

# **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 834046

Fluid

Component
Natural Gas Engine

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

# DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

## Wear

Metal levels are typical for a new component breaking in.

### 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 INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103311	GFL0098669	GFL0090715
Sample Date		Client Info		23 Jan 2024	26 Oct 2023	25 Sep 2023
Machine Age	hrs	Client Info		535	438	241
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	50	48	42
Chromium	ppm	ASTM D5185m	>5	1	<1	0
Nickel	ppm	ASTM D5185m	>4	1	1	0
Titanium	ppm	ASTM D5185m	>5	0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>25	6	4	<1
Lead	ppm	ASTM D5185m	>40	1	1	<1
Copper	ppm	ASTM D5185m	>150	14	20	14
Tin	ppm	ASTM D5185m	>4	2	2	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	method ASTM D5185m	limit/base 0	current 23	history1 10	history2 18
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0	current 23 <1	history1 10 3	history2 18 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60	current 23 <1 53	history1 10 3 51	history2 18 0 44
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0	23 <1 53 11	history1 10 3 51 14	history2 18 0 44 11
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010	current           23           <1           53           11           765	history1 10 3 51 14 724	history2 18 0 44 11 713
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070	current           23           <1           53           11           765           1318	history1 10 3 51 14 724 1114	history2 18 0 44 11 713 1035
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150	current           23           <1           53           11           765           1318           753	history1 10 3 51 14 724 1114 660	history2 18 0 44 11 713 1035 655
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270	current           23           <1           53           11           765           1318           753           841	history1 10 3 51 14 724 1114 660 865	history2 18 0 44 11 713 1035 655 824
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060	23       <1       53       11       765       1318       753       841       2189	history1 10 3 51 14 724 1114 660 865 2462	history2 18 0 44 11 713 1035 655 824 2194
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 23 <1 53 11 765 1318 753 841 2189 current	history1 10 3 51 14 724 1114 660 865 2462 history1	history2 18 0 44 11 713 1035 655 824 2194 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current       23       <1       53       11       765       1318       753       841       2189       current       28	history1 10 3 51 14 724 1114 660 865 2462 history1 37	history2 18 0 44 11 713 1035 655 824 2194 history2 31
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	23         <1         53         11         765         1318         753         841         2189         current         28         2	history1 10 3 51 14 724 1114 660 865 2462 history1 37 5	history2 18 0 44 11 713 1035 655 824 2194 history2 31 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	current         23         <1         53         11         765         1318         753         841         2189         current         28         2         3	history1 10 3 51 14 724 1114 660 865 2462 history1 37 5 4	history2 18 0 44 11 713 1035 655 824 2194 history2 31 4 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current         23         <1         53         11         765         1318         753         841         2189         current         28         2         3         current	history1 10 3 51 14 724 1114 660 865 2462 history1 37 5 4 history1	history2         18         0         44         11         713         1035         655         824         2194         history2         31         4         4         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	method           ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current         23         <1         53         11         765         1318         753         841         2189         current         28         2         3         current         0	history1         10         3         51         14         724         1114         660         865         2462         history1         37         5         4         history1         0	history2         18         0         44         11         713         1035         655         824         2194         history2         31         4         4         history2         0
ADDITIVES 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	method           ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current         23         <1         53         11         765         1318         753         841         2189         current         28         2         3         current         0         11.9	history1         10         3         51         14         724         1114         660         865         2462         history1         37         5         4         history1         0         11.7	history2         18         0         44         11         713         1035         655         824         2194         history2         31         4         4         0         10.6
ADDITIVES 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 t ppm ppm	method           ASTM D5185m           ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20 >20 >30	current         23         <1         53         11         765         1318         753         841         2189         current         28         2         3         current         0         11.9         22.8	history1         10         3         51         14         724         1114         660         865         2462         history1         37         5         4         history1         0         11.7         21.6	history2         18         0         44         11         713         1035         655         824         2194         history2         31         4         history2         0         10.6         20.3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7624           *ASTM D7415           method	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >20 limit/base >20 >20 >30 limit/base	current         23         <1         53         11         765         1318         753         841         2189         current         28         2         3         current         0         11.9         22.8         current	history1 10 3 51 14 724 1114 660 865 2462 history1 37 5 4 history1 0 11.7 21.6 history1	history2         18         0         44         11         713         1035         655         824         2194         history2         31         4         history2         0         10.6         20.3         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D76185m           *ASTM D7624           *ASTM D7624           *ASTM D7415           method	imit/base 0 0 60 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >20 30 imit/base >25	current         23         <1         53         11         765         1318         753         841         2189         current         28         2         3         current         0         11.9         22.8         current         20.2	history1         10         3         51         14         724         1114         660         865         2462         history1         37         5         4         history1         0         11.7         21.6         history1         20.3	history2         18         0         44         11         713         1035         655         824         2194         history2         31         4         history2         0         10.6         20.3         history2         19.2



Base

13 Abnorma 12 11 Sep25/23

# **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	LIGHT
	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
26/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Lan Oc.	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
C	Emulsified Water	scalar	*Visual	>0.1	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	14.3	14.3	14.2
	GRAPHS						
	Ferrous Alloys						
2/23	iron						
0ct26	40 - nickel						
	30-						
	Ed 20						
	20						
	10-						
	0						
	25/23	26/23		23/24			
	Sept	Octi		Jani			
	Non-ferrous Metal	S					
	copper						
	15						
	툡 10-						
	5						
			******				
	2/23 + c	5/23 -		3/24			
	Sep 2!	0ct2		Jan 2.			
	Viscosity @ 100°C				Base Number		
	18 - Abnormal			10.0	Base		
	17+			8.0	J		
	-16- Pres			KOH/6			
	0015-			E 6.0			
	8 14			4.0			
	13 Abnormal			ase 2 (	J		
	12-						
	11 <del>4</del> 82	/23		+ 0.0		/23	24
	Sep 25	0ct26		Jan 23	Sep 25	0ct26	Jan 23
Laboratory Sample No. Lab Number Unique Number	: WearCheck USA - 5 : GFL0103311 I : 06070343 I : 10847020	i01 Madi Recieved Diagnos	son Ave., Ca d : 25 c ed : 26 c tician : We	ry, NC 27513 Jan 2024 Jan 2024 s Davis	3 GFL Enviro	nmental - 836 - Ka 7801 East Ka	nsas City Hauling Truman Road Insas City, MO US 64126
Certificate L2367 Test Package	: FLEET	ice at 1-8	300-237-1360	)		Conta	ct: Robert Hart
* - Denotes test methods that	are outside of the ISO 1	се аст-8 7025 sco	pe of accred	,. litation.		T:	(580)461-1509
Statements of conformity to spe	cifications are based on th	he simple	acceptance of	decision rule (	(JCGM 106:2012)		F:



Report Id: GFL836 [WUSCAR] 06070343 (Generated: 01/26/2024 07:29:32) Rev: 1

Contact/Location: See also GFL823, 834, 837, 840 - Robert Hart - GFL836