



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Area
TRANSPORTATION
Machine Id
MACK DOT 139
Component
Diesel Engine
Fluid
SHELL 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0785207	WC0774346	---
Sample Date		Client Info		22 Mar 2023	19 Jan 2023	---
Machine Age	mls	Client Info		169876	155234	---
Oil Age	mls	Client Info		14642	12712	---
Filter Age	mls	Client Info		14642	12712	---
Oil Changed		Client Info		Changed	Changed	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				NORMAL	ATTENTION	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	12	11	---
Chromium	ppm	ASTM D5185m	>20	<1	<1	---
Nickel	ppm	ASTM D5185m	>4	<1	0	---
Titanium	ppm	ASTM D5185m		<1	<1	---
Silver	ppm	ASTM D5185m	>3	0	0	---
Aluminum	ppm	ASTM D5185m	>20	<1	<1	---
Lead	ppm	ASTM D5185m	>40	<1	<1	---
Copper	ppm	ASTM D5185m	>330	3	4	---
Tin	ppm	ASTM D5185m	>15	<1	<1	---
Vanadium	ppm	ASTM D5185m		0	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

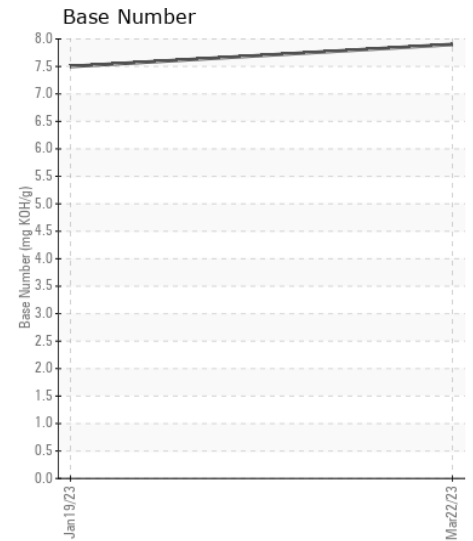
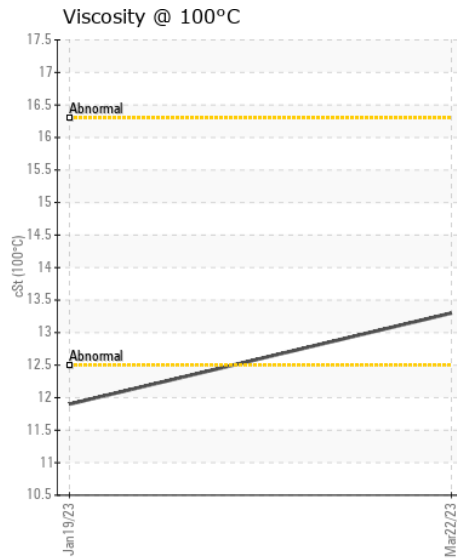
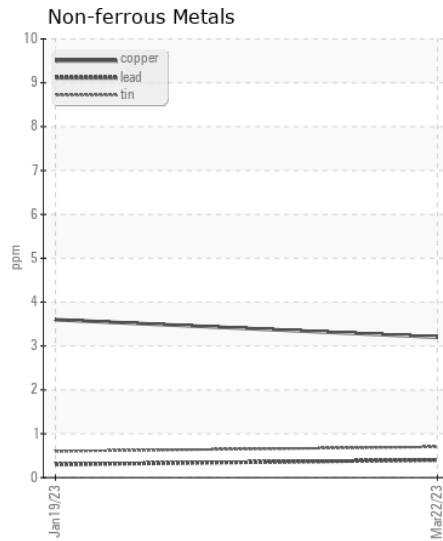
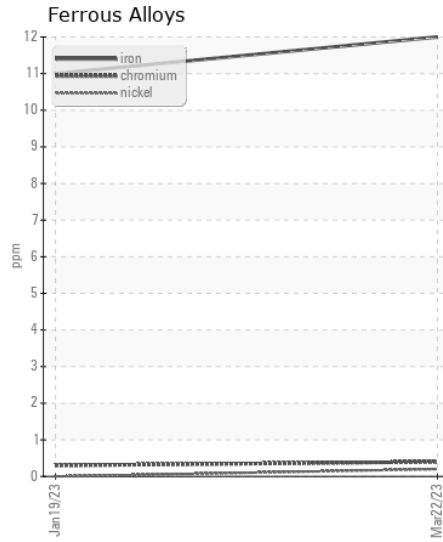
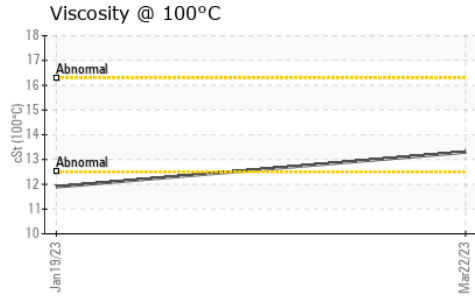
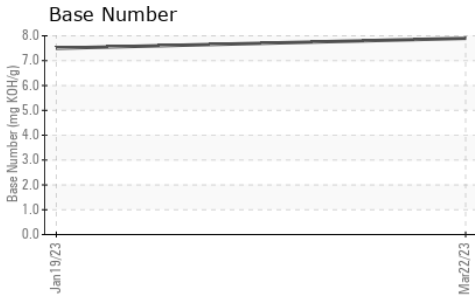
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	5	5	---
Potassium	ppm	ASTM D5185m	>20	3	4	---
Fuel		WC Method	>5	<1.0	0.7	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844	>3	0.6	0.5	---
Nitration	Abs/cm	*ASTM D7624	>20	9.1	9.7	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.4	20.2	---
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	>150	7	2	---
Boron	ppm	ASTM D5185m		12	33	---
Barium	ppm	ASTM D5185m		0	0	---
Molybdenum	ppm	ASTM D5185m		52	19	---
Manganese	ppm	ASTM D5185m		<1	<1	---
Magnesium	ppm	ASTM D5185m		847	657	---
Calcium	ppm	ASTM D5185m		1101	1348	---
Phosphorus	ppm	ASTM D5185m		953	732	---
Zinc	ppm	ASTM D5185m		1129	883	---
Sulfur	ppm	ASTM D5185m		2799	2688	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.8	16.3	---
Base Number (BN)	mg KOH/g	ASTM D2896		7.9	7.5	---
Visc @ 100°C	cSt	ASTM D445		13.3	11.9	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0785207 **Received** : 12 Apr 2023
Lab Number : 05817395 **Tested** : 13 Apr 2023
Unique Number : 10420187 **Diagnosed** : 13 Apr 2023 - Wes Davis
Test Package : CONST (Additional Tests: TBN)

METRO METALS NORTHWEST INC
 2202 EAST RIVER ST
 TACOMA, WA
 US 98421

Contact: MICHELE MARTINEZ
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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)

T: (800)562-8464

F: