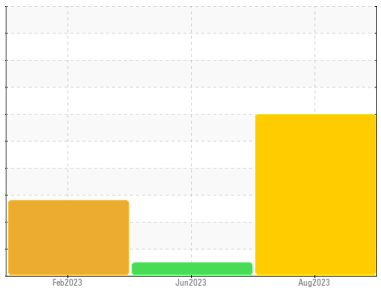
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
MACK 913097
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation
The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear
Nickel ppm levels are severe. A sharp increase in the nickel level is noted. Exhaust valve wear is indicated.

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

Fluid Condition
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		**GFL0068062**	GFL0068053	GFL0068049
Sample Date		Client Info		**29 Aug 2023**	19 Jun 2023	07 Feb 2023
Machine Age	hrs	Client Info		**1909**	1540	891
Oil Age	hrs	Client Info		**369**	500	250
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**SEVERE**	NORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	▲ 3.5
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>120	**12**	20	11
Chromium	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>5	● **10**	6	3
Titanium	ppm	ASTM D5185(m)	>2	**<1**	<1	0
Silver	ppm	ASTM D5185(m)	>2	**<1**	<1	<1
Aluminum	ppm	ASTM D5185(m)	>20	**2**	5	2
Lead	ppm	ASTM D5185(m)	>40	**2**	5	<1
Copper	ppm	ASTM D5185(m)	>330	**60**	212	24
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	**8**	72	12
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	60	**55**	9	40
Manganese	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	1010	**915**	214	▲ 594
Calcium	ppm	ASTM D5185(m)	1070	**1102**	1853	▲ 703
Phosphorus	ppm	ASTM D5185(m)	1150	**1035**	909	▲ 664
Zinc	ppm	ASTM D5185(m)	1270	**1157**	1088	▲ 725
Sulfur	ppm	ASTM D5185(m)	2060	**2371**	2351	1605
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**4**	8	9
Sodium	ppm	ASTM D5185(m)		**2**	4	2
Potassium	ppm	ASTM D5185(m)	>20	**3**	8	2

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>4	**0.3**	0.3	0
Nitration	Abs/cm	ASTM D7624*	>20	**7.6**	8.7	6.3
Sulfation	Abs/.1mm	ASTM D7415*	>30	**21.6**	22.3	18.3

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**15.7**	18.1	12.2

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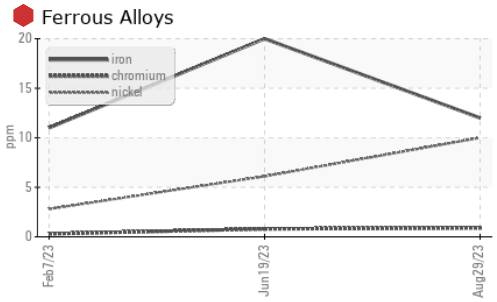
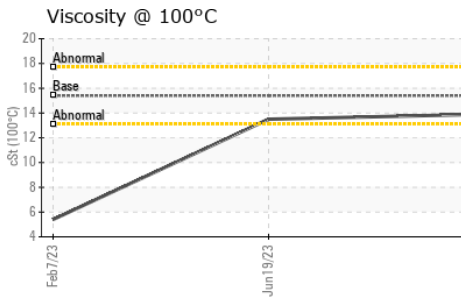
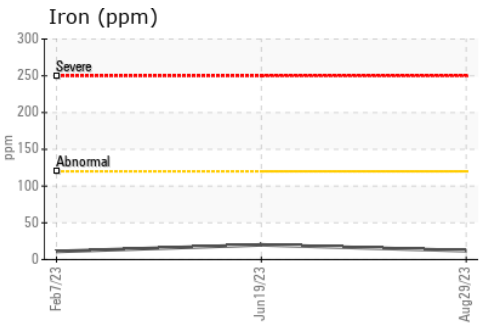


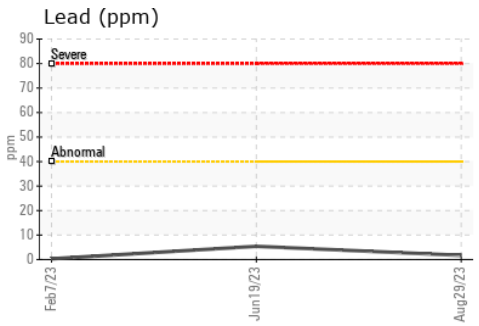


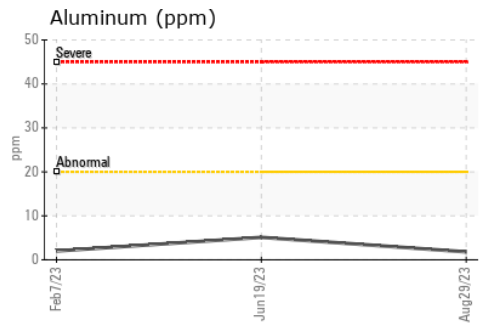
VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

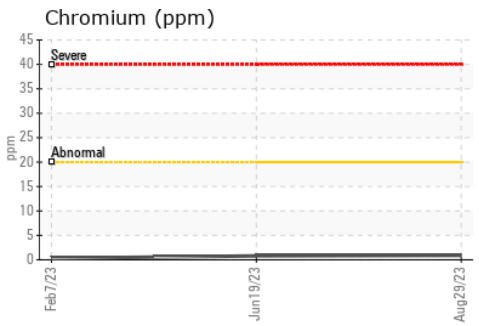
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	**13.9**	13.5	▲ 5.4

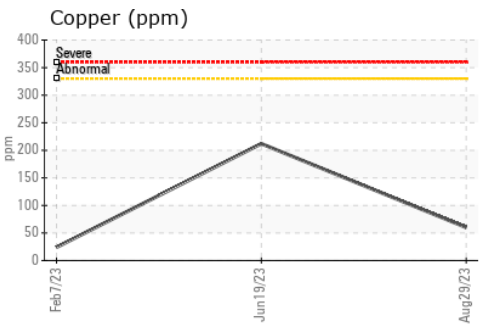
GRAPHS

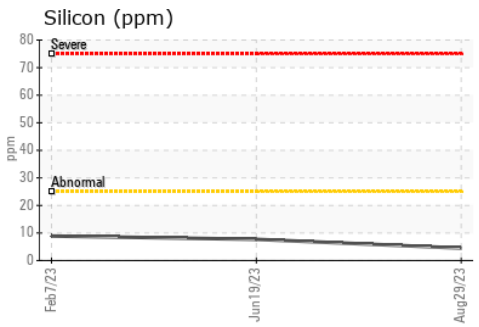


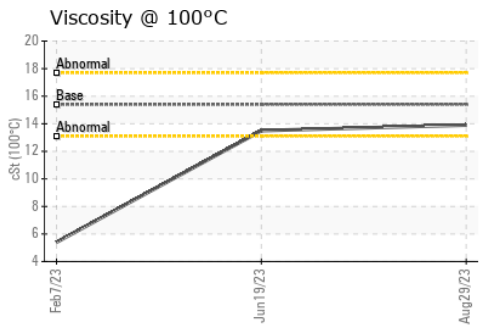


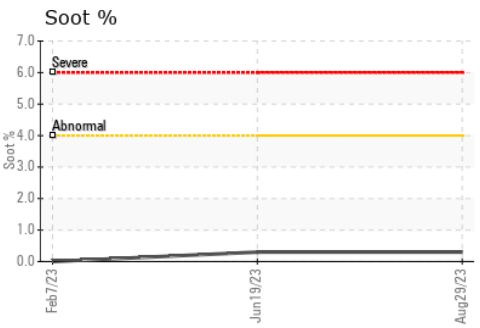












ISO 17025:2017 Accredited Laboratory

Laboratory	: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9		
Sample No.	: GFL0068062	**Received**	: 05 Sep 2023
Lab Number	: 02580295	**Diagnosed**	: 05 Sep 2023
Unique Number	: 5633355	**Diagnostician**	: Kevin Marson
Test Package	: MOB 1		

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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