

# **OIL ANALYSIS REPORT**

Sample Rating Trend



Area (BB77622) 624M Component Diesel Engine

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

SAMPLE INFORMATION method

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

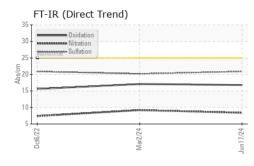
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

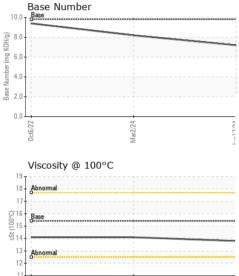
SAMPLE INFORM		methoa	limit/base	current	nistory i	nistory2
Sample Number		Client Info		GFL0107034	GFL0107817	GFL0052067
Sample Date		Client Info		17 Jun 2024	02 Mar 2024	06 Oct 2022
Machine Age	hrs	Client Info		15112	148337	11452
Oil Age	hrs	Client Info		600	600	11452
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
-				-		
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	\$	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	14	22	0
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m		2	2	3
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	2	1	3
Tin	ppm		>15	1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 4	history1 3	history2 7
	ppm ppm		0			
Boron		ASTM D5185m	0	4	3	7
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	4 0	3 0	7 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 59	3 0 57	7 <1 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 59 <1	3 0 57 <1	7 <1 58 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 59 <1 966	3 0 57 <1 910	7 <1 58 0 861
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	4 0 59 <1 966 1099	3 0 57 <1 910 1019	7 <1 58 0 861 1069
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	4 0 59 <1 966 1099 1087	3 0 57 <1 910 1019 1010	7 <1 58 0 861 1069 963
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	4 0 59 <1 966 1099 1087 1312	3 0 57 <1 910 1019 1010 1198	7 <1 58 0 861 1069 963 1176
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	0 0 60 1010 1070 1150 1270 2060	4 0 59 <1 966 1099 1087 1312 3146 current	3 0 57 <1 910 1019 1010 1198 2918 history1	7 <1 58 0 861 1069 963 1176 3110 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	4 0 59 <1 966 1099 1087 1312 3146 current 4	3 0 57 <1 910 1019 1010 1198 2918 history1 2	7 <1 58 0 861 1069 963 1176 3110 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m 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 <b>limit/base</b>	4 0 59 <1 966 1099 1087 1312 3146 current 4 6	3 0 57 <1 910 1019 1010 1198 2918 history1 2 4	7 <1 58 0 861 1069 963 1176 3110 history2 2 2 14
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 >20	4 0 59 <1 966 1099 1087 1312 3146 current 4 6 3	3 0 57 <1 910 1019 1010 1198 2918 history1 2 4 0	7 <1 58 0 861 1069 963 1176 3110 history2 2 2 14 6
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 -20 <b>Imit/base</b>	4 0 59 <1 966 1099 1087 1312 3146 current 4 6 3 3	3 0 57 <1 910 1019 1010 1198 2918 history1 2 4 0 bistory1	7 <1 58 0 861 1069 963 1176 3110 history2 2 14 6 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <b>limit/base</b> >20	4 0 59 <1 966 1099 1087 1312 3146 <i>current</i> 4 6 3 <i>current</i> 1	3 0 57 <1 910 1019 1010 1198 2918 history1 2 4 0 history1 0.6	7 <1 58 0 861 1069 963 1176 3110 history2 2 14 6 history2 0.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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 <b>imit/base</b> >25 >20 <b>imit/base</b> >20	4 0 59 <1 966 1099 1087 1312 3146 <i>current</i> 4 6 3 <i>current</i> 1 8.4	3 0 57 <1 910 1019 1010 1198 2918 history1 2 4 0 history1 0.6 9.2	7 <1 58 0 861 1069 963 1176 3110 history2 2 14 6 history2 0.6 7.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <b>limit/base</b> >20	4 0 59 <1 966 1099 1087 1312 3146 <i>current</i> 4 6 3 <i>current</i> 1	3 0 57 <1 910 1019 1010 1198 2918 history1 2 4 0 history1 0.6	7 <1 58 0 861 1069 963 1176 3110 history2 2 14 6 history2 0.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 >20 <b>imit/base</b> >20	4 0 59 <1 966 1099 1087 1312 3146 <i>current</i> 4 6 3 <i>current</i> 1 8.4	3 0 57 <1 910 1019 1010 1198 2918 history1 2 4 0 history1 0.6 9.2	7 <1 58 0 861 1069 963 1176 3110 history2 2 14 6 history2 0.6 7.4
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 D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >4 >20	4 0 59 <1 966 1099 1087 1312 3146 <u>current</u> 4 6 3 <u>current</u> 1 8.4 20.9	3 0 57 <1 910 1019 1010 1198 2918 history1 2 4 0 <u>history1</u> 0.6 9.2 20.2	7 <1 58 0 861 1069 963 1176 3110  history2 2 14 6 history2 0.6 7.4 20.9
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	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >20 20 30 imit/base	4 0 59 <1 966 1099 1087 1312 3146 <i>current</i> 4 6 3 <i>current</i> 1 8.4 20.9 <i>current</i>	3 0 57 <1 910 1019 1010 1198 2918 history1 2 4 0 history1 0.6 9.2 20.2 history1	7 <1 58 0 861 1069 963 1176 3110 history2 2 14 6 history2 0.6 7.4 20.9 history2



0ct6/22

# **OIL ANALYSIS REPORT**





Mar2/24

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0ct6/2

19

18

() 100°C) 15

5 1.

13

Viscosity @ 100°C

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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	14.1	14.1
GRAPHS						
iron chomium nickel	Mar2/24		Jun17/24			
Non-ferrous Meta	ls		-			
8 copper						
6						

Base Number

10.0

8. (mg KOH/g)

6 | umber

4 (

Base Abno 12 11 0.0 Jun17/24 -0ct6/22 0ct6/22 Mar2/24 Mar2/24 7/24 'n Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 465 - Pontiac Sample No. : GFL0107034 Received : 18 Jun 2024 888 Baldwin Pontiac, MI Lab Number : 06213264 Tested : 19 Jun 2024 Unique Number : 11086128 US 48340 Diagnosed : 19 Jun 2024 - Wes Davis Test Package : FLEET Contact: Ricky Matthews Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. rickymathews@gflenv.com T: (586)825-9514 \* - 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) F:

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Submitted By: Ricky Matthews

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