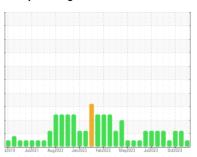


# **OIL ANALYSIS REPORT**

**Sample Rating Trend** 



NORMAL



Machine Id 12036 Component

**Diesel Engine** 

## PETRO CANADA DURON SHP 15W40 (32 QTS)

### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

### Contamination

Test for glycol is negative. There is no indication of any contamination in the oil.

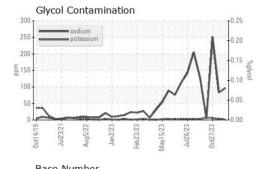
### **Fluid Condition**

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

QTS)  -2019 Juli021 Aug/2022 Juni023 Feb2023 Menf0023 Juli023 Oct2023							
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0097154	GFL0097146	GFL0097217	
Sample Date		Client Info		22 Dec 2023	05 Dec 2023	27 Oct 2023	
Machine Age	hrs	Client Info		13730	13583	13305	
Oil Age	hrs	Client Info		425	278	509	
Oil Changed		Client Info		Not Changd	Not Changd	Changed	
Sample Status				NORMAL	ATTENTION	ATTENTION	
CONTAMINAT	ION	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 METAL	S	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>75	10	8	15	
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1	
Nickel	ppm	ASTM D5185m	>4	0	<1	0	
Titanium	ppm	ASTM D5185m	>2	0	<1	0	
Silver	ppm	ASTM D5185m	>2	0	0	0	
Aluminum	ppm	ASTM D5185m	>15	3	5	4	
Lead	ppm	ASTM D5185m	>25	0	0	0	
Copper	ppm	ASTM D5185m	>100	<1	1	1	
Tin	ppm	ASTM D5185m	>4	0	0	0	
Vanadium	ppm	ASTM D5185m		0	0	0	
Cadmium	ppm	ASTM D5185m		0	0	0	
ADDITIVES		method	limit/base	current	history1	history2	
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 1	history1	history2 4	
	ppm						
Boron		ASTM D5185m	0	1	4	4	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	1 0	4 0	4	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 62	4 0 54	4 0 63	
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 62 0	4 0 54 <1	4 0 63 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	1 0 62 0 866	4 0 54 <1 850	4 0 63 <1 823	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	1 0 62 0 866 1007	4 0 54 <1 850 918	4 0 63 <1 823 950	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	1 0 62 0 866 1007 937	4 0 54 <1 850 918 941	4 0 63 <1 823 950 1009	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	1 0 62 0 866 1007 937 1122	4 0 54 <1 850 918 941 1145	4 0 63 <1 823 950 1009	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	1 0 62 0 866 1007 937 1122 2835	4 0 54 <1 850 918 941 1145 2857	4 0 63 <1 823 950 1009 1095 2735	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	1 0 62 0 866 1007 937 1122 2835	4 0 54 <1 850 918 941 1145 2857 history1	4 0 63 <1 823 950 1009 1095 2735 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	1 0 62 0 866 1007 937 1122 2835 current	4 0 54 <1 850 918 941 1145 2857 history1	4 0 63 <1 823 950 1009 1095 2735 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	1 0 62 0 866 1007 937 1122 2835 current 5	4 0 54 <1 850 918 941 1145 2857 history1 10 ▲ 83	4 0 63 <1 823 950 1009 1095 2735 history2 7 ▲ 252	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	1 0 62 0 866 1007 937 1122 2835 current 5 97	4 0 54 <1 850 918 941 1145 2857 history1 10 ▲ 83 3	4 0 63 <1 823 950 1009 1095 2735 history2 7 ▲ 252 6	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  METHOD  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	1 0 62 0 866 1007 937 1122 2835 current 5 97 1	4 0 54 <1 850 918 941 1145 2857 history1 10 ▲ 83 3 NEG	4 0 63 <1 823 950 1009 1095 2735 history2 7 ▲ 252 6 NEG	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	1 0 62 0 866 1007 937 1122 2835 current 5 97 1 0.0	4 0 54 <1 850 918 941 1145 2857 history1 10 ▲ 83 3 NEG	4 0 63 <1 823 950 1009 1095 2735 history2 7 ▲ 252 6 NEG	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D5185m	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20	1 0 62 0 866 1007 937 1122 2835 current 5 97 1 0.0	4 0 54 <1 850 918 941 1145 2857 history1 10 ▲ 83 3 NEG history1 0.3	4 0 63 <1 823 950 1009 1095 2735 history2 7 ▲ 252 6 NEG history2 0.6	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	1 0 62 0 866 1007 937 1122 2835 current 5 97 1 0.0 current 0.4 7.3	4 0 54 <1 850 918 941 1145 2857 history1 10 ▲ 83 3 NEG history1 0.3 6.9	4 0 63 <1 823 950 1009 1095 2735 history2 7 ▲ 252 6 NEG history2 0.6 10.4	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20	1 0 62 0 866 1007 937 1122 2835 current 5 97 1 0.0 current 0.4 7.3 18.1	4 0 54 <1 850 918 941 1145 2857 history1 10 ▲ 83 3 NEG history1 0.3 6.9 17.9	4 0 63 <1 823 950 1009 1095 2735 history2 7 ▲ 252 6 NEG history2 0.6 10.4 19.9	



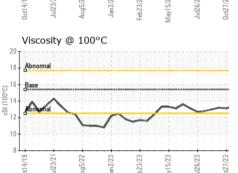
## **OIL ANALYSIS REPORT**



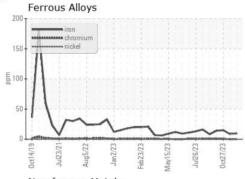
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance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

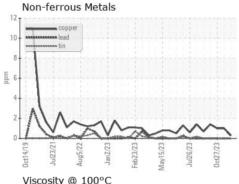
12.0 T	e Num	iber					
=10.0 Base							
KOH/(	$\triangle$				~	$\overline{}$	~~
8.0 - Base Number (mg KOH/g) 4.0 - 4	V	~		$^{\prime} \vee$	Ť		
# 4.0 V			V				
ase N							
111							
0.0	1/2/1	722	723	723	723	723	/23
0ct14/	Jul23,	Aug5/	Jan2/	Feb23/	May15,	Jul26/	Oct27/23
					2		

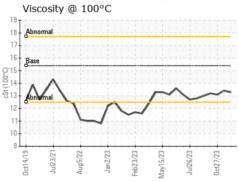
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.4	13.1

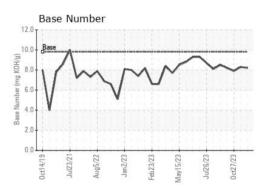


### **GRAPHS**













Laboratory Sample No. Lab Number **Unique Number** 

: GFL0097154 : 06046790 : 10807398

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

Recieved Diagnosed Test Package : FLEET ( Additional Tests: Glycol )

: 28 Dec 2023 : 29 Dec 2023 Diagnostician : Wes Davis

To discuss this sample report, contact Customer Service at 1-800-237-1369.

US 31093 Contact: JOSH MALONEY

GFL Environmental - 073 - Warner Robins - Transwaste

jmaloney@gflenv.com T:

\* - 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)

F:

155 Story Road

Warner Robins, GA