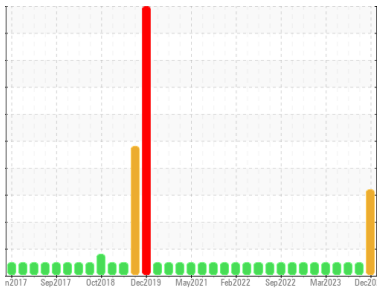
OIL ANALYSIS REPORT

Machine Id
7178
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (40 GAL)

Sample Rating Trend



FUEL

DIAGNOSIS

Recommendation
We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear
Iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated.

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. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition
Fuel is present in the oil and is lowering the viscosity. 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		**GFL0097535**	GFL0097547	GFL0088943
Sample Date		Client Info		**19 Dec 2023**	19 Oct 2023	24 Aug 2023
Machine Age	hrs	Client Info		**22268**	21709	21159
Oil Age	hrs	Client Info		**559**	543	599
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**SEVERE**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

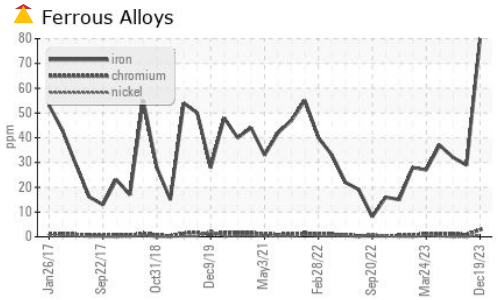
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	---	---
Iron	ppm	ASTM D5185(m)	>75	▲ **80**	29	32
Chromium	ppm	ASTM D5185(m)	>5	**3**	<1	1
Nickel	ppm	ASTM D5185(m)	>4	**<1**	0	0
Titanium	ppm	ASTM D5185(m)	>2	**0**	0	0
Silver	ppm	ASTM D5185(m)	>2	**0**	<1	<1
Aluminum	ppm	ASTM D5185(m)	>15	**5**	9	10
Lead	ppm	ASTM D5185(m)	>25	**<1**	<1	0
Copper	ppm	ASTM D5185(m)	>100	**2**	1	1
Tin	ppm	ASTM D5185(m)	>4	**0**	0	0
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

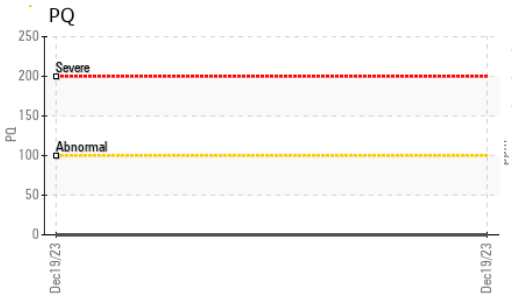
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**3**	5	5
Barium	ppm	ASTM D5185(m)	0	**0**	<1	0
Molybdenum	ppm	ASTM D5185(m)	60	**50**	60	58
Manganese	ppm	ASTM D5185(m)	0	**<1**	0	<1
Magnesium	ppm	ASTM D5185(m)	1010	**786**	946	941
Calcium	ppm	ASTM D5185(m)	1070	**890**	1051	1032
Phosphorus	ppm	ASTM D5185(m)	1150	**808**	1000	1039
Zinc	ppm	ASTM D5185(m)	1270	**978**	1180	1179
Sulfur	ppm	ASTM D5185(m)	2060	**1991**	2473	2489
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

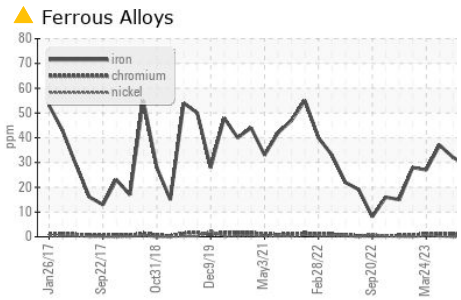
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**7**	5	6
Sodium	ppm	ASTM D5185(m)		**8**	6	7
Potassium	ppm	ASTM D5185(m)	>20	**6**	19	21
Fuel	%	ASTM D7593*	>3.0	● **11.3**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>6	**1**	0.7	0.8
Nitration	Abs/cm	ASTM D7624*	>20	**14.1**	9.2	9.6
Sulfation	Abs/.1mm	ASTM D7415*	>30	**25.7**	20.3	22.3

OIL ANALYSIS REPORT





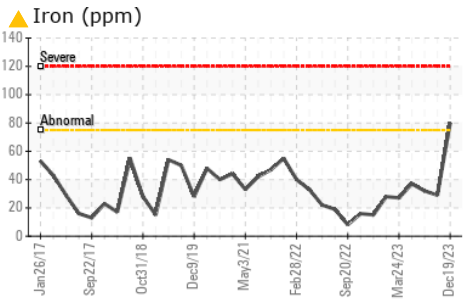


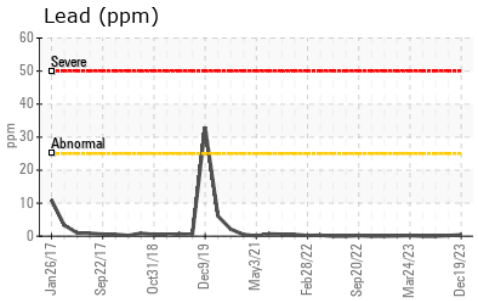
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**28.7**	16.5	17.2

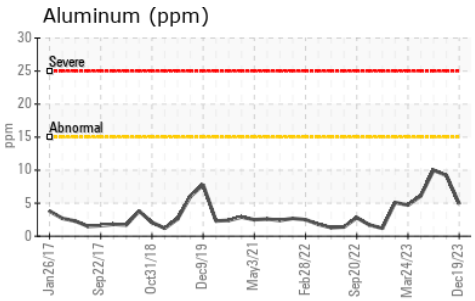
VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

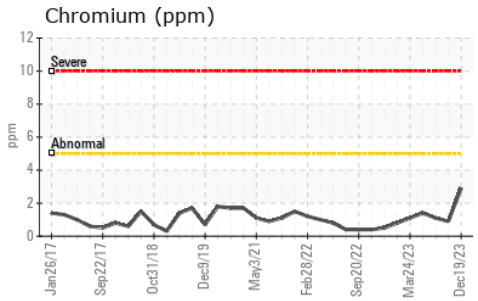
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	▲ **11.8**	13.7	13.8

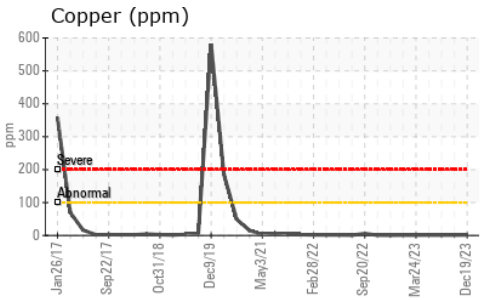
GRAPHS

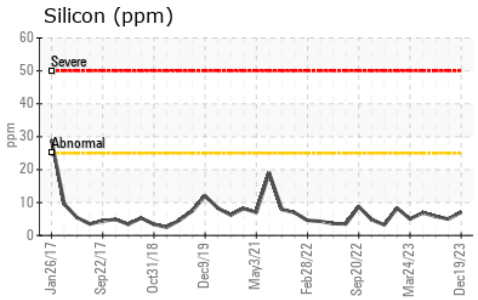


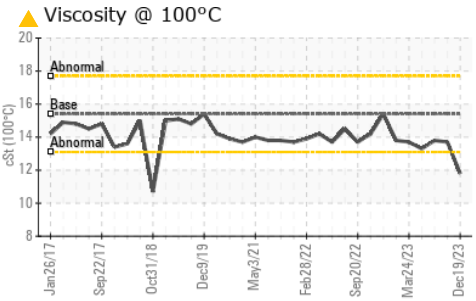


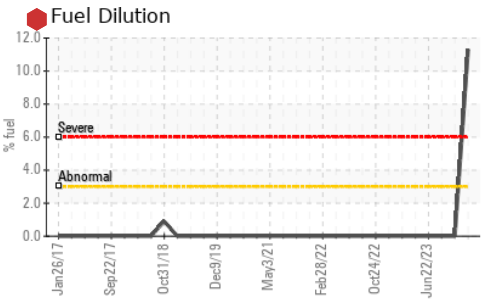












ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0097535 **Recieved** : 20 Dec 2023
Lab Number : 02604375 **Diagnosed** : 21 Dec 2023
Unique Number : 5697460 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel, PQ)

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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