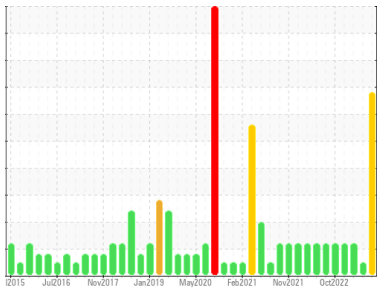
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Area
(BD49538)
Machine Id
1963
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (9 GAL)

DIAGNOSIS

Recommendation
We advise that you check for the source of the coolant leak. Check for low coolant level. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear
The iron level is abnormal. All other component wear rates are normal.

Contamination
Sodium and/or potassium levels are high. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition
The BN level is low.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0108850**	GFL0105731	GFL0086666
Sample Date		Client Info		**29 Jan 2024**	18 Dec 2023	07 Aug 2023
Machine Age	hrs	Client Info		**28134**	26975	26501
Oil Age	hrs	Client Info		**10351**	708	0
Oil Changed		Client Info		**Changed**	Not Changd	Changed
Sample Status				**ABNORMAL**	NORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	<1.0
Water		WC Method	>0.2	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	▲ **86**	4	49
Chromium	ppm	ASTM D5185m	>20	**4**	<1	3
Nickel	ppm	ASTM D5185m	>2	**1**	<1	<1
Titanium	ppm	ASTM D5185m	>2	**<1**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	▲ **10**	2	6
Lead	ppm	ASTM D5185m	>40	**1**	0	0
Copper	ppm	ASTM D5185m	>330	**2**	12	1
Tin	ppm	ASTM D5185m	>15	**<1**	0	<1
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**29**	18	20
Barium	ppm	ASTM D5185m	0	**<1**	0	0
Molybdenum	ppm	ASTM D5185m	60	**114**	59	88
Manganese	ppm	ASTM D5185m	0	**1**	0	<1
Magnesium	ppm	ASTM D5185m	1010	**921**	861	900
Calcium	ppm	ASTM D5185m	1070	**1056**	974	1051
Phosphorus	ppm	ASTM D5185m	1150	**941**	818	969
Zinc	ppm	ASTM D5185m	1270	**1205**	1090	1206
Sulfur	ppm	ASTM D5185m	2060	**2812**	2848	3448

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	▲ **35**	9	15
Sodium	ppm	ASTM D5185m		▲ **1508**	0	▲ 742
Potassium	ppm	ASTM D5185m	>20	▲ **23**	1	26
Glycol	%	*ASTM D2982		**NEG**	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>6	**4.8**	0.1	3.4
Nitration	Abs/cm	*ASTM D7624	>20	**15.7**	4.5	13.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	**31.3**	17.8	25.7

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.7**	13.3	17.7
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	▲ **3.1**	9.4	8.6

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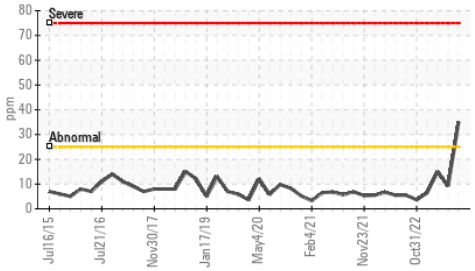
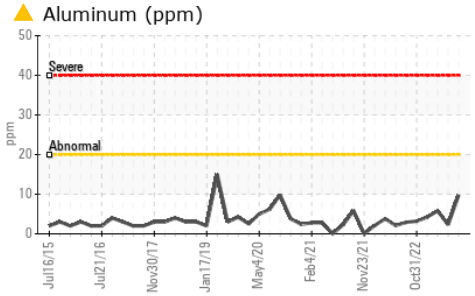
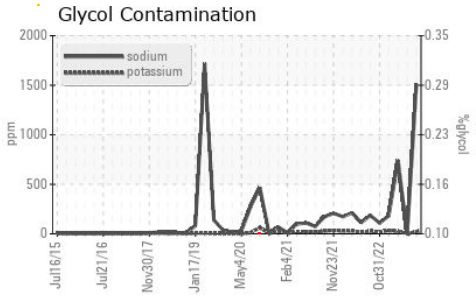
Silicon (ppm)



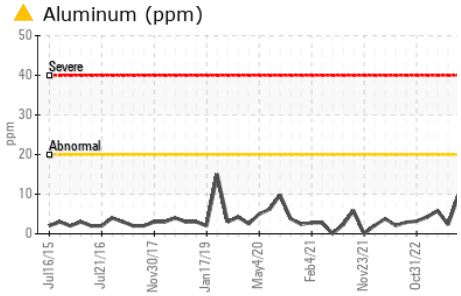
Aluminum (ppm)



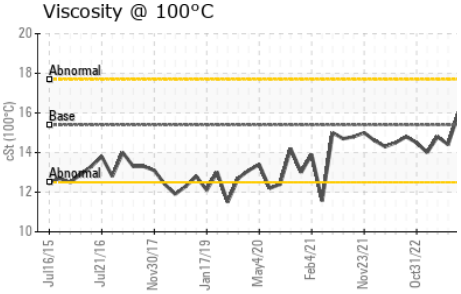
Glycol Contamination



Aluminum (ppm)



Viscosity @ 100°C

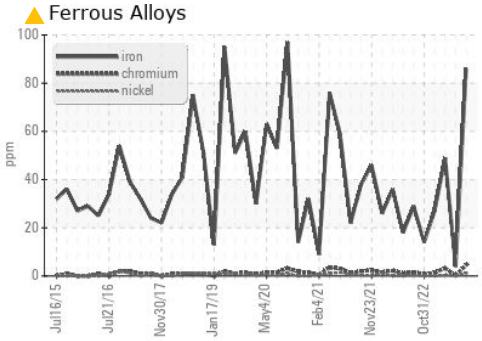


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

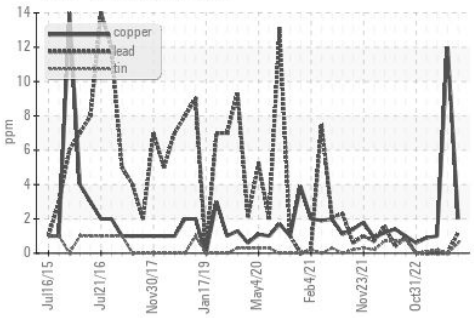
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**16.0**	14.4	14.8

GRAPHS

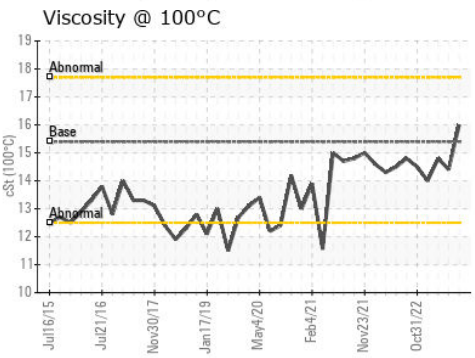
Ferrous Alloys



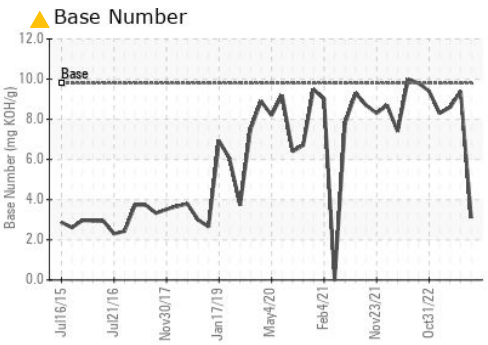
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0108850
Lab Number : 06076585
Unique Number : 10858676
Test Package : FLEET (Additional Tests: Glycol)

Received : 01 Feb 2024
Tested : 05 Feb 2024
Diagnosed : 05 Feb 2024 - Jonathan Hester

To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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