

### **OIL ANALYSIS REPORT**

Sample Rating Trend



# Machine Id 821055

Component Diesel Engine

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

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### 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.

AL)		Jun2022	Jul2022 Aug2022 Nov20	122 Sep 2023 Oct2023 Oct2023	Nov2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098196	GFL0098261	GFL0083908
Sample Date		Client Info		13 Nov 2023	18 Oct 2023	11 Oct 2023
Machine Age	hrs	Client Info		5324	5151	5108
Oil Age	hrs	Client Info		5324	5151	5108
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	5	8	25
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	8	0
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	<1	1	1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	15	11	6
				6	0	2
Barium	ppm	ASTM D5185m	0	•	U U	
	ppm ppm	ASTM D5185m ASTM D5185m	0 60	60	65	55
Molybdenum			60	-		
Molybdenum Manganese	ppm	ASTM D5185m	60	60	65	55
Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	60 0	60 0	65 0	55 <1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	60 0 844	65 0 935	55 <1 831
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	60 0 844 1149	65 0 935 1139	55 <1 831 1025
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	60 0 844 1149 1066	65 0 935 1139 1094	55 <1 831 1025 960
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	60 0 1010 1070 1150 1270	60 0 844 1149 1066 1186	65 0 935 1139 1094 1263	55 <1 831 1025 960 1100
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	60 0 1010 1070 1150 1270 2060 limit/base	60 0 844 1149 1066 1186 3537	65 0 935 1139 1094 1263 3846	55 <1 831 1025 960 1100 2809
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	60 0 1010 1070 1150 1270 2060 limit/base	60 0 844 1149 1066 1186 3537 current	65 0 935 1139 1094 1263 3846 history1	55 <1 831 1025 960 1100 2809 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	60 0 844 1149 1066 1186 3537 current 2	65 0 935 1139 1094 1263 3846 history1 3	55 <1 831 1025 960 1100 2809 history2 3
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ypm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	60 0 844 1149 1066 1186 3537 current 2 0 8	65 0 935 1139 1094 1263 3846 history1 3 <1	55 <1 831 1025 960 1100 2809 history2 3 0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ypm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 iimit/base >25 >20	60 0 844 1149 1066 1186 3537 current 2 0 8	65 0 935 1139 1094 1263 3846 <u>history1</u> 3 <1 10	55 <1 831 1025 960 1100 2809 history2 3 0 4
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ypm	ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >3	60 0 844 1149 1066 1186 3537 current 2 0 8 8	65 0 935 1139 1094 1263 3846 history1 3 <1 10 history1	55 <1 831 1025 960 1100 2809 history2 3 0 4 kistory2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ypm yTS	ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >3	60 0 844 1149 1066 1186 3537 current 2 0 8 current 0.2	65 0 935 1139 1094 1263 3846 history1 3 <1 10 history1 0.2	55 <1 831 1025 960 1100 2809 history2 3 0 4 history2 0.3
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ypm ppm p	ASTM D5185m ASTM D7844 *ASTM D7624	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >3 >20	60 0 844 1149 1066 1186 3537 current 2 0 8 current 0.2 5.9 18.1	65 0 935 1139 1094 1263 3846 <u>history1</u> 3 <1 10 <u>history1</u> 0.2 5.9	55 <1 831 1025 960 1100 2809 history2 3 0 4 history2 0.3 6.1
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ypm ppm p	ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >3 >20 >30	60 0 844 1149 1066 1186 3537 current 2 0 8 current 0.2 5.9 18.1	65 0 935 1139 1094 1263 3846 history1 3 <1 10 history1 0.2 5.9 17.6	55 <1 831 1025 960 1100 2809 history2 3 0 4 history2 0.3 6.1 17.9



13 Abnorma 12

Jun6/22

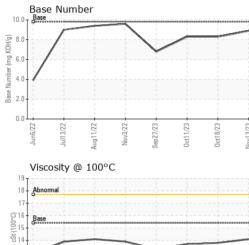
Aug11/22

Nov3/22

Sep27/23

## **OIL ANALYSIS REPORT**

VISUAL



	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	
0ct11/23 0ct18/23 Nov13/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Oct Novi	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	14.1	13.8	13.7	
	GRAPHS							
	Ferrous Alloys							
123	40- iron							
0ct11/23 0ct18/23	35 - nickel							
	30	~						
	25	/						
	15		$\sim$					
	10							
	Jun6/22 - Jul13/22 - Aug11/22 -	Nov3/22 . Sep27/23 .	0ct11/23 - 0ct18/23 -	Nov13/23				
	Juli Juli Augi	Sep2	0ct1 0ct1	Nov1				
	Non-ferrous Metal	s						
	10 copper							
	8 - sessesses lead							
	6-							
	4							
	2							
	The second se							
	22	23	23	53				
	Jun6/22 Jul13/22 Aug11/22	Nov3/22 Sep27/23	0ct11/23 0ct18/23	Nov13/23				
	Viscosity @ 100°C				Base Number			
	19 T 18 - Abnormal				10.0 Base			
	17-							
É				(0,10) (0				
000	Base 15 3 14			B 6.0-	/			
¢.	3 14			4.0-	/			
	13 Abnormal			2.0-				
	12							
		22	23	L <sub>0.0</sub>	22 +	22	23	
	Jun6/22 - Jul13/22 - Aug11/22 -	Nov3/22 . Sep27/23 .	0ct11/23 0ct18/23	Nov13/23	Jun6/22 - Jul13/22 - Aug11/22 -	Nov3/22 Sep27/23	Oct18/23 Nov13/23	
				2	4		~ ~ ~	
Laboratory	: WearCheck USA - 5				GFL Environ	mental - 652 - Freder		
Sample No.		Received		Nov 2023			Houser Drive	
Lab Number	: 06009022 Diagnos					Freder	Fredericksburg, VA	



Test Package : FLEET 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)

Unique Number : 10742784

Diagnostician

: Wes Davis

US 22408

T:

F:

Contact: WILLIAM MILO

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