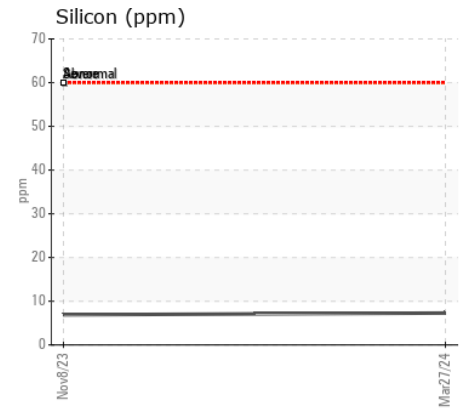
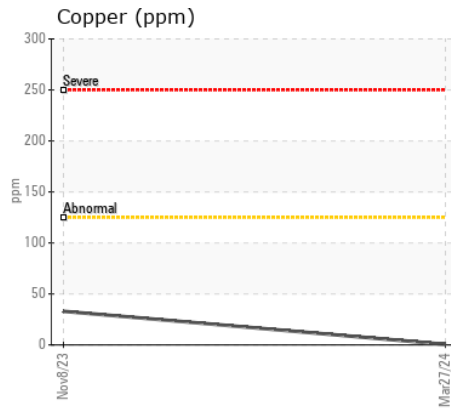
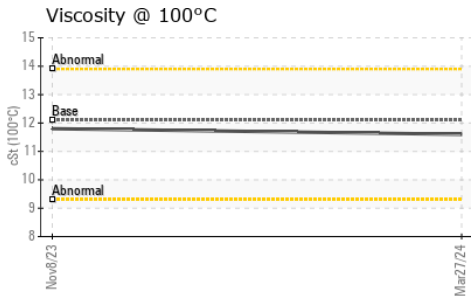
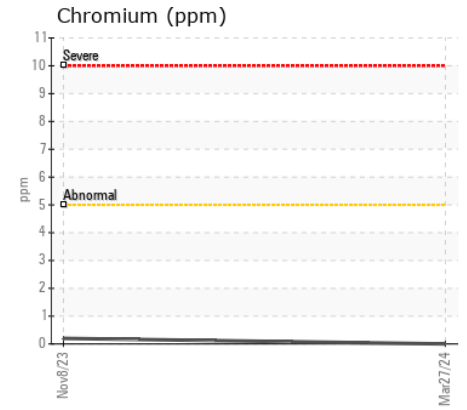
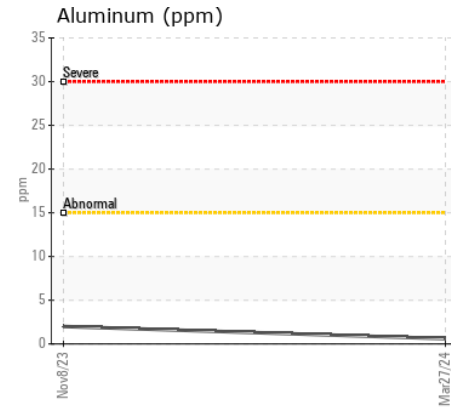
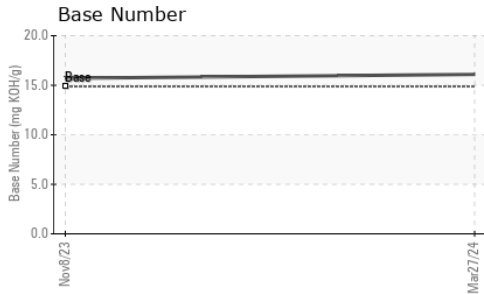
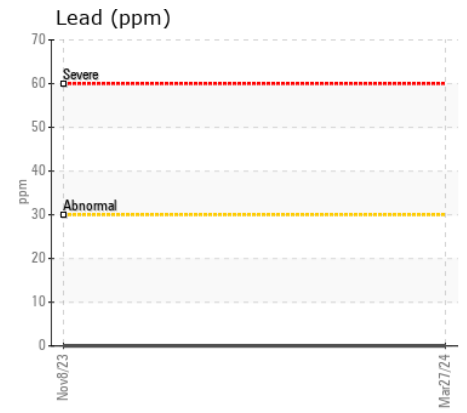
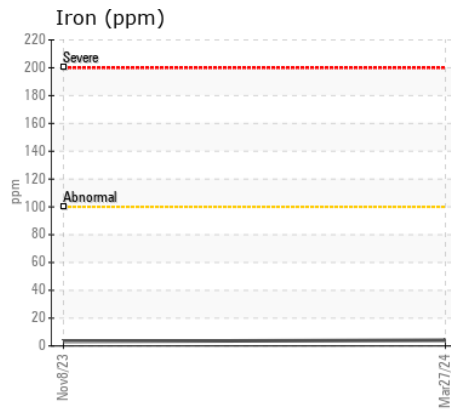
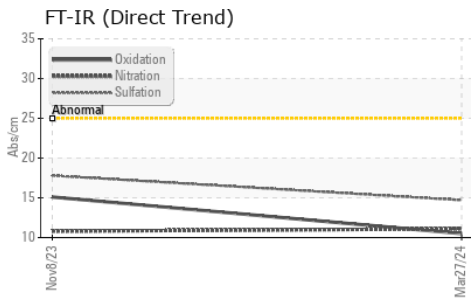
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	7	7	---
Potassium	ppm	ASTM D5185m	>20	<1	1	---
Fuel		WC Method	>5	<1.0	<1.0	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844	>3	0.1	0.1	---
Nitration	Abs/cm	*ASTM D7624	>20	11.1	10.8	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	14.7	17.8	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	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		2	1	---
Boron	ppm	ASTM D5185m	236	276	247	---
Barium	ppm	ASTM D5185m	0	0	0	---
Molybdenum	ppm	ASTM D5185m	0	2	5	---
Manganese	ppm	ASTM D5185m	<1	0	<1	---
Magnesium	ppm	ASTM D5185m	25	69	139	---
Calcium	ppm	ASTM D5185m	4298	4594	3923	---
Phosphorus	ppm	ASTM D5185m	1020	1142	1014	---
Zinc	ppm	ASTM D5185m	1164	1246	1171	---
Sulfur	ppm	ASTM D5185m	2460	3606	2878	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.5	15.1	---
Base Number (BN)	mg KOH/g	ASTM D2896	14.88	16.1	15.7	---
Visc @ 100°C	cSt	ASTM D445	12.1	11.6	11.8	---



Certificate L2367

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

Sample No. : DJJ0013964

Lab Number : 06147039

Unique Number : 10977117

Test Package : MOBCE (Additional Tests: TBN)

Received : 12 Apr 2024

Tested : 15 Apr 2024

Diagnosed : 15 Apr 2024 - Wes Davis

ADVANTAGE METALS RECYCLING - MANCHESTER

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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)