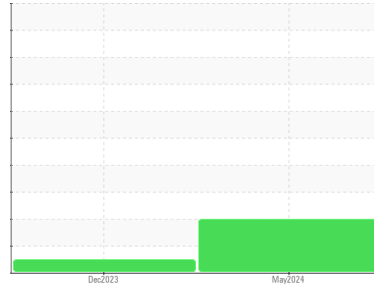




OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION



Machine Id

820042

Component

Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. The oil change at the time of sampling has been noted. We recommend you service the filters on this component. Resample at the next service interval to monitor. 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

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

Fluid Condition

The BN level is low.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0093810	GFL0093845	---
Sample Date	Client Info	16 May 2024	08 Dec 2023	---
Machine Age	hrs	7721	0	---
Oil Age	hrs	600	0	---
Oil Changed	Client Info	Changed	N/A	---
Sample Status		ABNORMAL	NORMAL	---

CONTAMINATION

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

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >110	17	21	---
Chromium	ppm ASTM D5185m >4	0	<1	---
Nickel	ppm ASTM D5185m >2	0	0	---
Titanium	ppm ASTM D5185m	0	0	---
Silver	ppm ASTM D5185m >2	0	0	---
Aluminum	ppm ASTM D5185m >25	5	5	---
Lead	ppm ASTM D5185m >45	0	0	---
Copper	ppm ASTM D5185m >85	8	60	---
Tin	ppm ASTM D5185m >4	<1	<1	---
Vanadium	ppm ASTM D5185m	0	0	---
Cadmium	ppm ASTM D5185m	0	0	---

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	2	1	---
Barium	ppm ASTM D5185m 0	0	0	---
Molybdenum	ppm ASTM D5185m 60	66	60	---
Manganese	ppm ASTM D5185m 0	<1	<1	---
Magnesium	ppm ASTM D5185m 1010	1025	966	---
Calcium	ppm ASTM D5185m 1070	1133	1074	---
Phosphorus	ppm ASTM D5185m 1150	1074	954	---
Zinc	ppm ASTM D5185m 1270	1327	1288	---
Sulfur	ppm ASTM D5185m 2060	3360	2570	---

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >30	3	3	---
Sodium	ppm ASTM D5185m	<1	1	---
Potassium	ppm ASTM D5185m >20	2	3	---
Fuel	% ASTM D3524 >5	0.3	<1.0	---

INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	▲ 3.8	0.9	---
Nitration	Abs/cm *ASTM D7624 >20	10.3	10.5	---
Sulfation	Abs/.1mm *ASTM D7415 >30	25.0	22.3	---

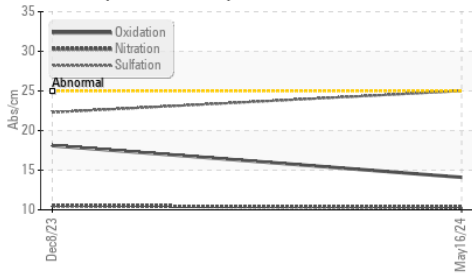
FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	14.1	18.1	---
Base Number (BN)	mg KOH/g ASTM D2896 9.8	▲ 0.0	6.7	---

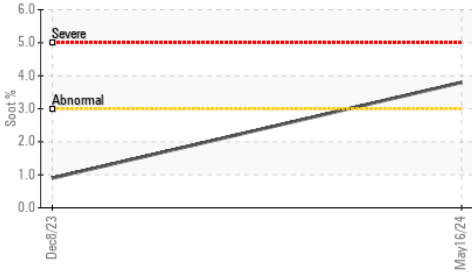


OIL ANALYSIS REPORT

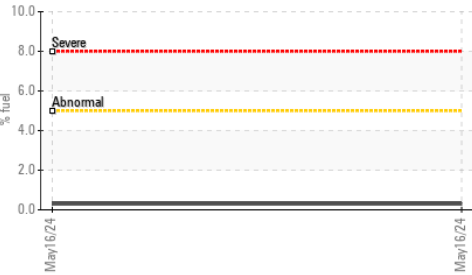
▲ FT-IR (Direct Trend)



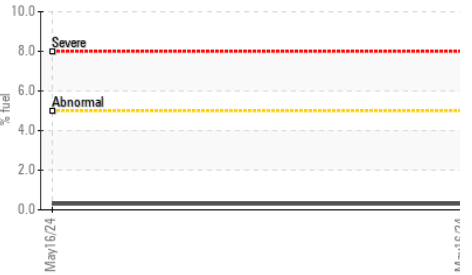
▲ Soot %



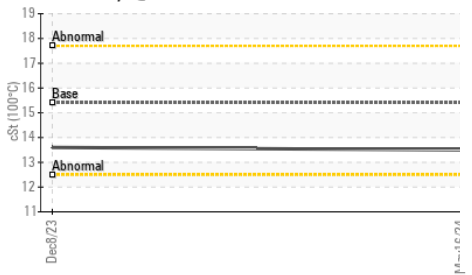
▲ Fuel Dilution



▲ Fuel Dilution



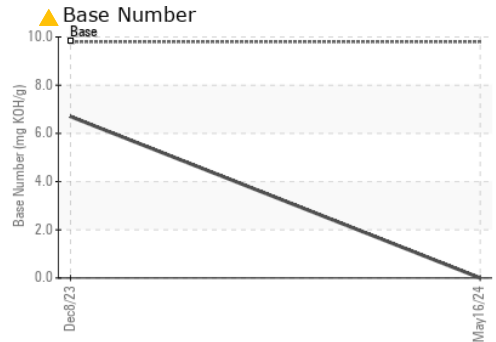
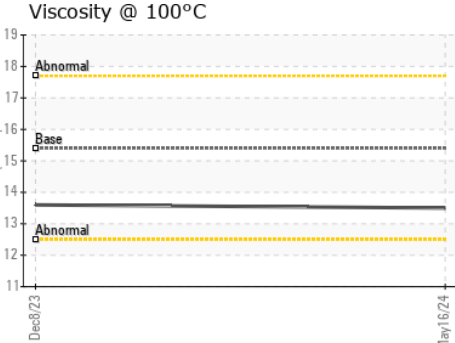
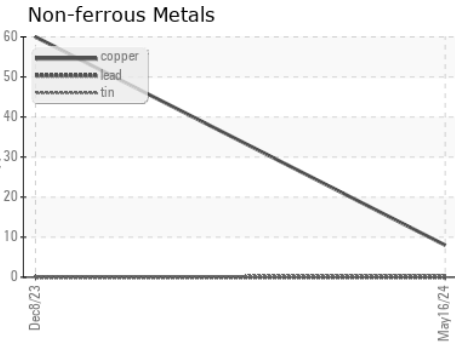
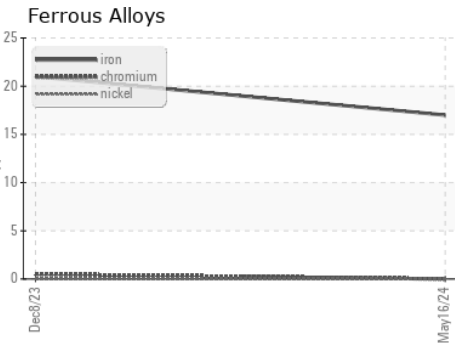
▲ Viscosity @ 100°C



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	---
Free Water	scalar	*Visual		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.6

GRAPHS



Certificate L2367

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

Sample No. : GFL0093810

Lab Number : 06188943

Unique Number : 11045695

Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

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)

Received : 23 May 2024

Tested : 29 May 2024

Diagnosed : 29 May 2024 - Jonathan Hester

GFL Environmental - 952 - New London

E8257 WIS-54

NEW LONDON, WI

US 54961

Contact: MATTHEW TAYLOR

T: (414)852-4404

F: