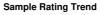


### **OIL ANALYSIS REPORT**





# Machine Id 920096-260369

#### 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.

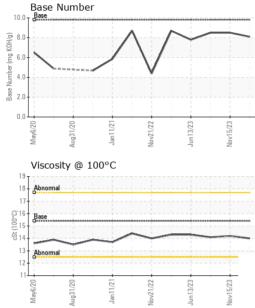
#### Fluid Condition

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

May2020 Aug2020 Jan2021 Nov2023 Nov2023							
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0102541	GFL0098624	GFL0093682	
Sample Date		Client Info		27 Nov 2023	15 Nov 2023	23 Oct 2023	
Machine Age	hrs	Client Info		8807	8711	8579	
Oil Age	hrs	Client Info		0	0	0	
Oil Changed		Client Info		N/A	Not Changd	Not Changd	
Sample Status				NORMAL	NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2	
Fuel		WC Method	>5	<1.0	<1.0	<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	>100	9	7	3	
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1	
Nickel	ppm	ASTM D5185m	>4	0	<1	0	
Titanium	ppm	ASTM D5185m		<1	<1	0	
Silver	ppm	ASTM D5185m	>3	0	0	0	
Aluminum	ppm	ASTM D5185m	>20	2	2	1	
Lead	ppm	ASTM D5185m	>40	0	<1	0	
Copper	ppm		>330	<1	<1	<1	
Tin	ppm	ASTM D5185m	>15	0	0	0	
Vanadium	ppm	ASTM D5185m	10	0	0	0	
Cadmium	ppm	ASTM D5185m		0	<1	0	
ADDITIVES		method	limit/base	current	history1	history2	
Boron	nom		0	1	<1	4	
	DDIII			-			
	ppm mag			5	9	0	
Barium	ppm	ASTM D5185m	0	5 60	9 61	0 54	
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0 60	60	61	54	
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	60 0	61 <1	54 <1	
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	60 0 874	61 <1 895	54 <1 865	
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	60 0 874 1056	61 <1 895 1033	54 <1 865 944	
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 60 0 1010 1070 1150	60 0 874 1056 969	61 <1 895 1033 1019	54 <1 865 944 970	
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	60 0 874 1056	61 <1 895 1033	54 <1 865 944	
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	0 60 0 1010 1070 1150 1270	60 0 874 1056 969 1140	61 <1 895 1033 1019 1183	54 <1 865 944 970 1148	
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	0 60 0 1010 1070 1150 1270 2060	60 0 874 1056 969 1140 2979 current	61 <1 895 1033 1019 1183 3113 history1	54 <1 865 944 970 1148 2879 history2	
Barium 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 ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	60 0 874 1056 969 1140 2979 current 2	61 <1 895 1033 1019 1183 3113 history1 3	54 <1 865 944 970 1148 2879 history2 2	
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	0 60 0 1010 1070 1150 1270 2060 kimit/base >25	60 0 874 1056 969 1140 2979 current	61 <1 895 1033 1019 1183 3113 history1	54 <1 865 944 970 1148 2879 history2	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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 ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 kimit/base >25	60 0 874 1056 969 1140 2979 current 2 0	61 <1 895 1033 1019 1183 3113 history1 3 3	54 <1 865 944 970 1148 2879 history2 2 4	
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 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	60 0 874 1056 969 1140 2979 current 2 0 4 current	61 <1 895 1033 1019 1183 3113 history1 3 3 3 3 3 history1	54 <1 865 944 970 1148 2879 history2 2 4 <1 kistory2	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i>	60 0 874 1056 969 1140 2979 current 2 0 4 current 0.5	61 <1 895 1033 1019 1183 3113 history1 3 3 3 3 3 history1 0.4	54 <1 865 944 970 1148 2879 history2 2 4 <1 history2 0.3	
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 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	60 0 874 1056 969 1140 2979 current 2 0 4 current	61 <1 895 1033 1019 1183 3113 history1 3 3 3 3 3 history1	54 <1 865 944 970 1148 2879 history2 2 4 <1 kistory2	
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 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >3 >20	60 0 874 1056 969 1140 2979 <u>current</u> 2 0 4 <u>current</u> 0.5 6.7	61 <1 895 1033 1019 1183 3113 history1 3 3 3 3 3 history1 0.4 6.4	54 <1 865 944 970 1148 2879 history2 2 4 <1 history2 0.3 5.8	
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 D7844 *ASTM D7624 *ASTM D7624	0 60 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 20 <b>Imit/base</b> >3 >20 >30 30	60 0 874 1056 969 1140 2979 current 2 0 4 current 0.5 6.7 19.1 current	61 <1 895 1033 1019 1183 3113 history1 3 3 3 3 history1 0.4 6.4 19.1 history1	54 <1 865 944 970 1148 2879 history2 2 4 <1 history2 0.3 5.8 18.4 history2	
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 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20 >30	60 0 874 1056 969 1140 2979 current 2 0 4 current 0.5 6.7 19.1	61 <1 895 1033 1019 1183 3113 history1 3 3 3 3 history1 0.4 6.4 19.1	54 <1 865 944 970 1148 2879 history2 2 4 <1 history2 0.3 5.8 18.4	



## **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 PROPER	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	14.2	14.1
GRAPHS						
May6/20 1 1/21	Nov21/22	Jun1323				
Non-ferrous Metals	;					
Mary6i20 Bend Field Cobber Mary1/1/21 Land Mary1/1/21 Land Land Land Land Land Land Land Land	Nov21/22	Juni 3/23				
Viscosity @ 100°C				Base Number		
9 4 5 4 4 4 4 4 4 4 4 4 4 4 4 4			10.0 (6,0 (0)HOX (0) (0) (0) (0) (0) (0) (0) (0) (0) (0)	Base	ΛΓ	~~

Number ( 4 ( Base

0.0

Mav6/20

Aug31/20.

Jan11/21.



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)

Jan11/21.

Nov21/22

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

Received

Diagnosed

Jun 13/23

Diagnostician : Wes Davis

Nov15/23

: 07 Dec 2023

: 09 Dec 2023

Aug31/20

: GFL0102541

: 06028407

13 Abnormal

12 11-

Laboratory

Sample No.

Lab Number

Unique Number : 10778198

Mav6/20

Nov21/22

Jun 13/23

Vov15/23