

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 729090

Fluid

Component Diesel Engine

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

## 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.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0085302	GFL0085319	
Sample Date		Client Info		09 Oct 2023	27 Jun 2023	
Machine Age	hrs	Client Info		0	0	
Oil Age	hrs	Client Info		600	600	
Oil Changed		Client Info		N/A	N/A	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	34	21	
Chromium	ppm	ASTM D5185m	>5	1	<1	
Nickel	ppm	ASTM D5185m	>2	<1	0	
Titanium	ppm	ASTM D5185m		<1	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m		6	1	
Lead	ppm	ASTM D5185m	>30	0	0	
Copper	ppm	ASTM D5185m		2	2	
Tin	ppm	ASTM D5185m	>5	- <1	<1	
Vanadium	ppm	ASTM D5185m	~0	<1	<1	
Cadmium		ASTM D5185m		0	0	
Caumum	ppm	ASTIN DSTOSIII		U	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	ASTM D5185m	0	current 2	5	history2
	ppm ppm		0	2 12	5 <1	
Boron		ASTM D5185m	0	2	5	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 12	5 <1	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 12 60	5 <1 60	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 12 60 <1	5 <1 60 <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	2 12 60 <1 963	5 <1 60 <1 989	
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	2 12 60 <1 963 1019	5 <1 60 <1 989 1115	   
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	2 12 60 <1 963 1019 961	5 <1 60 <1 989 1115 983	   
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	2 12 60 <1 963 1019 961 1213	5 <1 60 <1 989 1115 983 1251	    
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	0 0 60 1010 1070 1150 1270 2060	2 12 60 <1 963 1019 961 1213 2728	5 <1 60 <1 989 1115 983 1251 3468	
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base	2 12 60 <1 963 1019 961 1213 2728 current	5 <1 60 <1 989 1115 983 1251 3468 history1	     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>	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20	2 12 60 <1 963 1019 961 1213 2728 current 8	5 <1 60 <1 989 1115 983 1251 3468 history1 3	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20	2 12 60 <1 963 1019 961 1213 2728 current 8 17	5 <1 60 <1 989 1115 983 1251 3468 history1 3 18	     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> >20	2 12 60 <1 963 1019 961 1213 2728 current 8 17 12	5 <1 60 <1 989 1115 983 1251 3468 history1 3 18 5	    history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm 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 >20 limit/base >3	2 12 60 <1 963 1019 961 1213 2728 current 8 17 12 12 current	5 <1 60 <1 989 1115 983 1251 3468 history1 3 18 5 history1	     history2    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >3 >20	2 12 60 <1 963 1019 961 1213 2728 <b>current</b> 8 17 12 12 <b>current</b> 0.8	5 <1 60 <1 989 1115 983 1251 3468 history1 3 18 5 history1 0.7	     history2   history2
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >3 >20	2 12 60 <1 963 1019 961 1213 2728 current 8 17 12 current 0.8 10.0	5 <1 60 <1 989 1115 983 1251 3468 history1 3 18 5 history1 0.7 9.4	     history2   history2
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 ppm TS ppm ppm ppm ppm ppm ppm Abs/cm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >3 >20 >30 imit/base	2 12 60 <1 963 1019 961 1213 2728 current 8 17 12 current 0.8 10.0 21.7	5 <1 60 <1 989 1115 983 1251 3468 history1 3 18 5 history1 0.7 9.4 21.9	    history2  history2  history2
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 ppm TS ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >3 >20 >30 imit/base	2 12 60 <1 963 1019 961 1213 2728 Current 8 17 12 Current 0.8 10.0 21.7 Current	5 <1 60 <1 989 1115 983 1251 3468 history1 3 18 5 history1 0.7 9.4 21.9 history1	    history2   history2  history2  history2

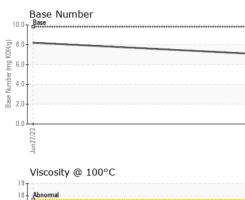


17 () 16 () 15 14 Base

> 13 Abnormal 12 11 Jun27/23

# **OIL ANALYSIS REPORT**

VISUAL



	VISUAL		methoa	iimit/base		nistory i	nistoryz
	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	
0ct9/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	
0	Odor	scalar	*Visual	NORML	NORML	NORML	
C	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
C	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE	DTIES	mothod	limit/base	current	bistonut	bioton/2
	Visc @ 100°C	cSt	method ASTM D445		14.2	history1 14.3	history2
	GRAPHS	COL	A3110 D443	13.4	14.2	14.5	
	Ferrous Alloys						
	30 - iron chromium						
	25- nickel		-				
	20						
	E 15						
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	10						
	5						
	23 23	((()))))))))))))))))))))))))))))))))))		23			
	Jun 27/23			0ct9/23			
	-	-					
	Non-ferrous Metal	s 					
	copper						
	8-						
	6						
	Edd						
	4						
	2-						
	2	********	***********************	53			
	Jun27/23			0ct9/23			
	Viscosity @ 100°C	L			Base Number	nber	
	18 - Abnormal			10.	0		*********
	17-			(j. <sup>8</sup> .	0-		
-				Base Number (mg KOH/g)			
	Base Base 15 15			B 6.	0		
ā	ž <sub>14</sub>			que 4.	0		
	13 Abnormal			ase N			
	12-			° 2.	0		
	11						
	Jun27/23			0ct9/23	Jun27/23		0ct9/23
	Jun			õ	hun		Ő
Laboratory Sample No. Lab Number Unique Number Unique Number	: <mark>05978710</mark> : 10696005	501 Madis Received Diagnos Diagnost	d :130 ed :160	ry, NC 2751 Oct 2023 Oct 2023 s Davis	3 GFL Envir	1090 \	i County HC Morton W. Jefferson St. Morton, IL US 61550
Certificate L2367 Test Package		: FLEET contact Customer Service at 1-800-237-1369.					tact: Bryan Link nk@gflenv.com
* - Denotes test methods that a						DII	T:
Statements of conformity to speci					(JCGM 106:2012)		F:

Submitted By: Also GFL958,958A, 958B - Bryan Link