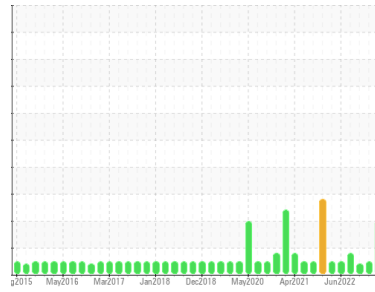




# OIL ANALYSIS REPORT

Sample Rating Trend



**DEGRADATION**



Machine Id  
**2448 MACK CT713**

Component  
**Diesel Engine**

Fluid  
**PETRO CANADA DURON SHP 15W40 (48 QTS)**

## DIAGNOSIS

### Recommendation

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

### Wear

All component wear rates are normal.

### Contamination

There is an abnormal amount of solids and carbon present in the oil.

### Fluid Condition

The BN level is low.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>GFL0127896</b>	GFL0094752	GFL0094693
Sample Date	Client Info	<b>09 Jul 2024</b>	21 Nov 2023	03 Oct 2023
Machine Age	hrs	<b>41088</b>	39956	39625
Oil Age	hrs	<b>0</b>	0	0
Oil Changed	Client Info	<b>Changed</b>	Changed	Changed
Sample Status		<b>ABNORMAL</b>	NORMAL	ATTENTION

## CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >0.2	<b>NEG</b>	NEG	NEG
Glycol	WC Method	<b>NEG</b>	NEG	NEG

## WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >120	<b>70</b>	52	27
Chromium	ppm ASTM D5185m >20	<b>&lt;1</b>	1	<1
Nickel	ppm ASTM D5185m >5	<b>&lt;1</b>	0	0
Titanium	ppm ASTM D5185m >2	<b>0</b>	<1	<1
Silver	ppm ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >20	<b>&lt;1</b>	3	3
Lead	ppm ASTM D5185m >40	<b>0</b>	1	1
Copper	ppm ASTM D5185m >330	<b>2</b>	3	2
Tin	ppm ASTM D5185m >15	<b>&lt;1</b>	<1	<1
Vanadium	ppm ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	<b>5</b>	4	65
Barium	ppm ASTM D5185m 0	<b>0</b>	0	<1
Molybdenum	ppm ASTM D5185m 60	<b>53</b>	64	40
Manganese	ppm ASTM D5185m 0	<b>0</b>	<1	<1
Magnesium	ppm ASTM D5185m 1010	<b>900</b>	1038	318
Calcium	ppm ASTM D5185m 1070	<b>1108</b>	1233	1732
Phosphorus	ppm ASTM D5185m 1150	<b>1035</b>	1133	1015
Zinc	ppm ASTM D5185m 1270	<b>1266</b>	1406	1204
Sulfur	ppm ASTM D5185m 2060	<b>3559</b>	3563	3377

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	<b>3</b>	6	8
Sodium	ppm ASTM D5185m	<b>&lt;1</b>	2	0
Potassium	ppm ASTM D5185m >20	<b>0</b>	1	0
Fuel	% ASTM D3524 >3.0	<b>&lt;1.0</b>	<1.0	2.1

## INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >4	<b>▲ 4.7</b>	3.8	1.3
Nitration	Abs/cm *ASTM D7624 >20	<b>10.5</b>	8.4	5.6
Sulfation	Abs/.1mm *ASTM D7415 >30	<b>26.3</b>	24.8	18.4

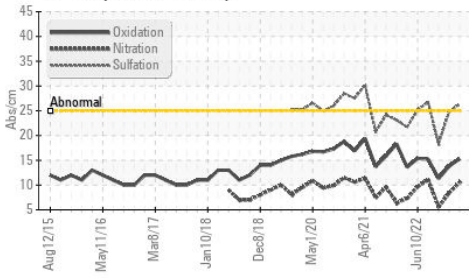
## FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	<b>15.3</b>	13.8	11.3
Base Number (BN)	mg KOH/g ASTM D2896 9.8	<b>▲ 3.4</b>	5.9	8.5

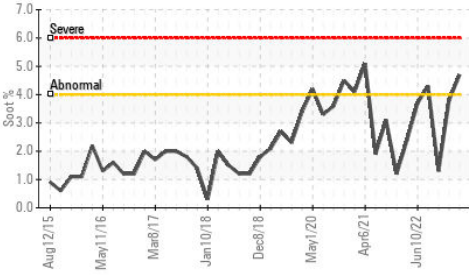


# OIL ANALYSIS REPORT

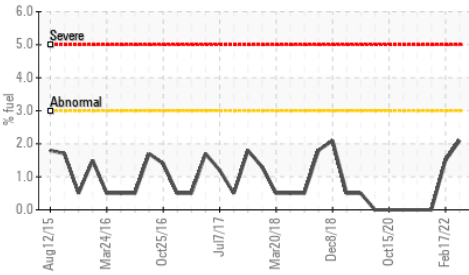
▲ FT-IR (Direct Trend)



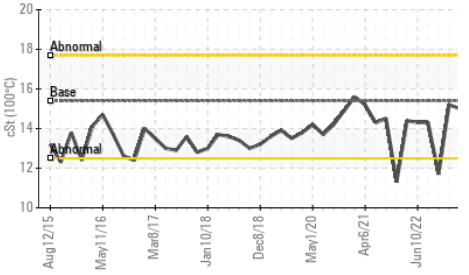
▲ Soot %



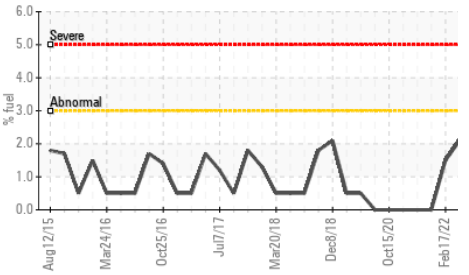
▲ Fuel Dilution



▲ Viscosity @ 100°C



▲ Fuel Dilution

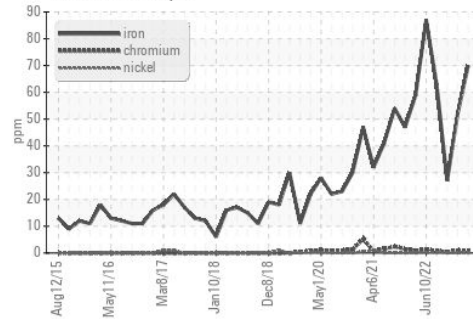


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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

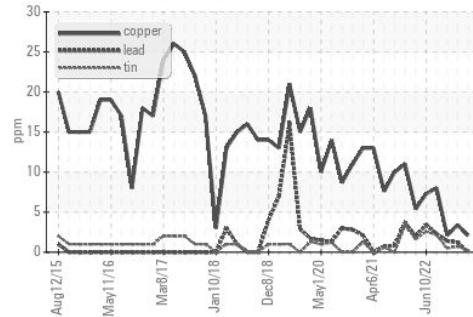
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	15.0	15.2 ● 11.7

## GRAPHS

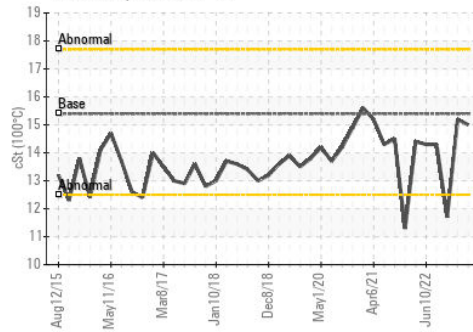
▲ Ferrous Alloys



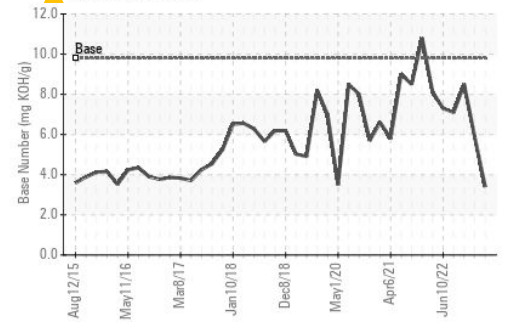
▲ Non-ferrous Metals



▲ Viscosity @ 100°C



▲ Base Number



Certificate L2367

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

Sample No. : GFL0127896

Lab Number : 06232920

Unique Number : 11116413

Test Package : FLEET ( Additional Tests: FuelDilution, PercentFuel )

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)

Received : 11 Jul 2024

Tested : 13 Jul 2024

Diagnosed : 13 Jul 2024 - Don Baldrige

GFL Environmental - 001 - Raleigh(CNG)

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Garner, NC

US 27529

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