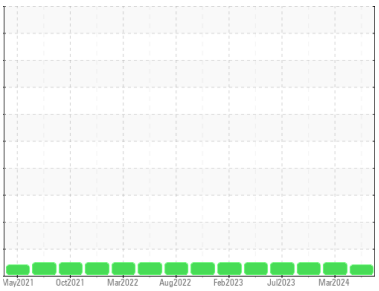
OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Machine Id
411002
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- LTR)

DIAGNOSIS

Recommendation
Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.

Wear
Metal levels are typical for a new component breaking in.

Contamination
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. Tests indicate that there is no fuel present in the oil. There is no indication of any contamination in the oil.

Fluid Condition
Viscosity of sample indicates oil is within SAE 20 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0111986**	GFL0090402	GFL0090387
Sample Date		Client Info		**04 Jun 2024**	26 Mar 2024	15 Jan 2024
Machine Age	hrs	Client Info		**536**	132620	124708
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	Changed	Changed
Sample Status				**ABNORMAL**	NORMAL	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 D5185(m)	>120	**29**	7	16
Chromium	ppm	ASTM D5185(m)	>20	**<1**	0	<1
Nickel	ppm	ASTM D5185(m)	>5	**3**	0	1
Titanium	ppm	ASTM D5185(m)	>2	**0**	0	0
Silver	ppm	ASTM D5185(m)	>2	**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>20	**7**	2	3
Lead	ppm	ASTM D5185(m)	>40	**5**	0	<1
Copper	ppm	ASTM D5185(m)	>330	**227**	5	13
Tin	ppm	ASTM D5185(m)	>15	**3**	0	<1
Antimony	ppm	ASTM D5185(m)		**0**	0	0
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	**276**	3	1
Barium	ppm	ASTM D5185(m)	0	**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)	60	**129**	58	58
Manganese	ppm	ASTM D5185(m)	0	**4**	0	0
Magnesium	ppm	ASTM D5185(m)	1010	**690**	981	937
Calcium	ppm	ASTM D5185(m)	1070	**1432**	1050	1039
Phosphorus	ppm	ASTM D5185(m)	1150	**636**	974	912
Zinc	ppm	ASTM D5185(m)	1270	**760**	1177	1157
Sulfur	ppm	ASTM D5185(m)	2060	**1849**	2456	2284
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**54**	1	3
Sodium	ppm	ASTM D5185(m)		**3**	5	4
Potassium	ppm	ASTM D5185(m)	>20	**12**	2	6
Fuel	%	ASTM D7593*	>3.0	**0.0**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>4	**0.1**	0.1	0.3
Nitration	Abs/cm	ASTM D7624*	>20	**9.3**	7.2	9.7
Sulfation	Abs/.1mm	ASTM D7415*	>30	**25.5**	18.9	21.5

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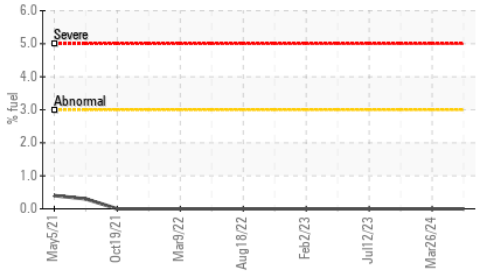
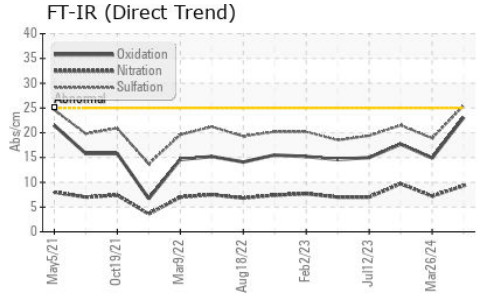
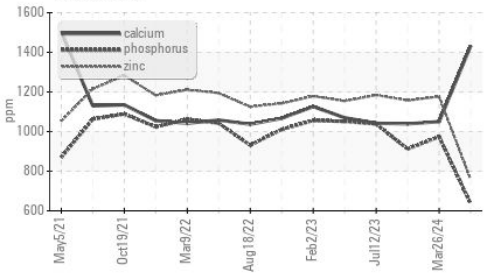
Fuel Dilution



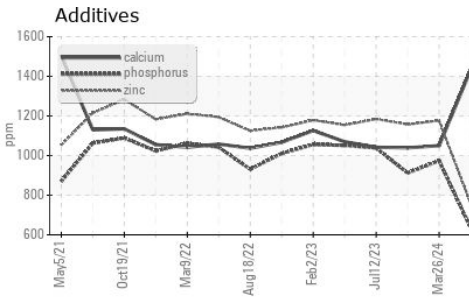
FT-IR (Direct Trend)



Additives



Additives



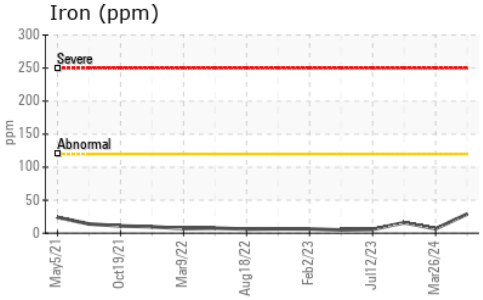
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**23.1**	14.9	17.7

VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

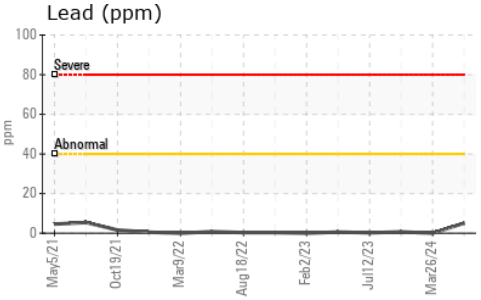
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	▲ **9.3**	13.7	13.5

GRAPHS

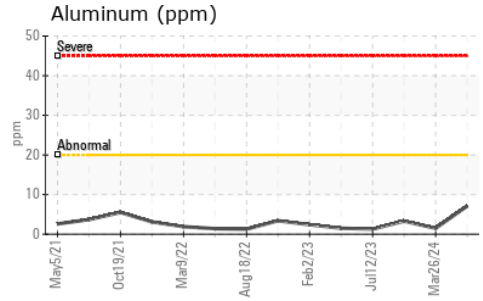
Iron (ppm)



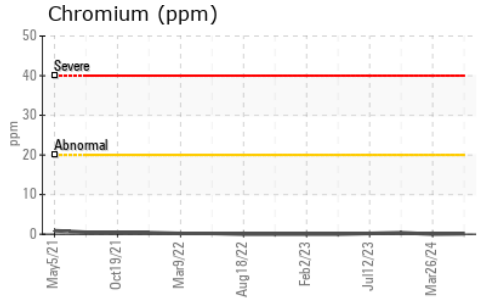
Lead (ppm)



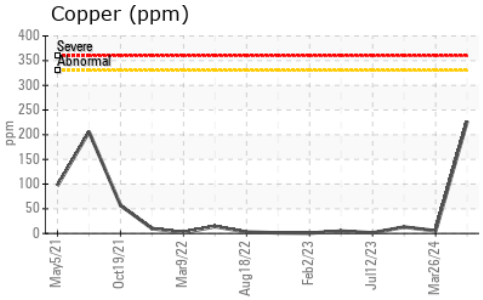
Aluminum (ppm)



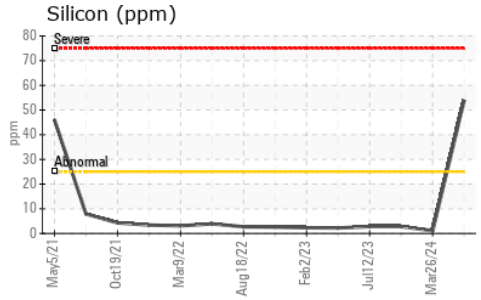
Chromium (ppm)



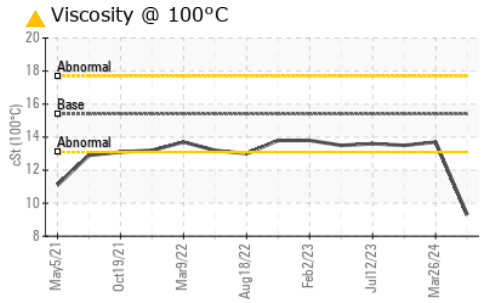
Copper (ppm)



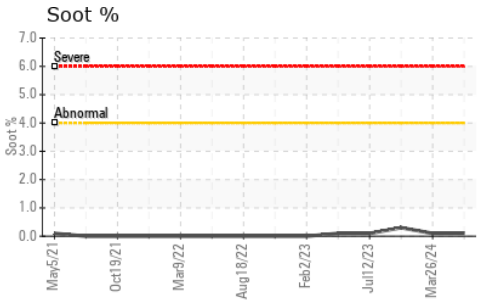
Silicon (ppm)



▲ Viscosity @ 100°C



Soot %



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0111986 **Received** : 11 Jun 2024
Lab Number : 02640985 **Tested** : 12 Jun 2024
Unique Number : 5798524 **Diagnosed** : 12 Jun 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel)

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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