**PROBLEM SUMMARY** 

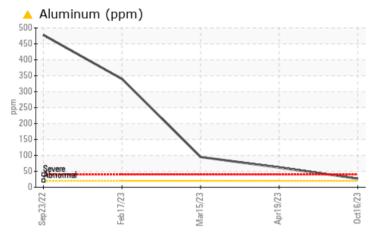
Sample Rating Trend WEAR

CHECK

## Machine Id 822026

Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

#### COMPONENT CONDITION SUMMARY



#### RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS							
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL	
Aluminum	ppm	ASTM D5185m	>20	<u> </u>	<u> </u>	<b>9</b> 5	

Customer Id: GFL659 Sample No.: GFL0090803 Lab Number: 05997207 Test Package: FLEET



To manage this report scan the QR code

*To discuss the diagnosis or test data:* Don Baldridge +1 <u>don.b505@comcast.net</u>

*To change component or sample information:* Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u> There are no recommended actions for this sample.

#### **HISTORICAL DIAGNOSIS**

#### 19 Apr 2023 Diag: Sean Felton

WEAR



No corrective action is recommended at this time. Resample at the next service interval to monitor. The aluminum level has decreased, but is still abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. 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.

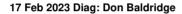
#### 15 Mar 2023 Diag: Angela Borella

WEAR

Resample at the next service interval to monitor. The aluminum level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. 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.



# WEAR





We advise that you perform a compression test. We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. Piston, ring and cylinder wear is indicated. Exhaust valve wear is indicated. There is an abnormal amount of solids and carbon present in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.







### **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 822026

#### Component Diesel Engine

Fluid

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

#### DIAGNOSIS

#### A Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

#### 🔺 Wear

The aluminum level has decreased, but is still abnormal. All other component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

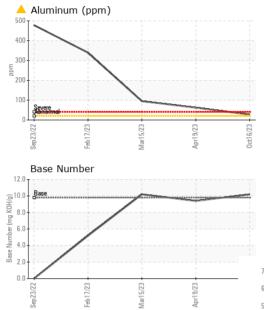
#### Fluid Condition

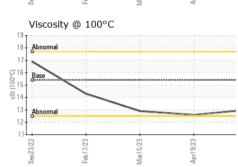
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0090803	GFL0077654	GFL0077656
Sample Date		Client Info		16 Oct 2023	19 Apr 2023	15 Mar 2023
Machine Age	hrs	Client Info		17083	16645	15829
Oil Age	hrs	Client Info		0	15669	15669
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>2.0	<1.0	<1.0	<1.0
Glycol		WC Method	2L.0	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	18	37	64
Chromium	ppm	ASTM D5185m	>20	<1	2	3
Nickel	ppm	ASTM D5185m	>4	<1	<1	2
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	2
Aluminum	ppm	ASTM D5185m	>20	<u> </u>	<u> </u>	<mark>▲</mark> 95
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	0	2	4
Tin	ppm	ASTM D5185m	>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
	ppm	method ASTM D5185m	limit/base	current 8	history1 11	history2 15
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	8	11	15
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m	0 0 60	8 0	11 0	15 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 57	11 0 65	15 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 57 <1	11 0 65 <1	15 0 60 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	8 0 57 <1 908	11 0 65 <1 962	15 0 60 1 879
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	8 0 57 <1 908 1028	11 0 65 <1 962 1132	15 0 60 1 879 1117
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	8 0 57 <1 908 1028 1024	11 0 65 <1 962 1132 1093	15 0 60 1 879 1117 1023
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270	8 0 57 <1 908 1028 1024 1210	11 0 65 <1 962 1132 1093 1334	15 0 60 1 879 1117 1023 1185
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 limit/base	8 0 57 <1 908 1028 1024 1210 3023	11 0 65 <1 962 1132 1093 1334 3530	15 0 60 1 879 1117 1023 1185 2899
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 limit/base	8 0 57 <1 908 1028 1024 1210 3023 current	11 0 65 <1 962 1132 1093 1334 3530 history1	15 0 60 1 879 1117 1023 1185 2899 history2
Boron 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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	8 0 57 <1 908 1028 1024 1210 3023 current 5	11 0 65 <1 962 1132 1093 1334 3530 history1 7	15 0 60 1 879 1117 1023 1185 2899 history2 10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	8 0 57 <1 908 1028 1024 1210 3023 <u>current</u> 5 2	11 0 65 <1 962 1132 1093 1334 3530 history1 7 2	15 0 60 1 879 1117 1023 1185 2899 history2 10 1
Boron 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 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	8 0 57 <1 908 1028 1024 1210 3023 current 5 2 4 4 current	11 0 65 <1 962 1132 1093 1334 3530 history1 7 2 2 2 history1	15 0 60 1 879 1117 1023 1185 2899 history2 10 1 7 <i>h</i> istory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3	8 0 57 <1 908 1028 1024 1210 3023 current 5 2 4 4 current 1.4	11 0 65 <1 962 1132 1093 1334 3530 history1 7 2 2 2 history1 0.7	15 0 60 1 879 1117 1023 1185 2899 history2 10 1 7 <i>history2</i> 1.1
Boron 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 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	8 0 57 <1 908 1028 1024 1210 3023 current 5 2 4 4 current	11 0 65 <1 962 1132 1093 1334 3530 history1 7 2 2 2 history1	15 0 60 1 879 1117 1023 1185 2899 history2 10 1 7 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 limit/base >25 >20 limit/base >3 >20	8 0 57 <1 908 1028 1024 1210 3023 current 5 2 4 5 2 4 1.4 6.8	11 0 65 <1 962 1132 1093 1334 3530 history1 7 2 2 2 history1 0.7 6.4	15 0 60 1 879 1117 1023 1185 2899 history2 10 1 7 history2 1.1 7.9 19.3
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 D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 limit/base >25 .20 limit/base >3 >20 .30 limit/base	8 0 57 <1 908 1028 1024 1210 3023 current 5 2 4 current 1.4 6.8 20.0 current	11 0 65 <1 962 1132 1093 1334 3530 history1 7 2 2 2 history1 0.7 6.4 18.3 history1	15 0 60 1 879 1117 1023 1185 2899 history2 10 1 10 1 7 <i>history2</i> 1.1 7.9 19.3
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 1010 1070 1150 1270 2060 limit/base >25 limit/base >3 >20 330 limit/base >3	8 0 57 <1 908 1028 1024 1210 3023 current 5 2 4 current 1.4 6.8 20.0	11 0 65 <1 962 1132 1093 1334 3530 history1 7 2 2 2 history1 0.7 6.4 18.3	15 0 60 1 879 1117 1023 1185 2899 history2 10 1 1 7 history2 1.1 7.9 19.3



## **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
0ct16/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
0ct	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	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.0	12.6	12.9
	GRAPHS						
	Ferrous Alloys						
	700		1				
	600 - chromium						
	500						
	400						
	300						
	200						
	100		 				
	0						
	Sep 23/22 Feb 17/23	Mar15/23	Apr19/23	0ct16/23			
			Ap	0			
	Non-ferrous Meta	ls					
	18 16						
	14 - tin						
	12						
	4						
	2						
				and the second s			
	Sep 23/22 Feb 17/23	Mar15/23	Apr19/23	0ct16/23			
			Ar	õ			
	Viscosity @ 100°(	-		12.0	Base Number	-	
	18 - Abnormal						
	17-			10.0	Base		
	Base			0.8 KOH/d) Base Number (mg KOH/d) 888	•	/	
	(1-001) 15 14			 ອ_6.0			
	<sup>43</sup> 14		I I I	quint 4.0			
	13 Abnormal	-		ase e			
	12-			2.0			
	11 0 0						
	Sep 23/22 Feb 17/23	Mar15/23	Apr19/23	0ct16/23	Sep 23/22 Feb 17/23	Mar15/23	Apr19/23
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Number	: 05997207	Diagnos		Nov 2023		Mee	chanicsville, V
que Number		Diagnost	t <b>ician</b> : Dor	n Baldridge		_	US 231
b Dookogo						Contact	Durauna Oliv



Test Package : FLEET 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

Submitted By: TECHNICIAN ACCOUNT

T:

F:

Contact: Dwayne Oliver

dwayneoliver@gflenv.com