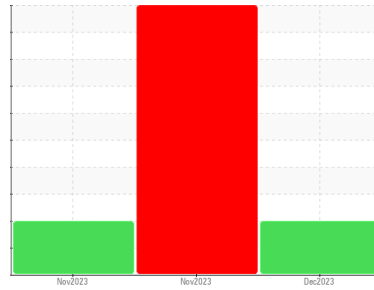




OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Machine Id
714064
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. 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. Elemental level of silicon (Si) above normal indicating ingress of seal material. No evidence of coolant present 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	GFL0105771	GFL0101425	GFL0101566
Sample Date	Client Info	16 Dec 2023	28 Nov 2023	09 Nov 2023
Machine Age	hrs	0	958	803
Oil Age	hrs	0	803	0
Oil Changed	Client Info	Changed	Not Changd	N/A
Sample Status		ABNORMAL	SEVERE	ABNORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >120	45	56	44
Chromium	ppm	ASTM D5185m >20	2	4	1
Nickel	ppm	ASTM D5185m >5	6	<1	5
Titanium	ppm	ASTM D5185m >2	<1	<1	<1
Silver	ppm	ASTM D5185m >2	<1	<1	1
Aluminum	ppm	ASTM D5185m >20	11	6	11
Lead	ppm	ASTM D5185m >40	0	0	<1
Copper	ppm	ASTM D5185m >330	168	16	274
Tin	ppm	ASTM D5185m >15	3	<1	3
Vanadium	ppm	ASTM D5185m	<1	0	<1
Cadmium	ppm	ASTM D5185m	0	0	<1

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m 0	75	98	146
Barium	ppm	ASTM D5185m 0	<1	0	<1
Molybdenum	ppm	ASTM D5185m 60	95	191	114
Manganese	ppm	ASTM D5185m 0	4	2	4
Magnesium	ppm	ASTM D5185m 1010	774	822	722
Calcium	ppm	ASTM D5185m 1070	1268	917	1428
Phosphorus	ppm	ASTM D5185m 1150	759	872	751
Zinc	ppm	ASTM D5185m 1270	938	1131	884
Sulfur	ppm	ASTM D5185m 2060	2212	3280	2373

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >25	▲ 57	▲ 59	▲ 74
Sodium	ppm	ASTM D5185m	4	▲ 2812	0
Potassium	ppm	ASTM D5185m >20	28	▲ 91	32
Fuel	%	ASTM D3524 >3.0	0.4	<1.0	0.5
Glycol	%	*ASTM D2982	NEG	◆ 0.12	NEG

INFRA-RED

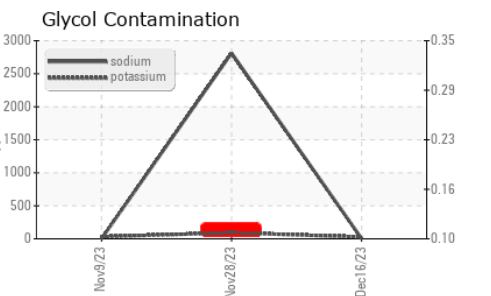
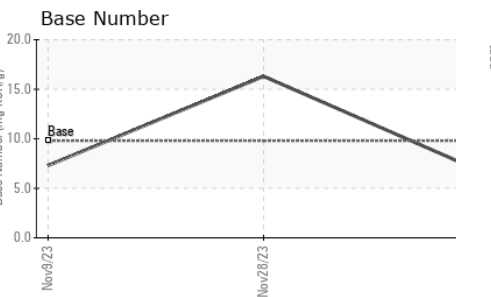
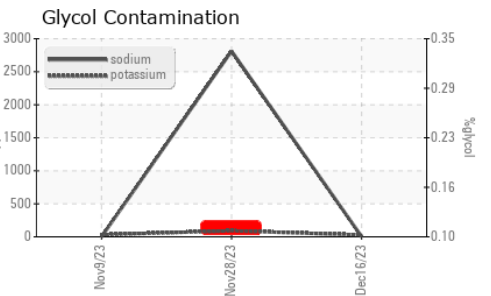
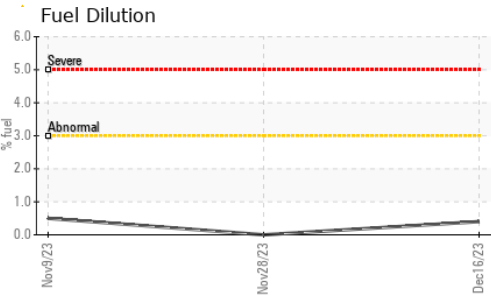
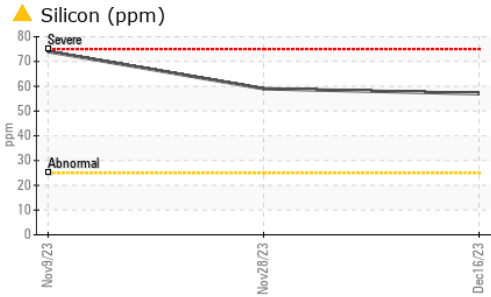
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844 >4	0.7	1.2	0.6
Nitration	Abs/cm	*ASTM D7624 >20	10.3	16.1	10.0
Sulfation	Abs/.1mm	*ASTM D7415 >30	23.5	29.7	24.0

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	22.2	17.8	22.2
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	6.8	16.3	7.3



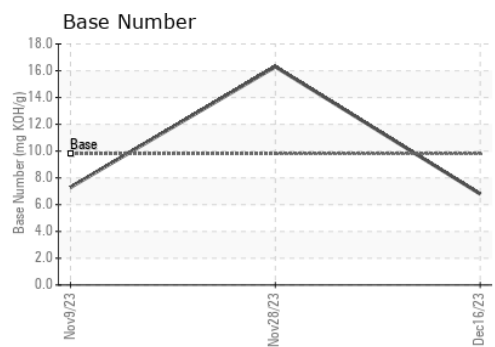
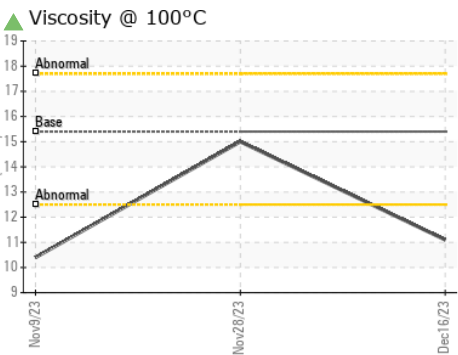
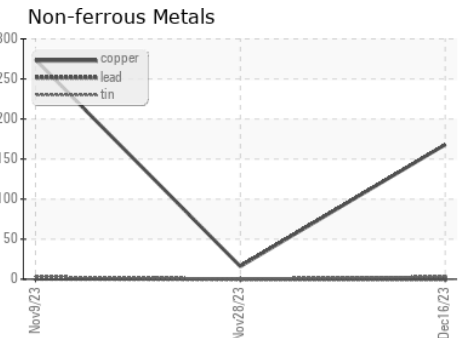
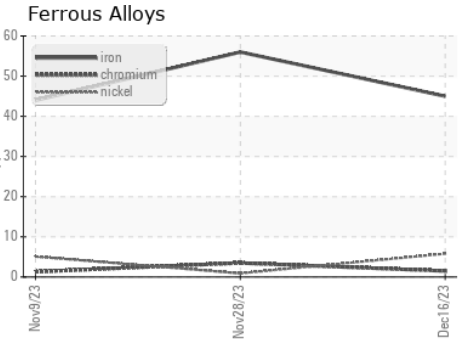
OIL ANALYSIS REPORT



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	▲ 11.1	15.0	▲ 10.4

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0105771 **Received** : 19 Dec 2023
Lab Number : 06039100 **Diagnosed** : 27 Dec 2023
Unique Number : 10794329 **Diagnostician** : Jonathan Hester
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

GFL Environmental - 415 - Michigan East
 6200 Elmridge
 Sterling Heights, MI
 US 48313
 Contact: Frank Wolak
 fwolak@gflenv.com
 T: (586)825-9514
 F:

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)