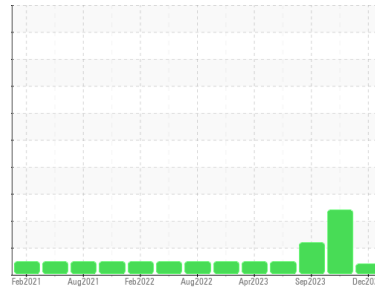




OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY



Machine Id
729017-1264
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 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

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		GFL0102822	GFL0103063	GFL0090516
Sample Date	Client Info		13 Dec 2023	27 Nov 2023	18 Sep 2023
Machine Age	hrs	Client Info	12415	12297	11826
Oil Age	hrs	Client Info	591	471	580
Oil Changed	Client Info		Changed	Not Changd	Changed
Sample Status			ATTENTION	SEVERE	ABNORMAL

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 >80	28	23	24
Chromium	ppm	ASTM D5185m >5	1	<1	1
Nickel	ppm	ASTM D5185m >2	<1	<1	<1
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m >3	0	<1	0
Aluminum	ppm	ASTM D5185m >30	2	4	0
Lead	ppm	ASTM D5185m >30	<1	0	0
Copper	ppm	ASTM D5185m >150	2	<1	2
Tin	ppm	ASTM D5185m >5	0	<1	0
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	2	4	2
Barium	ppm	ASTM D5185m 0	0	0	0
Molybdenum	ppm	ASTM D5185m 60	58	58	56
Manganese	ppm	ASTM D5185m 0	0	<1	<1
Magnesium	ppm	ASTM D5185m 1010	831	876	901
Calcium	ppm	ASTM D5185m 1070	958	995	1025
Phosphorus	ppm	ASTM D5185m 1150	788	990	934
Zinc	ppm	ASTM D5185m 1270	1095	1208	1180
Sulfur	ppm	ASTM D5185m 2060	2519	2816	3229

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >20	5	8	5
Sodium	ppm	ASTM D5185m	5	5	6
Potassium	ppm	ASTM D5185m >20	<1	2	2
Fuel	%	ASTM D3524 >5	1.5	8.3	7.0

INFRA-RED

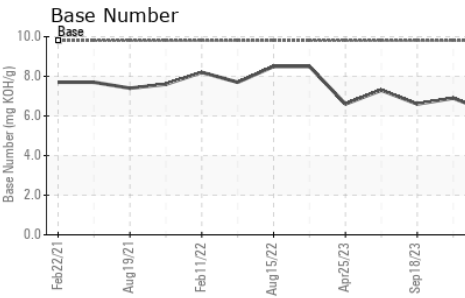
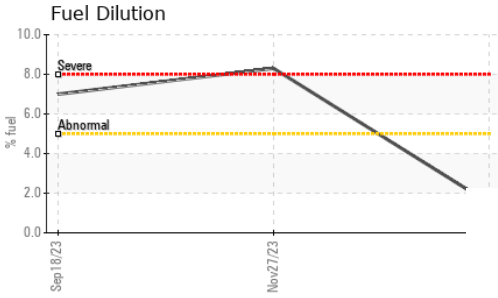
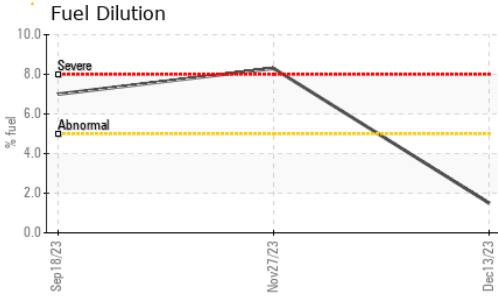
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.5	0.4	0.5
Nitration	Abs/cm	*ASTM D7624 >20	11.7	10.8	10.9
Sulfation	Abs/.1mm	*ASTM D7415 >30	22.2	20.5	21.0

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	21.2	19.0	19.5
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	6.2	6.9	6.6



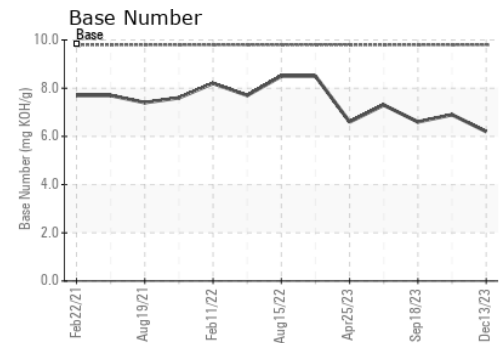
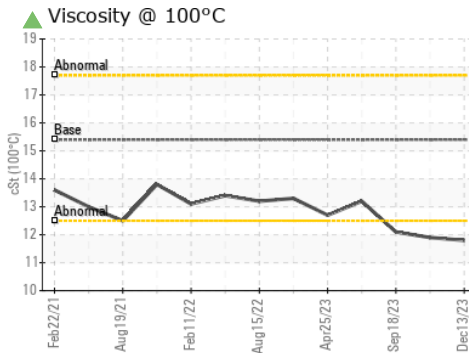
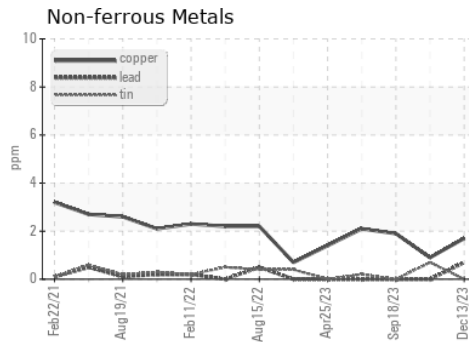
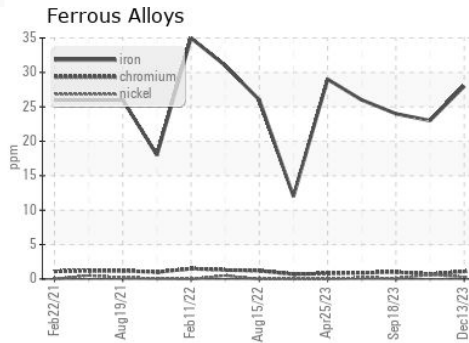
OIL ANALYSIS REPORT



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	▲ 11.8	▲ 11.9

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0102822 **Received** : 19 Dec 2023
Lab Number : 06039983 **Diagnosed** : 23 Dec 2023
Unique Number : 10795212 **Diagnostician** : Don Baldrige
Test Package : FLEET (Additional Tests: PercentFuel)

GFL Environmental - 622 - Traverse City Hauling
 160 Hughes Dr
 Traverse City, MI
 US 49686
 Contact: GARY BREWER

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)

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