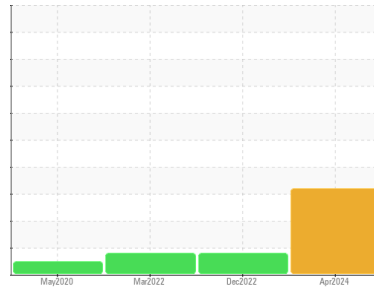




OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION



Area
GM Seattle Off Raod Shop
 Machine Id
[GM Seattle Off Raod Shop] 14-684
 Component
Diesel Engine
 Fluid
SHELL 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

An increase in the lead level is noted. All other component wear rates are normal.

Contamination

There is an abnormal amount of solids and carbon present in the oil.

Fluid Condition

The oil viscosity is higher than normal. The BN level is low. The oil is no longer serviceable.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PE0003025	PE0000561	PE12290968
Sample Date	Client Info		01 Apr 2024	08 Dec 2022	14 Mar 2022
Machine Age	hrs	Client Info	5895	5024	4170
Oil Age	hrs	Client Info	871	854	344
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			ABNORMAL	ABNORMAL	MARGINAL

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.2	NEG	NEG	NEG
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	100	92	69
Chromium	ppm	ASTM D5185m >20	2	1	1
Nickel	ppm	ASTM D5185m >4	2	<1	1
Titanium	ppm	ASTM D5185m	<1	<1	0
Silver	ppm	ASTM D5185m >3	<1	0	<1
Aluminum	ppm	ASTM D5185m >20	4	1	2
Lead	ppm	ASTM D5185m >40	▲ 34	14	2
Copper	ppm	ASTM D5185m >330	7	24	▲ 55
Tin	ppm	ASTM D5185m >15	2	<1	0
Antimony	ppm	ASTM D5185m	---	---	0
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	<1	0	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	29	32	17
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	57	46	18
Manganese	ppm	ASTM D5185m	1	<1	---
Magnesium	ppm	ASTM D5185m	625	581	117
Calcium	ppm	ASTM D5185m	1665	1773	2564
Phosphorus	ppm	ASTM D5185m	1108	952	968
Zinc	ppm	ASTM D5185m	1297	1201	1161
Sulfur	ppm	ASTM D5185m	3372	2377	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	6	4	2
Sodium	ppm	ASTM D5185m >150	<1	<1	3
Potassium	ppm	ASTM D5185m >20	3	2	1
Fuel	%	ASTM D3524 >5	<1.0	<1.0	<1.0

INFRA-RED

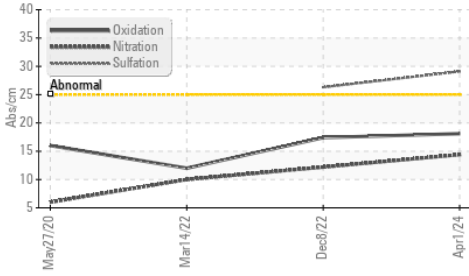
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	▲ 4.5	▲ 3.7	0.6
Nitration	Abs/cm	*ASTM D7624 >20	14.4	12.2	10
Sulfation	Abs/.1mm	*ASTM D7415 >30	29.1	26.3	---

FLUID DEGRADATION

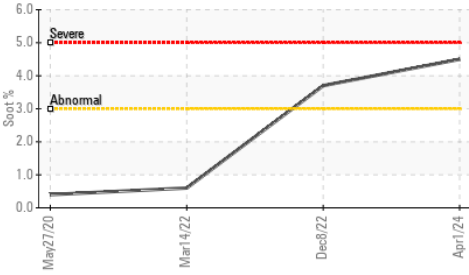
	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	18.1	17.4	12
Base Number (BN)	mg KOH/g	ASTM D2896	▲ 0.1	6.5	7.41

OIL ANALYSIS REPORT

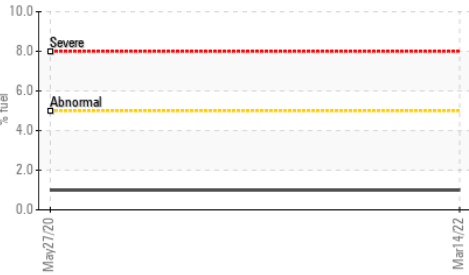
▲ FT-IR (Direct Trend)



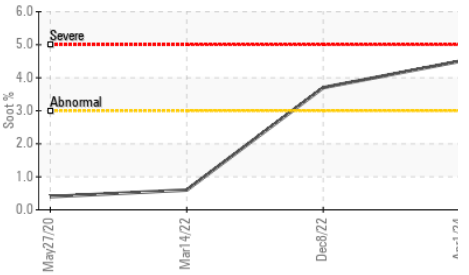
▲ Soot %



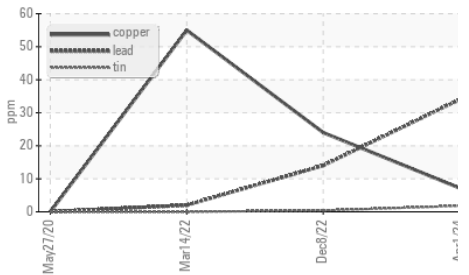
▲ Fuel Dilution



▲ Soot %



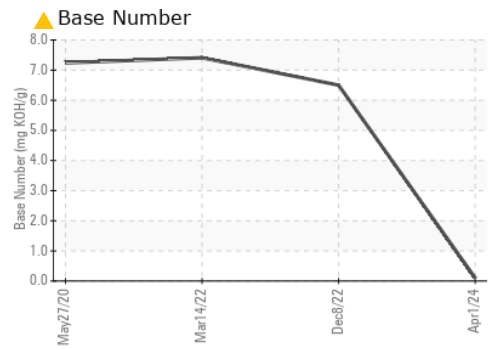
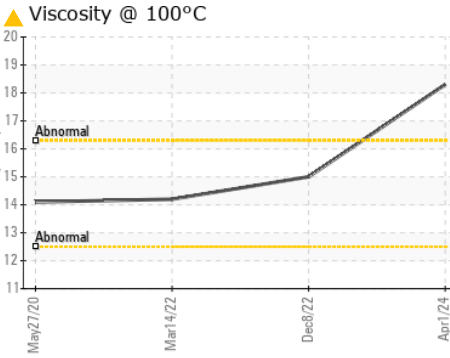
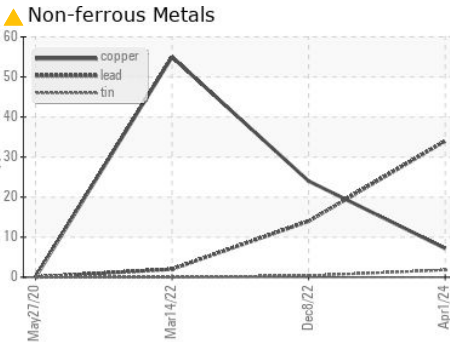
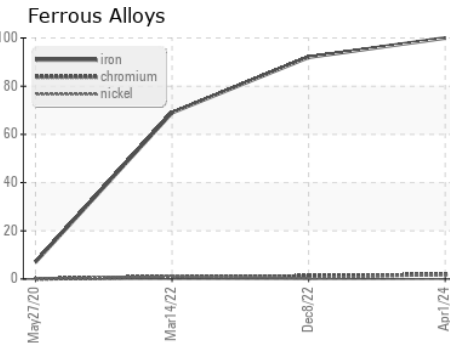
▲ Non-ferrous Metals



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
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
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	▲ 18.3	15.0	14.2

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PE0003025
Lab Number : 06156719
Unique Number : 10992142
Test Package : CONST (Additional Tests: FT-IR, FuelDilution, ICP, KV100, SCREEN, TBN)

Gary Merlino Construction - Off Road Shop
 9125 10TH AVE SOUTH
 SEATTLE, WA
 US 98108

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Contact: Jesse Patterson
 oilsamples@gmccinc.com

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

T: 1(866)292-1303

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F: