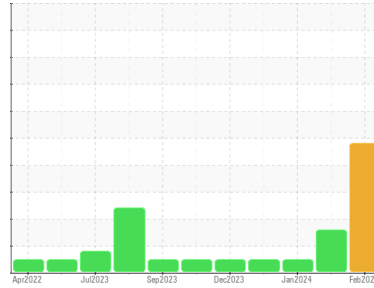




# OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id  
**1103M**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (36 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

All 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 result indicates that there is suitable alkalinity remaining in the oil.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>GFL0110038</b>	GFL0110021	GFL0109992
Sample Date	Client Info	<b>06 Feb 2024</b>	30 Jan 2024	15 Jan 2024
Machine Age	hrs	<b>16050</b>	15989	15844
Oil Age	hrs	<b>600</b>	600	600
Oil Changed	Client Info	<b>Changed</b>	Changed	Changed
Sample Status		<b>ABNORMAL</b>	ABNORMAL	NORMAL

## CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method >0.2	<b>NEG</b>	NEG	NEG

## WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >65	<b>35</b>	10	19
Chromium	ppm ASTM D5185m >5	<b>&lt;1</b>	<1	1
Nickel	ppm ASTM D5185m >3	<b>&lt;1</b>	0	0
Titanium	ppm ASTM D5185m >5	<b>&lt;1</b>	<1	<1
Silver	ppm ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >35	<b>▲ 7</b>	7	5
Lead	ppm ASTM D5185m >10	<b>&lt;1</b>	1	0
Copper	ppm ASTM D5185m >180	<b>1</b>	13	50
Tin	ppm ASTM D5185m >8	<b>&lt;1</b>	1	<1
Vanadium	ppm ASTM D5185m	<b>0</b>	<1	<1
Cadmium	ppm ASTM D5185m	<b>&lt;1</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	<b>18</b>	<1	<1
Barium	ppm ASTM D5185m 0	<b>&lt;1</b>	0	0
Molybdenum	ppm ASTM D5185m 60	<b>103</b>	49	59
Manganese	ppm ASTM D5185m 0	<b>&lt;1</b>	<1	<1
Magnesium	ppm ASTM D5185m 1010	<b>863</b>	858	1000
Calcium	ppm ASTM D5185m 1070	<b>994</b>	919	1034
Phosphorus	ppm ASTM D5185m 1150	<b>873</b>	934	1020
Zinc	ppm ASTM D5185m 1270	<b>1144</b>	1132	1282
Sulfur	ppm ASTM D5185m 2060	<b>3052</b>	2584	2544

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >15	<b>▲ 25</b>	▲ 19	13
Sodium	ppm ASTM D5185m	<b>▲ 1299</b>	5	8
Potassium	ppm ASTM D5185m >20	<b>▲ 32</b>	2	2
Glycol	% *ASTM D2982	<b>NEG</b>	NEG	NEG

## INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	<b>0.7</b>	0.2	0.4
Nitration	Abs/cm *ASTM D7624 >20	<b>12.8</b>	5.2	7.1
Sulfation	Abs/.1mm *ASTM D7415 >30	<b>21.7</b>	18.1	19.1

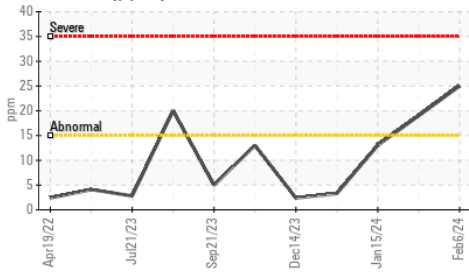
## FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	<b>18.1</b>	13.4	15.1
Base Number (BN)	mg KOH/g ASTM D2896 9.8	<b>9.2</b>	9.0	7.8

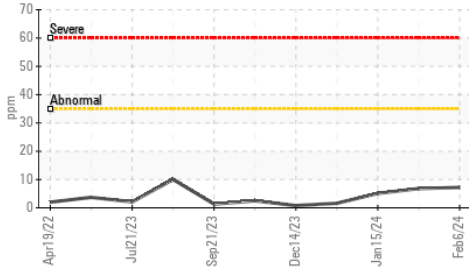


# OIL ANALYSIS REPORT

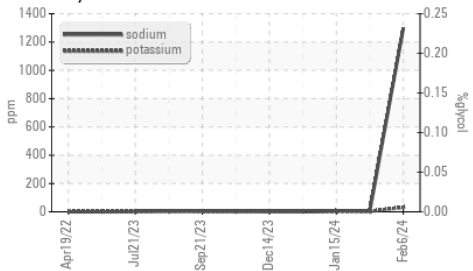
### ▲ Silicon (ppm)



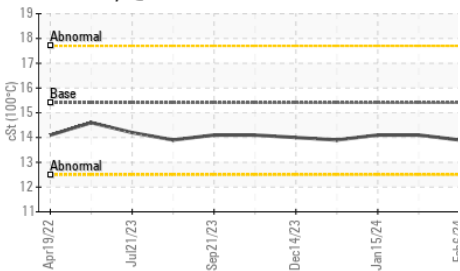
### ▲ Aluminum (ppm)



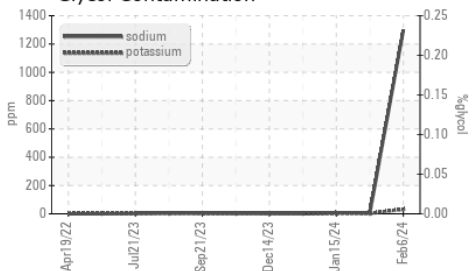
### Glycol Contamination



### Viscosity @ 100°C



### Glycol Contamination

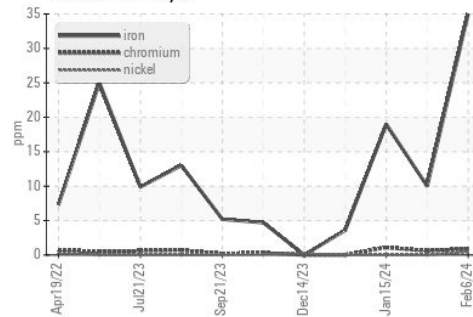


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

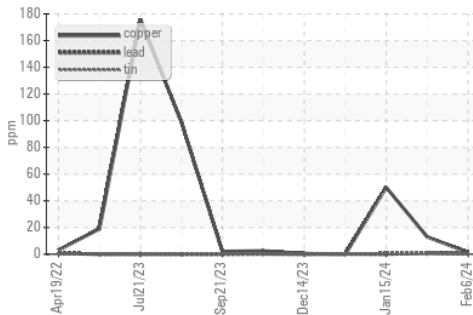
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	14.1

## GRAPHS

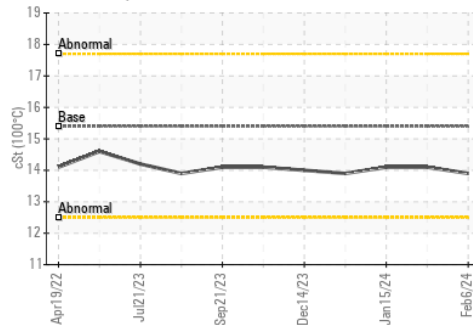
### Ferrous Alloys



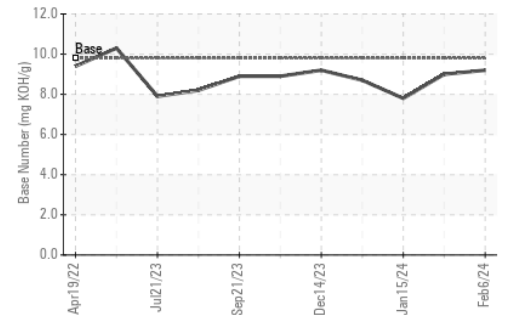
### Non-ferrous Metals



### Viscosity @ 100°C



### Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : GFL0110038

Lab Number : 06083381

Unique Number : 10870826

Test Package : FLEET ( Additional Tests: Glycol )

Received : 08 Feb 2024

Tested : 12 Feb 2024

Diagnosed : 12 Feb 2024 - Jonathan Hester

GFL Environmental - 410 - Michigan West

39000 Van Born Rd

Wayne, MI

US 48184

Contact: Belal Dgheish

bdgheish@gflenv.com

T: (734)714-2340

F:

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)