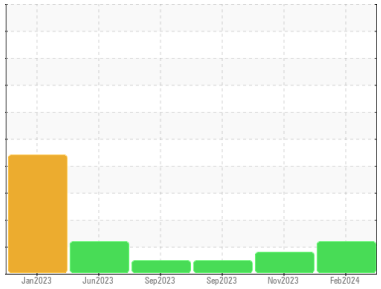
OIL ANALYSIS REPORT

Machine Id
712055
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

Sample Rating Trend



WEAR

DIAGNOSIS

Recommendation
We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear
Nickel ppm levels are abnormal. Exhaust valve wear is indicated.

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

Fluid Condition
Viscosity of sample indicates oil is within SAE 30 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. 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		**GFL0102850**	GFL0097324	GFL0090848
Sample Date		Client Info		**08 Feb 2024**	16 Nov 2023	12 Sep 2023
Machine Age	hrs	Client Info		**2942**	0	0
Oil Age	hrs	Client Info		**0**	2378	1902
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	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	**15**	17	11
Chromium	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>5	▲ **7**	▲ 6	<1
Titanium	ppm	ASTM D5185(m)	>2	**0**	0	<1
Silver	ppm	ASTM D5185(m)	>2	**<1**	<1	<1
Aluminum	ppm	ASTM D5185(m)	>20	**2**	1	<1
Lead	ppm	ASTM D5185(m)	>40	**<1**	2	<1
Copper	ppm	ASTM D5185(m)	>330	**11**	56	1
Tin	ppm	ASTM D5185(m)	>15	**<1**	<1	<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

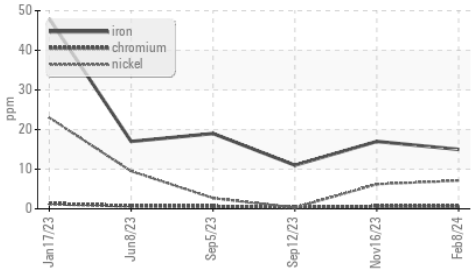
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**27**	7	3
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	60	**47**	55	59
Manganese	ppm	ASTM D5185(m)	0	**0**	0	<1
Magnesium	ppm	ASTM D5185(m)	1010	**522**	852	972
Calcium	ppm	ASTM D5185(m)	1070	**1702**	1160	1035
Phosphorus	ppm	ASTM D5185(m)	1150	**733**	913	1034
Zinc	ppm	ASTM D5185(m)	1270	**896**	1159	1186
Sulfur	ppm	ASTM D5185(m)	2060	**2163**	2058	2388
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**4**	3	3
Sodium	ppm	ASTM D5185(m)		**2**	4	4
Potassium	ppm	ASTM D5185(m)	>20	**2**	3	1
Fuel	%	ASTM D7593*	>3.0	**0.9**	<1.0	<1.0

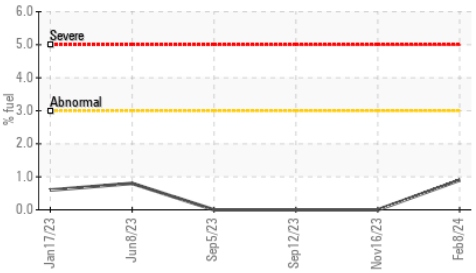
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>4	**0.9**	0.9	0.5
Nitration	Abs/cm	ASTM D7624*	>20	**9.6**	8.6	7.4
Sulfation	Abs/.1mm	ASTM D7415*	>30	**24.6**	21.8	19.8

OIL ANALYSIS REPORT

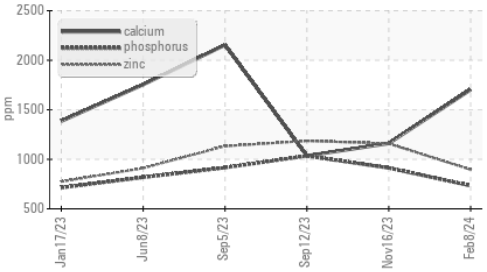
Ferrous Alloys



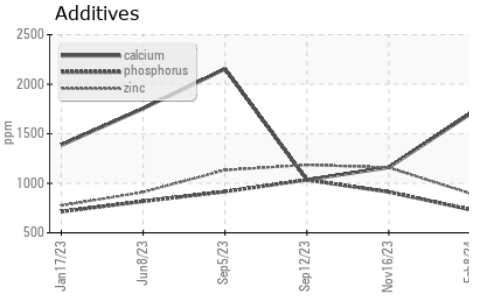
Fuel Dilution



Additives



Additives



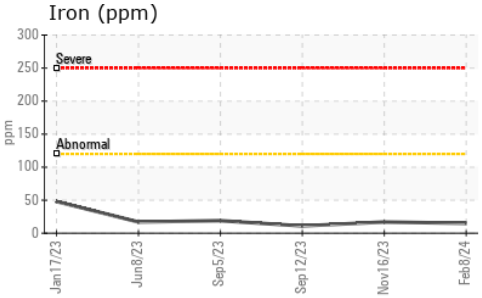
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**21.1**	16.2	14.7

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

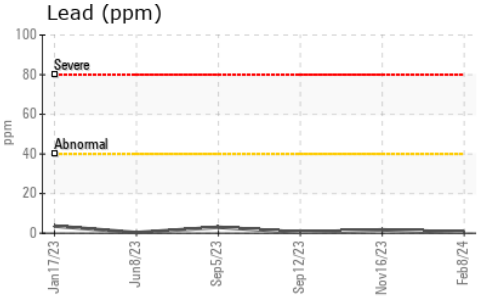
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	▲ **11.8**	13.6	13.5

GRAPHS

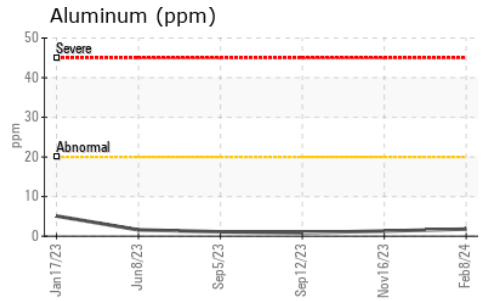
Iron (ppm)



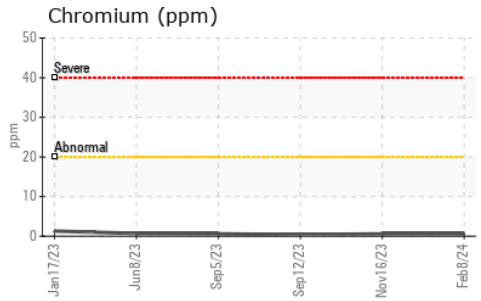
Lead (ppm)



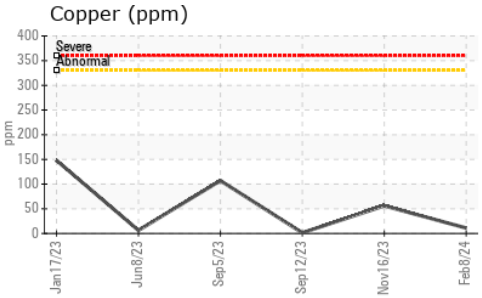
Aluminum (ppm)



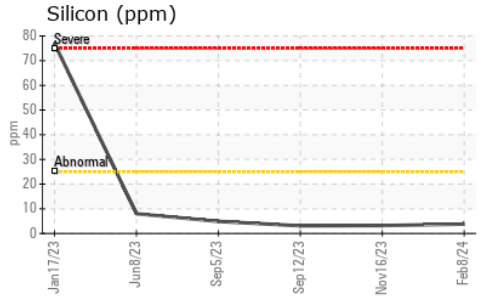
Chromium (ppm)



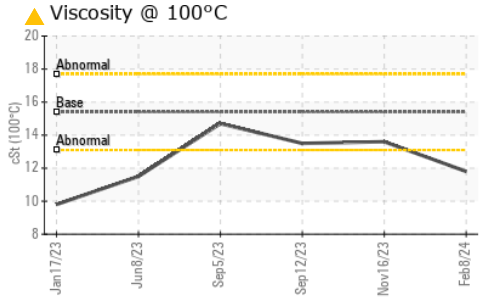
Copper (ppm)



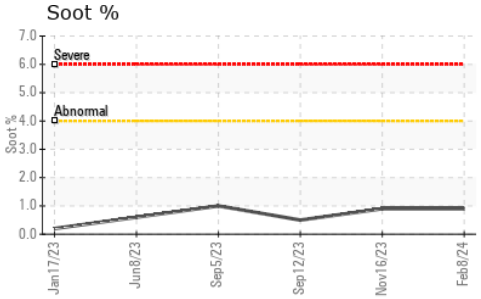
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0102850
Lab Number : 02614393
Unique Number : 5723488
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel)

Received : 09 Feb 2024
Tested : 13 Feb 2024
Diagnosed : 13 Feb 2024 - Kevin Marson

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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