



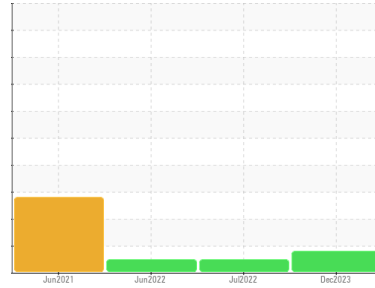
# OIL ANALYSIS REPORT

Sample Rating Trend

SOOT



Machine Id  
**427026-4039**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**



## 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.

### 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 result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>GFL0085533</b>	GFL0053262	GFL0053301
Sample Date	Client Info	<b>18 Dec 2023</b>	27 Jul 2022	06 Jun 2022
Machine Age	hrs	<b>28588</b>	27415	27322
Oil Age	hrs	<b>0</b>	600	600
Oil Changed	Client Info	<b>Changed</b>	Changed	Changed
Sample Status		<b>ABNORMAL</b>	NORMAL	NORMAL

## 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>23</b>	0	18
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	<1	3
Silver	ppm	ASTM D5185m	>2	<b>0</b>	2	0
Aluminum	ppm	ASTM D5185m	>20	<b>2</b>	<1	<1
Lead	ppm	ASTM D5185m	>40	<b>1</b>	1	2
Copper	ppm	ASTM D5185m	>330	<b>3</b>	2	3
Tin	ppm	ASTM D5185m	>15	<b>0</b>	<1	<1
Antimony	ppm	ASTM D5185m		<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	<1	0

## ADDITIVES

method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m	0	<b>2</b>	6	7
Barium	ppm	ASTM D5185m	0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	60	<b>50</b>	56	52
Manganese	ppm	ASTM D5185m	0	<b>0</b>	0	<1
Magnesium	ppm	ASTM D5185m	1010	<b>842</b>	861	817
Calcium	ppm	ASTM D5185m	1070	<b>997</b>	1092	1053
Phosphorus	ppm	ASTM D5185m	1150	<b>902</b>	998	902
Zinc	ppm	ASTM D5185m	1270	<b>1086</b>	1206	1160
Sulfur	ppm	ASTM D5185m	2060	<b>2920</b>	3282	2789

## CONTAMINANTS

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

## INFRA-RED

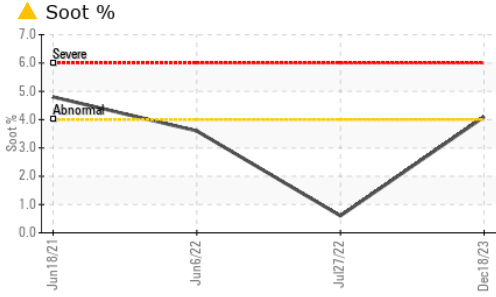
method	limit/base	current	history1	history2		
Soot %	%	*ASTM D7844	>4	<b>▲ 4.1</b>	0.6	3.6
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.6</b>	5.7	9.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>25.4</b>	19.0	24.6

## FLUID DEGRADATION

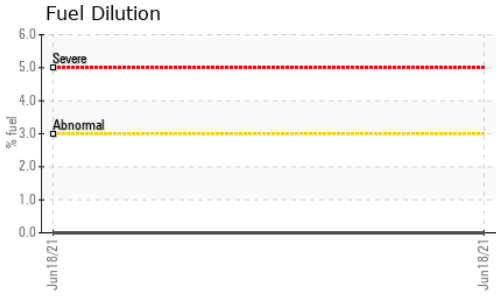
method	limit/base	current	history1	history2		
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.9</b>	13.1	14.4
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	<b>5.5</b>	9.7	7.0



# OIL ANALYSIS REPORT

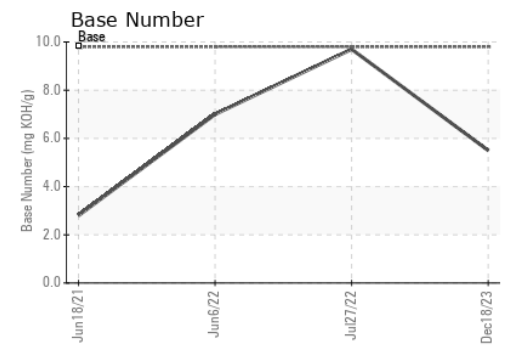
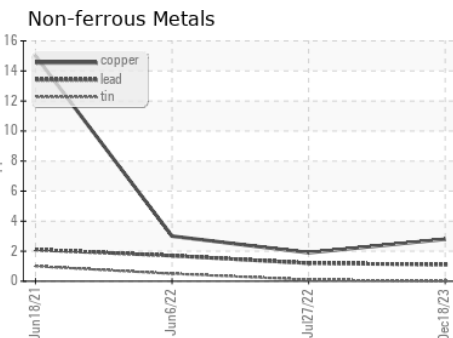
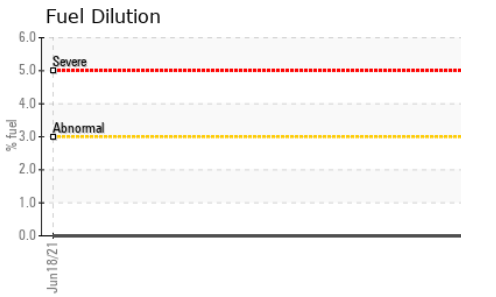
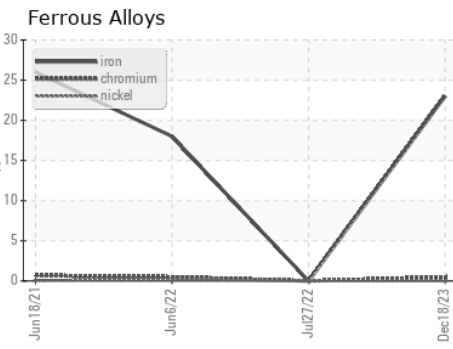
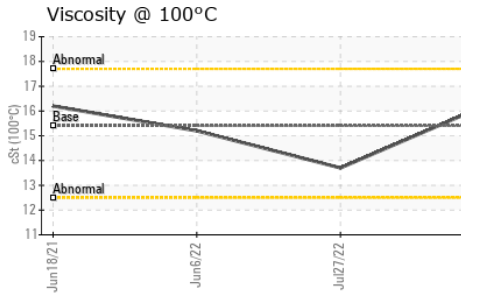


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	16.2	13.7

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0085533 **Recieved** : 27 Dec 2023  
**Lab Number** : 06045828 **Diagnosed** : 28 Dec 2023  
**Unique Number** : 10806436 **Diagnostician** : Don Baldrige  
**Test Package** : FLEET ( Additional Tests: FuelDilution )

**GFL Environmental - 660S - Roanoke**  
 2045 LEE HWY  
 Cloverdale, VA  
 US 24077  
 Contact: DELBERT BEASLEY

Certificate L2367  
 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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