

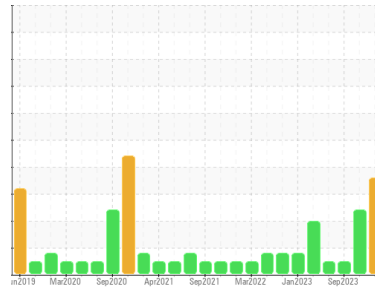


PROBLEM SUMMARY



Area
(YA111297)
 Machine Id
2447 MACK GRANITE
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (48 QTS)

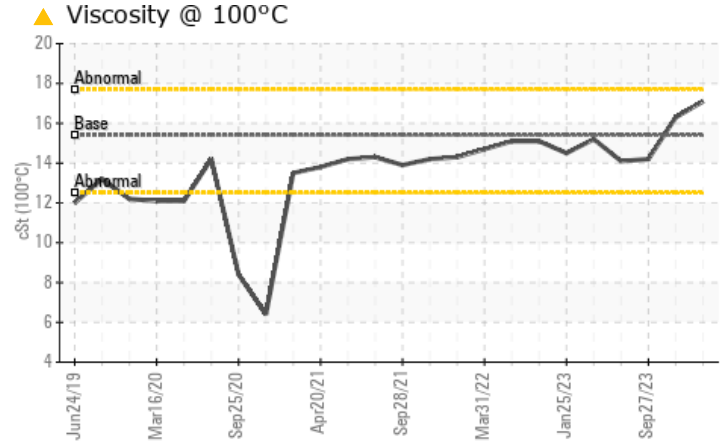
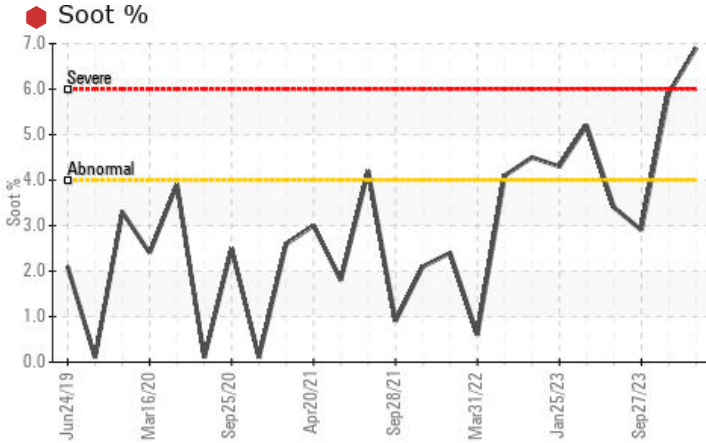
Sample Rating Trend



SOOT



COMPONENT CONDITION SUMMARY



RECOMMENDATION

The oil change at the time of sampling has been noted. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	NORMAL
Soot %	%	*ASTM D7844	>4	6.9	5.9	2.9
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	0	0.0	7.9
Visc @ 100°C	cSt	ASTM D445	15.4	17.1	16.3	14.2

Customer Id: GFL001
 Sample No.: GFL0103170
 Lab Number: 06095266
 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

To change component or sample information:
 Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Alert	---	---	?	NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

HISTORICAL DIAGNOSIS

29 Nov 2023 Diag: Jonathan Hester

DEGRADATION



The oil change at the time of sampling has been noted. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value. All component wear rates are normal. There is an abnormal amount of solids and carbon present in the oil. The oil viscosity is higher than normal. The BN level is low.

[view report](#)



27 Sep 2023 Diag: Wes Davis

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

[view report](#)



07 Jul 2023 Diag: Wes Davis

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

[view report](#)





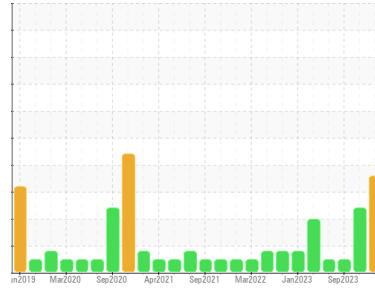
OIL ANALYSIS REPORT

Sample Rating Trend

SOOT



Area
(YA111297)
Machine Id
2447 MACK GRANITE
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (48 QTS)



DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

Wear

All 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.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0103170	GFL0094729	GFL0089312
Sample Date	Client Info	20 Feb 2024	29 Nov 2023	27 Sep 2023
Machine Age	hrs	45017	44373	43840
Oil Age	hrs	0	0	0
Oil Changed	Client Info	Changed	Changed	Changed
Sample Status		SEVERE	ABNORMAL	NORMAL

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 >120	49	42	21
Chromium	ppm ASTM D5185m >20	<1	<1	0
Nickel	ppm ASTM D5185m >5	0	<1	0
Titanium	ppm ASTM D5185m >2	0	0	0
Silver	ppm ASTM D5185m >2	0	0	0
Aluminum	ppm ASTM D5185m >20	2	2	<1
Lead	ppm ASTM D5185m >40	3	4	2
Copper	ppm ASTM D5185m >330	4	2	2
Tin	ppm ASTM D5185m >15	<1	<1	<1
Vanadium	ppm ASTM D5185m	0	0	0
Cadmium	ppm ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	<1	4	0
Barium	ppm ASTM D5185m 0	<1	0	0
Molybdenum	ppm ASTM D5185m 60	59	56	51
Manganese	ppm ASTM D5185m 0	0	<1	0
Magnesium	ppm ASTM D5185m 1010	886	891	809
Calcium	ppm ASTM D5185m 1070	971	1007	951
Phosphorus	ppm ASTM D5185m 1150	871	981	857
Zinc	ppm ASTM D5185m 1270	1113	1181	1077
Sulfur	ppm ASTM D5185m 2060	2680	2754	2640

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	4	3	2
Sodium	ppm ASTM D5185m	0	1	<1
Potassium	ppm ASTM D5185m >20	1	<1	<1
Fuel	% ASTM D3524 >3.0	<1.0	<1.0	<1.0

INFRA-RED

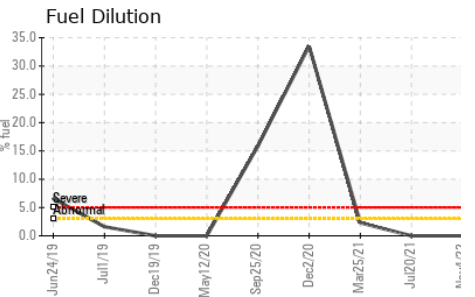
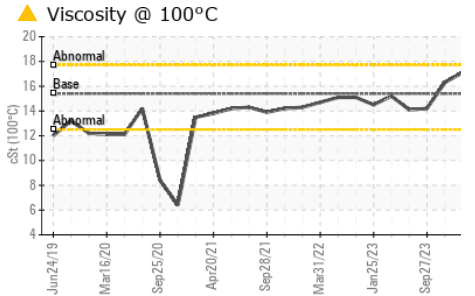
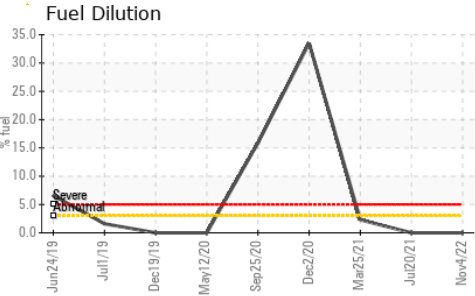
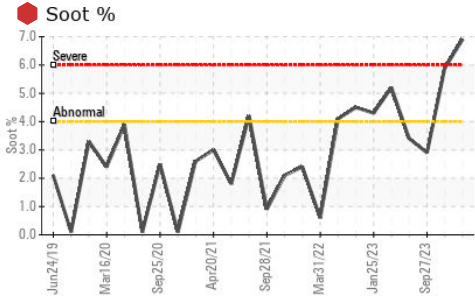
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >4	6.9	5.9	2.9
Nitration	Abs/cm *ASTM D7624 >20	33.1	27.0	9.5
Sulfation	Abs/.1mm *ASTM D7415 >30	46.5	45.3	23.4

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	65.3	49.1	15.2
Base Number (BN)	mg KOH/g ASTM D2896 9.8	0	0.0	7.9



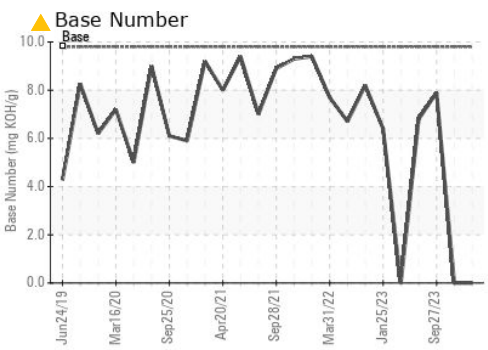
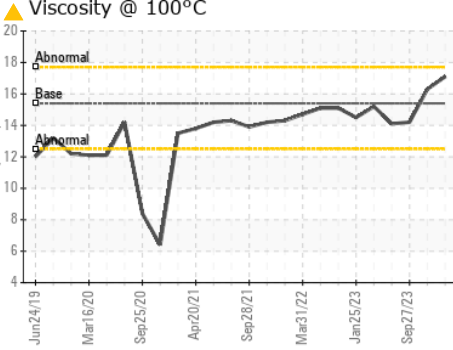
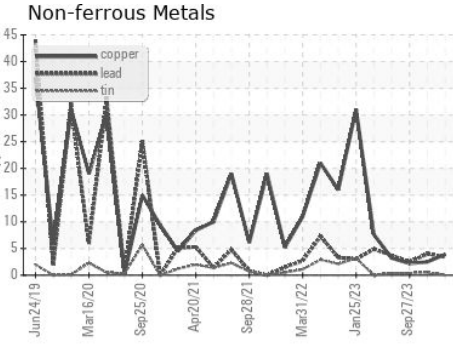
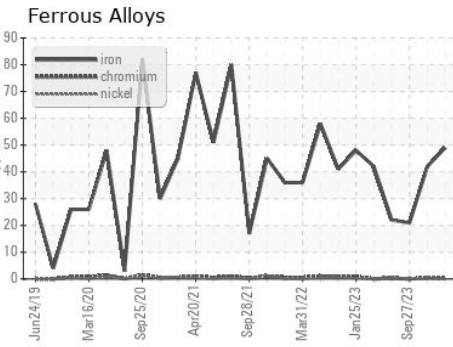
OIL ANALYSIS REPORT



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	15.4	▲ 17.1	▲ 16.3

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0103170 **Received** : 21 Feb 2024
Lab Number : 06095266 **Tested** : 22 Feb 2024
Unique Number : 10888119 **Diagnosed** : 23 Feb 2024 - Doug Bogart
Test Package : FLEET (Additional Tests: FuelDilution)

GFL Environmental - 001 - Raleigh(CNG)
 3741 Conquest Drive
 Garner, NC
 US 27529
 Contact: Craig Johnson
 craig.johnson@gflenv.com
 T: (919)662-7100
 F: (919)662-7130

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)