

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Component Diesel Engine Fluid

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

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

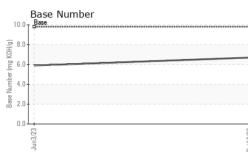
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

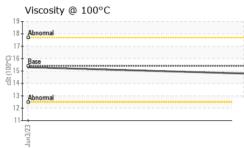
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0089140	GFL0069844	
Sample Date		Client Info		12 Oct 2023	03 Jun 2023	
Machine Age	hrs	Client Info		4537	4215	
Oil Age	hrs	Client Info		2400	600	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	29	51	
Chromium	ppm	ASTM D5185m	>20	<1	1	
Nickel	ppm	ASTM D5185m	>2	<1	0	
Titanium	ppm	ASTM D5185m	>2	<1	0	
Silver	ppm	ASTM D5185m	>2	<1	0	
Aluminum	ppm	ASTM D5185m	>20	4	2	
Lead	ppm	ASTM D5185m	>40	1	<1	
Copper	ppm	ASTM D5185m	>330	2	2	
Tin	ppm	ASTM D5185m	>15	0	0	
Vanadium	ppm	ASTM D5185m		<1	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base		history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base		history1 <1	history2
	ppm ppm	ASTM D5185m		current 2 <1		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 <1	<1	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m	0 0 60	2	<1 0 63	
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 <1 63	<1 0	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 <1 63 0	<1 0 63 <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 <1 63 0 951	<1 0 63 <1 1034	
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 <1 63 0 951 1092	<1 0 63 <1 1034 1214	   
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 <1 63 0 951 1092 1042	<1 0 63 <1 1034 1214 1099	   
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 <1 63 0 951 1092 1042 1289	<1 0 63 <1 1034 1214 1099 1385	
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	2 <1 63 0 951 1092 1042 1289 3033	<1 0 63 <1 1034 1214 1099 1385 3381	
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 1010 1070 1150 1270 2060	2 <1 63 0 951 1092 1042 1289 3033 current	<1 0 63 <1 1034 1214 1099 1385 3381 history1 9	      history2
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	2 <1 63 0 951 1092 1042 1289 3033 current 5	<1 0 63 <1 1034 1214 1099 1385 3381 history1	     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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	2 <1 63 0 951 1092 1042 1289 3033 current 5 7	<1 0 63 <1 1034 1214 1099 1385 3381 history1 9 6	     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 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	2 <1 63 0 951 1092 1042 1289 3033 current 5 7 3	<1 0 63 <1 1034 1214 1099 1385 3381 history1 9 6 3	     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 limit/base >25 >20 limit/base >20	2 <1 63 0 951 1092 1042 1289 3033 current 5 7 3 3 <i>current</i> 1	<1 0 63 <1 1034 1214 1099 1385 3381 history1 9 6 3 3 history1 1.3	     history2   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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	2 <1 63 0 951 1092 1042 1289 3033 current 5 7 3 3	<1 0 63 <1 1034 1214 1099 1385 3381 history1 9 6 3 3 <i>history</i> 1	     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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	2 <1 63 0 951 1092 1042 1289 3033 <i>current</i> 5 7 3 <i>current</i> 1 1 11.4	<1 0 63 <1 1034 1214 1099 1385 3381 history1 9 6 3 history1 1.3 13.6	     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	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 20 1imit/base >6 >20 >20 30	2 <1 63 0 951 1092 1042 1289 3033 <i>current</i> 5 7 3 <i>current</i> 1 1 11.4 24.0	<1 0 63 <1 1034 1214 1099 1385 3381 history1 9 6 3 history1 1.3 13.6 27.5 history1	     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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 20 20 20 20 20 20 20 20 20 20 20	2 <1 63 0 951 1092 1042 1289 3033 current 5 7 3 current 1 11.4 24.0	<1 0 63 <1 1034 1214 1099 1385 3381 history1 9 6 3 3 history1 1.3 13.6 27.5	     history2  history2  history2  history2



# **OIL ANALYSIS REPORT**

VISUAL





	VISUAL		method	iimii/base	current	riistory i	nistory2
	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	
					NONE		
23	Sand/Dirt	scalar	*Visual	NONE		NONE	
UCTI 2/23	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 PROI	PERTIES	method	limit/base	e current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.8	15.3	
	GRAPHS						
	Ferrous Alloys						
	60 iron						
	50 - the second						
	40						
	톱 30 -						
	20 -						
	10						
	10						
			*******	~			
	Jun3/23			0ct12/23			
				00			
	Non-ferrous Me	etals					
	10 copper 1						
	8						
	annexes tin						
	6						
	mdd						
	4 +						
	2						
			automatemitemitemitemitemitemitemitemitemitemi	and the second se			
			******	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
	Jun3/23			0ct12/23			
				Oct			
	Viscosity @ 100	0°C			Base Numbe	r	
				1	0.0 Base		
					8.0		
	17-			Base Number (mg KOH(g)	8.0		
000	C16 Base 15 37 14			ng KC	6.0		
10.00	은 15			ber (n			
Ċ	3 14			Numl	4.0		
	13 - Abnormal			Base	2.0 -		
	12				2.0		
	11				0.0		
	Jun3/23				Jun3/23 -		
	Juni			0ct12/23	Jun		
				-			
	: WearCheck USA				13 GFL Er	vironmental - 418	
	: GFL0089140	Received		Oct 2023		22	2001 Hoover
r	: 05984433	Diagnos		Oct 2023			Warren,
er	: 10701728	Diagnost	tician : We	es Davis		-	US 480
ge	: FLEET						tact: JIM HE
	contact Customer S					jhe	ss@gflenv.co
	ra autoida af tha ISI						

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)

Certificate L2367

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