

# **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id 520067

#### Component Diesel Engine

Fluid 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

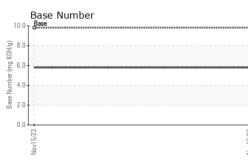
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

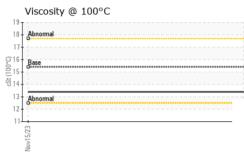
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0095194		
Sample Date		Client Info		15 Nov 2023		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		600		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	10		
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel	ppm	ASTM D5185m	>4	0		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	5		
Lead	ppm	ASTM D5185m	>40	<1		
Copper	ppm	ASTM D5185m	>330	2		
Tin	ppm	ASTM D5185m	>15	1		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1	history2
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	11		
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	11 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	11 0 54		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	11 0 54 <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	11 0 54 <1 194		
Boron Barium Molybdenum Manganese Magnesium Calcium	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	11 0 54 <1 194 2235	  	  
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	11 0 54 <1 194 2235 1036		
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	11 0 54 <1 194 2235 1036 1206		
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	11 0 54 <1 194 2235 1036 1206 3958		
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	11 0 54 <1 194 2235 1036 1206 3958 current	     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> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	11 0 54 <1 194 2235 1036 1206 3958 current 4	    history1 	     history2
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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	11 0 54 <1 194 2235 1036 1206 3958 current 4 <	     history1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 >20	11 0 54 <1 194 2235 1036 1206 3958 current 4 <1 2	     history1  	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25	11 0 54 <1 194 2235 1036 1206 3958 current 4 <1 2 current	    history1   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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	11 0 54 <1 194 2235 1036 1206 3958 current 4 <1 2 current 0.5	     history1   history1 	     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 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	11 0 54 <1 194 2235 1036 1206 3958 <i>current</i> 4 <1 2 <i>current</i> 0.5 8.5	     history1   history1  	     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 <b>imit/base</b> >25 <b>imit/base</b> >3 >20	11 0 54 <1 194 2235 1036 1206 3958 <u>current</u> 4 <1 2 <u>current</u> 0.5 8.5 19.9	     history1  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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >3 >20 >30 20 30	11 0 54 <1 194 2235 1036 1206 3958 <i>current</i> 4 <1 2 <i>current</i> 0.5 8.5 19.9 <i>current</i>	     history1  history1  history1  history1	     history2  history2  history2  history2



# **OIL ANALYSIS REPORT**

VISUAL





					current		
	White Metal	scalar	*Visual	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE		
	Precipitate	scalar	*Visual	NONE	NONE		
	Silt	scalar	*Visual	NONE	NONE		
	Debris	scalar	*Visual	NONE	NONE		
	Sand/Dirt	scalar	*Visual	NONE	NONE		
5/23	Appearance	scalar	*Visual	NORML	NORML		
Nov15/23	Odor	scalar	*Visual	NORML	NORML		
	Emulsified Water	scalar	*Visual	>0.2	NEG		
	Free Water	scalar	*Visual	20.2	NEG		
						_	_
	FLUID PROP		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.4		
	GRAPHS						
	Ferrous Alloys						
	iron						
	8 - nickel						
	6						
	mdd						
	4						
	2						
	0						
	5/23			5/23			
	Nov15/23			Nov15/23			
	~ Non-ferrous Met	als		_			
	<sup>10</sup> T						
	copper						
	8 - copper lead						
	8 - Real Provide State S						
	8 - 1 tin						
	8 - Real Provide State S						
	8+ in tin 6+ 4+						
	8 - 1 tin						
	8+ in tin 6+ 4+						
	8 - ead 6 - ead 4 - ead 2 - ead 0 - ead 1 - ea			203			
	8 - ead 6 - ead 4 - ead 2 - ead 0 - ead 1 - ea			Nov15/23			
	8 - Ead 6 - Eine Ead 4 - Eine Ead 2 - Eine Ead 4 - Eine Ead 5 - Eine E	2°C		Nov15/23			
	B B B B B B B B B B B B B B B B B B B	2°C			Base Number	r	
	Viscosity @ 100 <sup>4</sup>	°C			Base Number	r	
	Viscosity @ 1000	°C		10	.0 - Base	r	
	8 6 4 2 0 CC ST ST Abnormal 17 4 4 4 4 4 4 4 4 4 4 4 4 4	°C		10	.0 - Base	r	
	8 6 4 2 0 CC ST ST Abnormal 17 4 4 4 4 4 4 4 4 4 4 4 4 4	°C		10	.0 - Base	r	
	8 6 4 2 0 CC ST ST Abnormal 17 4 4 4 4 4 4 4 4 4 4 4 4 4	°C		10	.0 = Base .0 =	r	
	8 6 4 2 0 2 0 2 0 2 0 2 0 2 0 2 0 2 0 2 0 2 0 2 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0	°C		10	.0 = Base .0 =	r	
	8 6 4 2 0 ECUSING Viscosity @ 100° Viscosity @ 100° 19 10 10 10 10 10 10 10 10 10 10	°C		10 (6) 10 KOH(0) 10 gu	.0 Base .0 .0 .0	r	
	8 6 4 2 0 EZ Signal Viscosity @ 100 Viscosity @ 100 19 6 8 8 6 6 6 6 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	°C		10 (0)HOX BU Bu How Bu Base Munder 8 8 8 2	0 <b>Base</b> 0 <b>0</b> 0 <b>0</b> 0 <b>0</b> 0 <b>0</b>	r	
	8	°C		10 (0)HOX 00 (0)HOX 00 (0)	0 Base 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	r	
	8	°C		10 (0)HOX 00 (0)HOX 00 (0)	0 Base 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	r	
	8 6 4 2 0 EC Signal Viscosity @ 100 <sup>4</sup> Viscosity @ 100 <sup>4</sup> Base Abnormal 12 Abnormal 12	°C		10 (0)HOX BU Bu How Bu Base Munder 8 8 8 2	0 <b>Base</b> 0 <b>0</b> 0 <b>0</b> 0 <b>0</b> 0 <b>0</b>	r	
	0   10     0   10     0   10     10   10     11   Base     12   11     13   Abnormal     12   11     13   Abnormal     12   11			10 8 6 9 8 9 8 9 9 9 9 9 9 9 9 9 9 9 9 9			
	0 0	- 501 Madia		10 (0)HOX 00 (0)HOX 00 (0)		ronmental - 421 - Hur	
	Viscosity @ 1000 Viscosity @ 1000 Base Abnomal Base is WearCheck USA - : GFL0095194	- 501 Madia Recieved	<b>d</b> : 29	10 ()HOY BU Jaquing 4 EZISTIVAN ATY, NC 2751 Dec 2023		ronmental - 421 - Hur 3204 Lowe	er Huntington
- -	Viscosity @ 1000 Viscosity @ 1000 babnomal babnomal Every back use and back of the second se	501 Madia Recieved Diagnose	d : 29 ed : 02	10 ())) ()) ()) ())) ()) ())) ()) ())) ()) (		ronmental - 421 - Hur 3204 Lowe	er Huntington ORT WAYNE,
	Viscosity @ 1000 Viscosity @ 1000 Base Abnomal Base is WearCheck USA - : GFL0095194	- 501 Madia Recieved	d : 29 ed : 02	10 ()HOY BU Jaquing 4 EZISTIVAN ATY, NC 2751 Dec 2023		ronmental - 421 - Hur 3204 Lowe FC	ntington Road Hau er Huntington DRT WAYNE, US 468 IICHAEL MUC

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

Contact/Location: see also GFL421A - MICHAEL MUGG - GFL421

T:

F: