

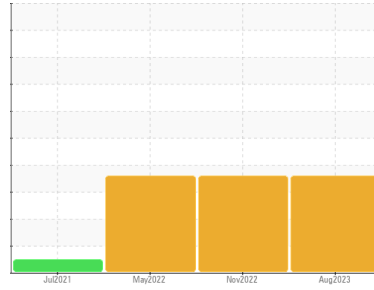


# PROBLEM SUMMARY



Machine Id  
**425012**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

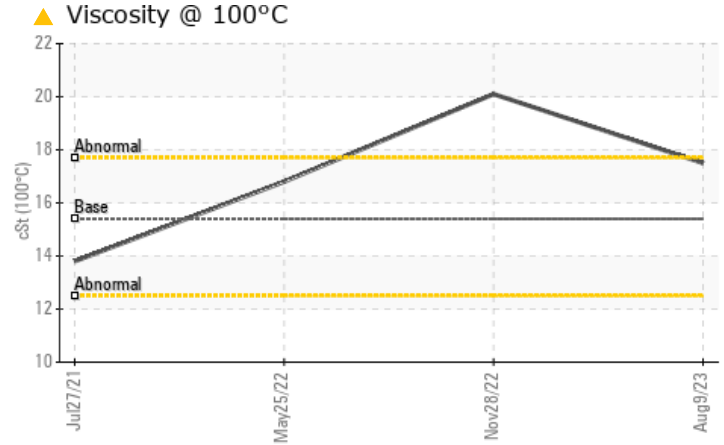
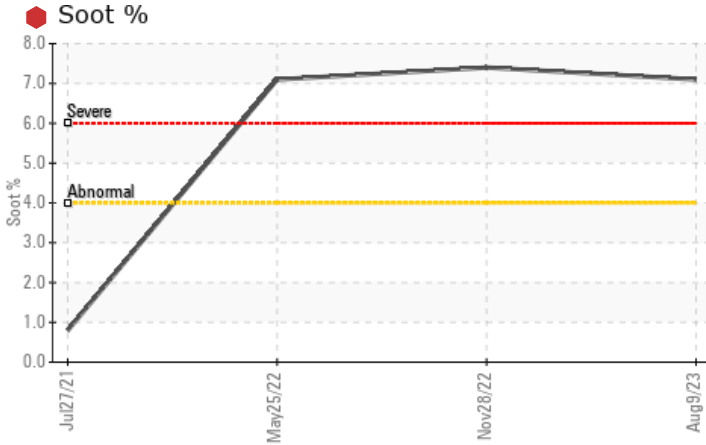
Sample Rating Trend



SOOT



## COMPONENT CONDITION SUMMARY



## RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

## PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	SEVERE	SEVERE
Soot %	%	*ASTM D7844	>4	7.1	7.4	7.1
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	0.0	0.0	0.0
Visc @ 100°C	cSt	ASTM D445	15.4	17.5	20.1	16.8

Customer Id: GFL660R  
 Sample No.: GFL0060409  
 Lab Number: 05965990  
 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 Sean Felton +1 919-379-4092  
[sfelton@wearcheckusa.com](mailto:sfelton@wearcheckusa.com)

To change component or sample information:  
 Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	MISSED	Dec 18 2023	?	We recommend that you drain the oil and perform a filter service on this component if not already done.
Change Filter	MISSED	Dec 18 2023	?	We recommend that you drain the oil and perform a filter service on this component if not already done.
Resample	MISSED	Dec 18 2023	?	We recommend an early resample to monitor this condition.
Alert	MISSED	Dec 18 2023	?	NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.
Check Combustion	MISSED	Dec 18 2023	?	We advise that you check for faulty combustion, plugged air filters, or aftercoolers.

## HISTORICAL DIAGNOSIS

### 28 Nov 2022 Diag: Jonathan Hester

SOOT



We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value. All component wear rates are normal. There is an abnormal amount of solids and carbon present in the oil. The oil viscosity is higher than normal. The BN level is low. The oil is no longer serviceable due to the presence of contaminants.

view report



### 25 May 2022 Diag: Jonathan Hester

SOOT



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. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value. All component wear rates are normal. There is an abnormal amount of solids and carbon present in the oil. The oil viscosity is higher than normal. The BN level is low.

view report



### 27 Jul 2021 Diag: Doug Bogart

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

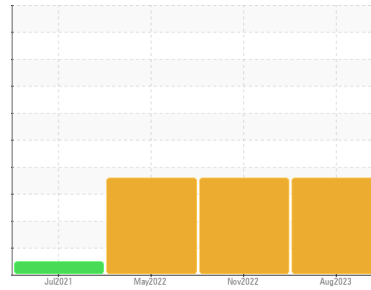
view report





# OIL ANALYSIS REPORT

Sample Rating Trend



SOOT



Machine Id  
**425012**  
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. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. 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 oil viscosity is higher than normal. The BN level is low. The oil is no longer serviceable due to the presence of contaminants.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>GFL0060409</b>	GFL0044784	GFL0044781
Sample Date	Client Info	<b>09 Aug 2023</b>	28 Nov 2022	25 May 2022
Machine Age	hrs	<b>34842</b>	33368	685615
Oil Age	hrs	<b>0</b>	0	0
Oil Changed	Client Info	<b>Changed</b>	Changed	Changed
Sample Status		<b>SEVERE</b>	SEVERE	SEVERE

## 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
Glycol	WC Method	<b>NEG</b>	NEG	NEG

## WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >120	<b>25</b>	27	29
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	6
Silver	ppm ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm ASTM D5185m >20	<b>1</b>	2	2
Lead	ppm ASTM D5185m >40	<b>&lt;1</b>	<1	<1
Copper	ppm ASTM D5185m >330	<b>5</b>	5	3
Tin	ppm ASTM D5185m >15	<b>&lt;1</b>	<1	<1
Antimony	ppm ASTM D5185m	<b>---</b>	---	---
Vanadium	ppm ASTM D5185m	<b>0</b>	0	<1
Cadmium	ppm ASTM D5185m	<b>0</b>	0	<1

## ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	<b>&lt;1</b>	2	10
Barium	ppm ASTM D5185m 0	<b>0</b>	0	2
Molybdenum	ppm ASTM D5185m 60	<b>55</b>	49	45
Manganese	ppm ASTM D5185m 0	<b>&lt;1</b>	<1	<1
Magnesium	ppm ASTM D5185m 1010	<b>900</b>	785	707
Calcium	ppm ASTM D5185m 1070	<b>1034</b>	1296	999
Phosphorus	ppm ASTM D5185m 1150	<b>954</b>	926	851
Zinc	ppm ASTM D5185m 1270	<b>1179</b>	1229	1067
Sulfur	ppm ASTM D5185m 2060	<b>2732</b>	3222	2407

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	<b>4</b>	5	4
Sodium	ppm ASTM D5185m	<b>&lt;1</b>	1	<1
Potassium	ppm ASTM D5185m >20	<b>1</b>	0	2

## INFRA-RED

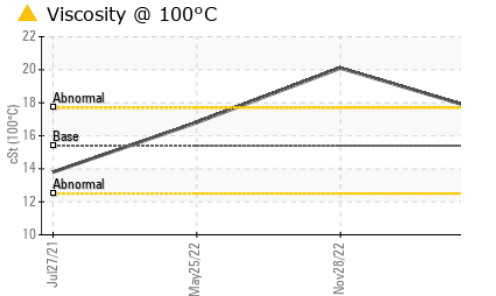
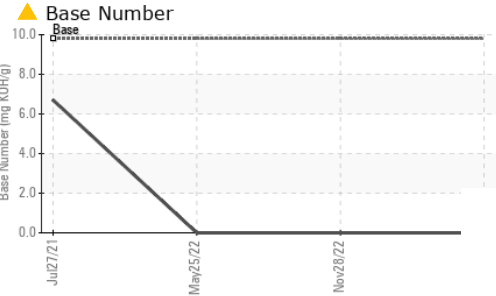
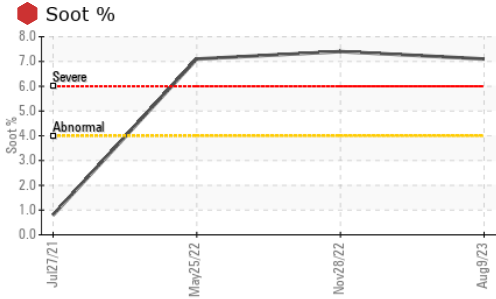
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >4	<b>7.1</b>	7.4	7.1
Nitration	Abs/cm *ASTM D7624 >20	<b>14.7</b>	20.2	16.3
Sulfation	Abs/.1mm *ASTM D7415 >30	<b>32.1</b>	36.8	32.4

## FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	<b>18.8</b>	31.2	22.8
Base Number (BN)	mg KOH/g ASTM D2896 9.8	<b>0.0</b>	0.0	0.0



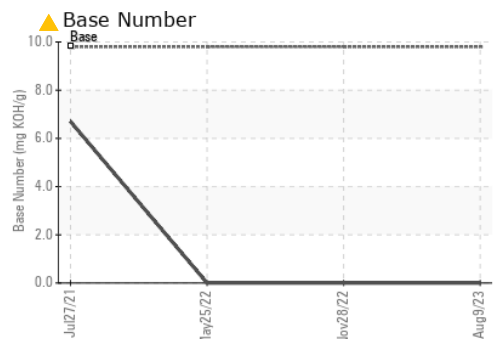
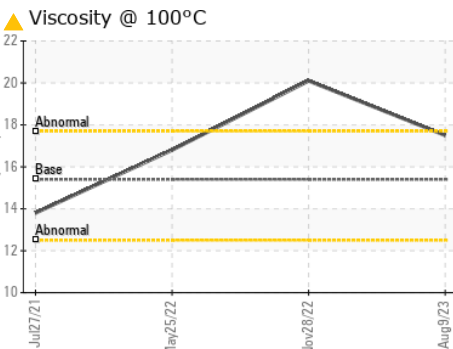
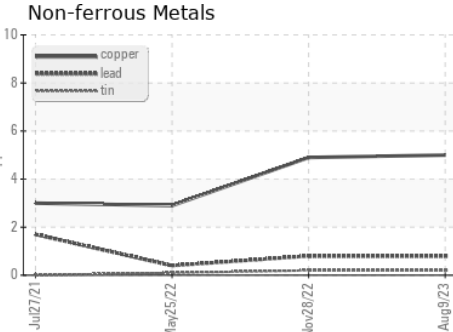
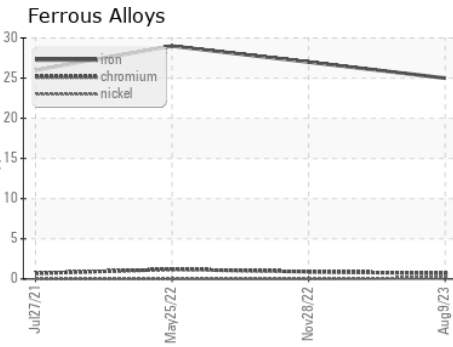
# OIL ANALYSIS REPORT



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	▲ 17.5	▲ 20.1

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0060409 **Received** : 02 Oct 2023  
**Lab Number** : 05965990 **Diagnosed** : 03 Oct 2023  
**Unique Number** : 10672541 **Diagnostician** : Sean Felton  
**Test Package** : FLEET

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

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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