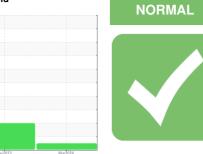


## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 526057 Component

Diesel Engine

### PETRO CANADA DURON SHP 15W40 (40 GAL)

SAMPLE INFORMATION method

DIAGNOSIS	
Recommendation	

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

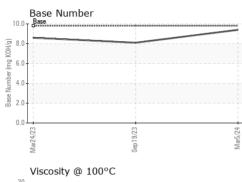
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

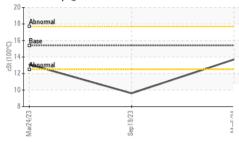
		method		Current		
Sample Number		Client Info		GFL0098398	GFL0085654	GFL0076856
Sample Date		Client Info		05 Mar 2024	19 Sep 2023	24 Mar 2023
Machine Age	hrs	Client Info		37790	37763	37440
Oil Age	hrs	Client Info		37790	323	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ATTENTION	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.6	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	4	46	7
Chromium	ppm	ASTM D5185m	>20	0	3	<1
Nickel	ppm		>5	0	<1	0
Titanium	ppm		>2	0	40	<1
Silver		ASTM D5185m	>2	0	40	0
Aluminum	ppm	ASTM D5185m	>2	3	0	3
	ppm		>20	-	2	3
Lead	ppm	ASTM D5185m		<1	2	
Copper	ppm		>330	2		2
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method				history2
//BBIIIVE0		memou	iiiiii/base	current	history1	TIStoryz
Boron	ppm	ASTM D5185m	0	235	28	321
	ppm ppm		0			
Boron		ASTM D5185m	0	235	28	321
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	235 0	28 0	321 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	235 0 95	28 0 10	321 0 113
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	235 0 95 <1	28 0 10 <1	321 0 113 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	235 0 95 <1 730	28 0 10 <1 342	321 0 113 1 655
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	235 0 95 <1 730 1252	28 0 10 <1 342 1008	321 0 113 1 655 1573
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	235 0 95 <1 730 1252 781	28 0 10 <1 342 1008 559	321 0 113 1 655 1573 686
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	0 0 60 0 1010 1070 1150 1270	235 0 95 <1 730 1252 781 891	28 0 10 <1 342 1008 559 746	321 0 113 1 655 1573 686 866
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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 1010 1070 1150 1270 2060	235 0 95 <1 730 1252 781 891 2932 current	28 0 10 <1 342 1008 559 746 2397 history1	321 0 113 1 655 1573 686 866 2699 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	235 0 95 <1 730 1252 781 891 2932 current 6	28 0 10 <1 342 1008 559 746 2397 history1 12	321 0 113 1 655 1573 686 866 2699 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	235 0 95 <1 730 1252 781 891 2932 current 6 <	28 0 10 <1 342 1008 559 746 2397 history1	321 0 113 1 655 1573 686 866 2699 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	235 0 95 <1 730 1252 781 891 2932 current 6 <1 <1	28 0 10 <1 342 1008 559 746 2397 history1 12 6 4	321 0 113 1 655 1573 686 866 2699 history2 7 2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	235 0 95 <1 730 1252 781 891 2932 current 6 <1 <1 <1	28 0 10 <1 342 1008 559 746 2397 history1 12 6 4 history1	321 0 113 1 655 1573 686 866 2699 history2 7 2 1 1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	235 0 95 <1 730 1252 781 891 2932 current 6 <1 <1 <1 current 0.1	28 0 10 <1 342 1008 559 746 2397 history1 12 6 4 history1 0.2	321 0 113 1 655 1573 686 866 2699 history2 7 2 1 1 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	235 0 95 <1 730 1252 781 891 2932 <i>current</i> 6 <1 <1 <1 <i>current</i> 0.1 4.9	28 0 10 <1 342 1008 559 746 2397 history1 12 6 4 history1 0.2 6.4	321 0 113 1 655 1573 686 866 2699 history2 7 2 2 1 history2 0.2 6.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	235 0 95 <1 730 1252 781 891 2932 current 6 <1 <1 <1 current 0.1	28 0 10 <1 342 1008 559 746 2397 history1 12 6 4 history1 0.2	321 0 113 1 655 1573 686 866 2699 history2 7 2 1 1 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	235 0 95 <1 730 1252 781 891 2932 <i>current</i> 6 <1 <1 <1 <i>current</i> 0.1 4.9	28 0 10 <1 342 1008 559 746 2397 history1 12 6 4 history1 0.2 6.4	321 0 113 1 655 1573 686 866 2699 history2 7 2 2 1 history2 0.2 6.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 20 20 20 20 20 20 20 20 20 20 20	235 0 95 <1 730 1252 781 891 2932 <u>current</u> 6 <1 <1 <1 <1 0.1 4.9 20.7	28 0 10 <1 342 1008 559 746 2397 history1 12 6 4 history1 0.2 6.4 22.1	321 0 113 1 655 1573 686 866 2699 history2 7 2 1 1 history2 0.2 6.6 22.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	235 0 95 <1 730 1252 781 891 2932 current 6 <1 <1 <1 current 0.1 4.9 20.7 current	28 0 10 <12 559 746 2397 history1 12 6 4 4 0.2 6.4 22.1 history1	321 0 113 1 655 1573 686 866 2699 history2 7 2 1 1 history2 0.2 6.6 22.8 history2

Page 1 of 2



# **OIL ANALYSIS REPORT**





VISUAL		method	limit/base	current	history1	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
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	9.61	13.1
GRAPHS						
Ferrous Alloys						
ΟΤ						
iron	~					
sessesses chromium						
0 - nickel						
0		<b>\</b>				
0		· · · · · · · · · · · · · · · · · · ·				
0						
			N			
			Allanana			
/23	//23		/24			
Mar24/23	Sep 19/23		Mar5/24			
N.	Se		2			
Non-ferrous Metals	5					
copper						
second lead						
8 - management tin	1					
6 -						
4						
2		_				
2-	and the second se	State State of the Local Division in the Loc				
177 200 200 200 200 200 200 200 200 200 2	And Statistics in the second					
0			4			
24/2	19/2		Mar5/24			
Mar24/23	Sep 19/23		Ma			
Viscosity @ 100°C				Base Numbe	r	
<sup>0</sup> T			10.0			
Abnormal						
8 - Abnormal			- 8.0·			
			(B/H		1	
6 Base			9			
4-			Ê 6.0			
Alenomal			lber			
Abnormal 2			§ 4.0-			
			Z			
			N ass			
			(0)HOX Bull Jack Hone (0) Jack Hone (0) Jach			
10-	$\checkmark$	/	8 2.0			

0.0

Mar24/23

Mar5/24 -

: 13 Mar 2024

: 14 Mar 2024



Unique Number : 10926475 Diagnosed : 15 Mar 2024 - Don Baldridge Test Package : FLEET Contact: Service Manager 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)

Sep19/23 -

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

Received

Tested

8

Lab Number : 06117642

Laboratory Sample No. Mar24/23

: GFL0098398

Submitted By: TECHNICIAN ACCOUNT

Sep19/23 -

GFL Environmental - 409 - Wood Island LF

E10081 State Hwy M28

Wetmore, MI

US 49895

Mar5/24

T:

F: