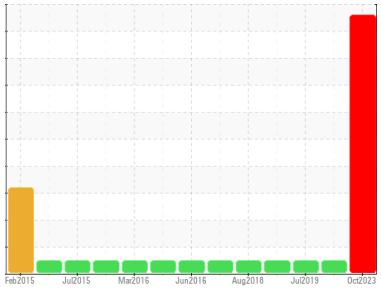
OIL ANALYSIS REPORT

Machine Id
9952
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (24 LTR)

Sample Rating Trend



WEAR

DIAGNOSIS

Recommendation

We advise that you check for visible metal particles in the oil. The oil change at the time of sampling has been noted. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear

Chromium Chromium ppm levels are severe. Aluminum, iron and nickel ppm levels are abnormal. Light concentration of visible metal present. Piston, ring and cylinder wear is indicated. Cylinder, crank, or cam shaft wear is indicated. Ring wear is indicated. Exhaust valve wear is indicated. Piston wear is indicated.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0097751**	PC0021815	PC0013810
Sample Date		Client Info		**02 Oct 2023**	19 Jan 2020	11 Jul 2019
Machine Age	hrs	Client Info		**29262**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Changed**	N/A	Changed
Sample Status				**SEVERE**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	<1.0

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**12**	---	---
Iron	ppm	ASTM D5185(m)	>165	▲ **169**	8	19
Chromium	ppm	ASTM D5185(m)	>5	⬢ **13**	<1	2
Nickel	ppm	ASTM D5185(m)	>4	▲ **6**	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	**0**	<1	0
Silver	ppm	ASTM D5185(m)	>2	**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>20	▲ **22**	2	10
Lead	ppm	ASTM D5185(m)	>150	**15**	<1	<1
Copper	ppm	ASTM D5185(m)	>90	**44**	2	6
Tin	ppm	ASTM D5185(m)	>5	**1**	<1	0
Antimony	ppm	ASTM D5185(m)		**0**	<1	<1
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

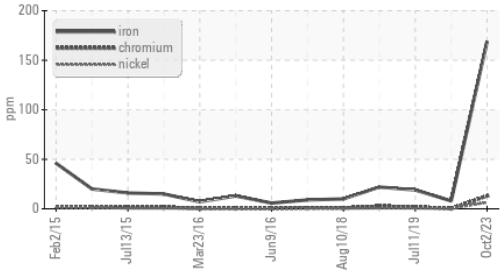
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**5**	2	5
Barium	ppm	ASTM D5185(m)	0	**3**	0	0
Molybdenum	ppm	ASTM D5185(m)	60	**109**	59	98
Manganese	ppm	ASTM D5185(m)	0	**6**	<1	<1
Magnesium	ppm	ASTM D5185(m)	1010	**634**	920	178
Calcium	ppm	ASTM D5185(m)	1070	**1935**	1043	1878
Phosphorus	ppm	ASTM D5185(m)	1150	**839**	925	678
Zinc	ppm	ASTM D5185(m)	1270	**1073**	1179	858
Sulfur	ppm	ASTM D5185(m)	2060	**2326**	2419	2233
Lithium	ppm	ASTM D5185(m)		**<1**	<1	0

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>35	**17**	4	5
Sodium	ppm	ASTM D5185(m)		**30**	3	6
Potassium	ppm	ASTM D5185(m)	>20	**46**	2	12
Glycol	%	ASTM D7922*		**0.0**	NEG	0.0

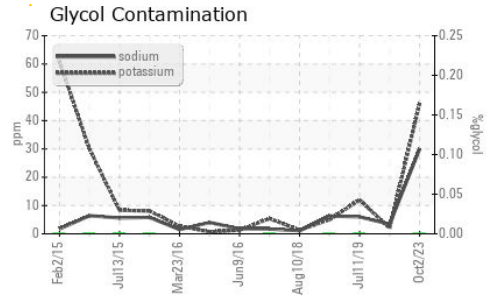
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>7.5	**0**	0.1	0
Nitration	Abs/cm	ASTM D7624*	>20	**13.7**	11.1	8.0
Sulfation	Abs/.1mm	ASTM D7415*	>30	**30.7**	25.1	22.1

OIL ANALYSIS REPORT

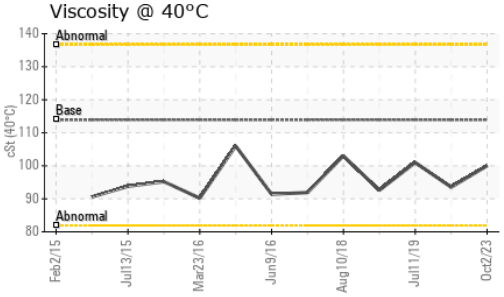
Ferrous Alloys



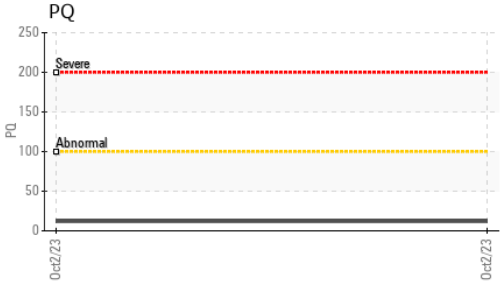
Glycol Contamination



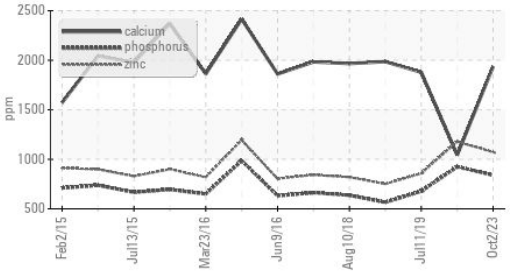
Viscosity @ 40°C



PQ



Additives



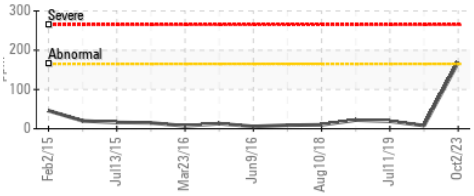
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**22.7**	18.1	11.8

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

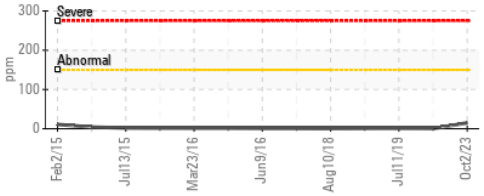
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	113.9	**100**	93.5	101
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	**13.2**	13.1	14.1
Viscosity Index (VI)	Scale	ASTM D2270*	142	**129**	138	142

GRAPHS

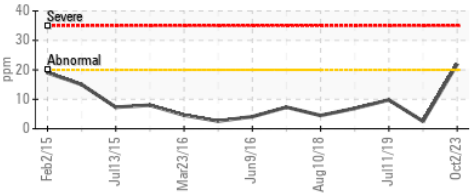
▲ Iron (ppm)



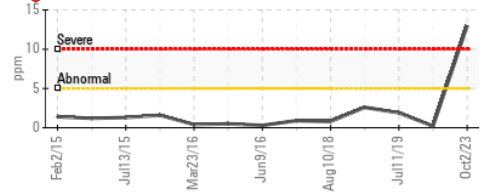
Lead (ppm)



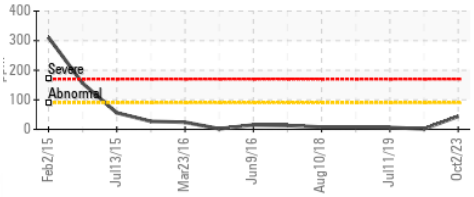
▲ Aluminum (ppm)



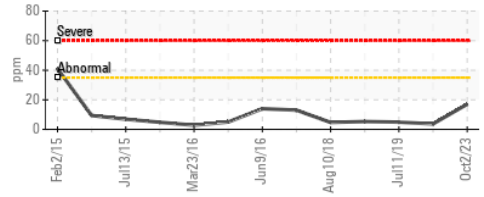
Chromium (ppm)



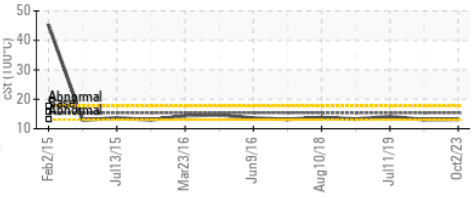
Copper (ppm)



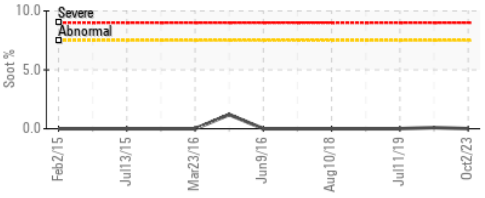
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **GFL Environmental - 209 - Hamilton**
Sample No. : GFL0097751 **Received** : 04 Oct 2023 560 Seaman Street
Lab Number : 02586716 **Diagnosed** : 06 Oct 2023 Stoney Creek, ON
Unique Number : 5655782 **Diagnostician** : Kevin Marson CA L8E 3X7
Test Package : MOB 1 (Additional Tests: BottomAnalysis, FILTERPATCH, Glycol, KV40, PQ, VI, Visual) Contact: Fred Carleton

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

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