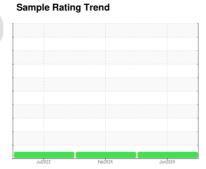


OIL ANALYSIS REPORT



(42989HA) 727018 Diesel Engine

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





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

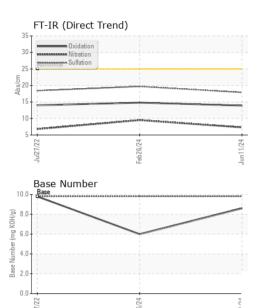
Fluid Condition

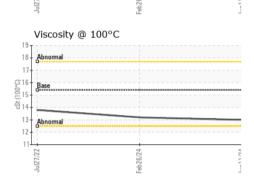
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

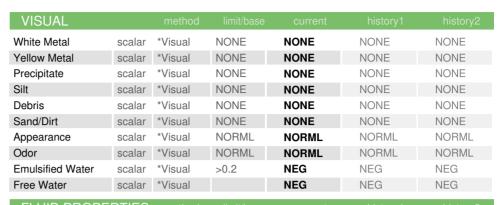
Sample Number Client Info GFL0104080 GFL0104086 GFL00532 Sample Date Client Info 11 Jun 2024 26 Feb 2024 27 Jul 202 Machine Age hrs Client Info 600 60	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date Client Info 11 Jun 2024 26 Feb 2024 27 Jul 202 Machine Age hrs Client Info 13928 13342 12200 Cilent Info 600 600 600 600 Changed Client Info Changed N/A NORMAL						•	GFL0053271
Machine Age hrs Client Info 13928 13342 12200 Oil Age hrs Client Info 600 600 600 600 Oil Changed Client Info Changed N/A Changed Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history1 Fuel WC Method >3.0 <1.0	· .						
Oil Age hrs Client Info 600		hrs					
Oil Changed Sample Status Client Info MoRMAL Changed NORMAL N/A NORMAL Changed NORMAL CONTAMINATION method limit/base current history1 history1 Fuel WC Method >3.0 <1.0							
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history1 history1 water Wc Method NEG	•	0					
Fuel	-						_
Water WC Method >0.2 NEG Net Net <t< td=""><td>CONTAMINATION</td><td>NC</td><td>method</td><td>limit/base</td><th>current</th><td>history1</td><td>history2</td></t<>	CONTAMINATION	NC	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 histor Iron ppm ASTM D5185m >120 11 16 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 1 0 Nickel ppm ASTM D5185m >5 0 1 0 Titanium ppm ASTM D5185m >2 0 <1	WEAR METALS	;	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >5 0 1 0 Titanium ppm ASTM D5185m >2 0 <1	Iron	ppm	ASTM D5185m	>120	11	16	<1
Titanium	Chromium	ppm	ASTM D5185m	>20	0	1	0
Titanium ppm ASTM D5185m >2 0 <1 1 Silver ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >20 5 5 4 Lead ppm ASTM D5185m >40 0 <1 <1 Copper ppm ASTM D5185m >330 0 3 6 Tin ppm ASTM D5185m >15 <1 1 <1 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 1 0 ADDITIVES method limit/base current history1 history1 Born ppm ASTM D5185m 0 0 1 0 ADDITIVES method limit/base current history1 histor Ba	Nickel				0	1	
Silver ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >20 5 5 4 Lead ppm ASTM D5185m >40 0 <1 <1 Copper ppm ASTM D5185m >3330 0 3 6 Tin ppm ASTM D5185m 0 <1 1 <1 Vanadium ppm ASTM D5185m 0 <1 1 <1 Vanadium ppm ASTM D5185m 0 <1 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 <1 0 ADDITIVES method limit/base current history1 history1 history1 Boron ppm ASTM D5185m 0 10 3 8 Barium ppm ASTM D5185m 0 0 1 0 Molydenum ppm ASTM D5185m	Titanium		ASTM D5185m	>2	0	<1	1
Lead ppm ASTM D5185m >40 0 <1 <1 Copper ppm ASTM D5185m >330 0 3 6 Tin ppm ASTM D5185m >15 <1 1 <1 <1 Vanadium ppm ASTM D5185m 0 <1 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 <1 0 ADDITIVES method limit/base current history1 history1 history1 Boron ppm ASTM D5185m 0 10 3 8 Barium ppm ASTM D5185m 0 0 1 0 0 Molybdenum ppm ASTM D5185m 0 0 1 0 0 Magnesium ppm ASTM D5185m 0 <1 <1 <1 <1 Calcium ppm ASTM D5185m 1070 1046 948 1060	Silver				0	0	<1
Lead	Aluminum		ASTM D5185m	>20	5	5	
Copper ppm ASTM D5185m >330 0 3 6 Tin ppm ASTM D5185m >15 <1	Lead		ASTM D5185m	>40	0	<1	<1
Tin	Copper		ASTM D5185m	>330	0	3	
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 10 3 8 Barium ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 0 <1 <1 0 Molybdenum ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 934 792 864 Calcium ppm ASTM D5185m 1070 1046 948 1060 Phosphorus ppm ASTM D5185m 1270 1248 1117 1218 Sulfur ppm ASTM D5185m 2060 3572 2968	• •				<1		<1
Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 10 3 8 Barium ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 0 -1 -1 0 Molybdenum ppm ASTM D5185m 0 -1 -1 -1 -1 Magnesium ppm ASTM D5185m 10 10 934 792 864 Calcium ppm ASTM D5185m 1070 1046 948 1060 Phosphorus ppm ASTM D5185m 1270 1248 1117 1218 Sulfur ppm ASTM D5185m 2060 3572 2968 3441 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >20 </td <td>Vanadium</td> <td></td> <td>ASTM D5185m</td> <td></td> <th>0</th> <td><1</td> <td>0</td>	Vanadium		ASTM D5185m		0	<1	0
Boron	Cadmium				0	<1	
Barium ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 60 56 55 56 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 934 792 864 Calcium ppm ASTM D5185m 1070 1046 948 1060 Phosphorus ppm ASTM D5185m 1150 1027 870 1018 Zinc ppm ASTM D5185m 1270 1248 1117 1218 Sulfur ppm ASTM D5185m 2060 3572 2968 3441 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 6 2 Sodium ppm ASTM D5185m 20 11 3 2 INFRA-RED method limit/base </td <td>ADDITIVES</td> <td></td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 56 55 56 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 934 792 864 Calcium ppm ASTM D5185m 1070 1046 948 1060 Phosphorus ppm ASTM D5185m 1150 1027 870 1018 Zinc ppm ASTM D5185m 1270 1248 1117 1218 Sulfur ppm ASTM D5185m 2060 3572 2968 3441 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 6 2 Sodium ppm ASTM D5185m 20 11 3 2 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7624 <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>10</th> <td>3</td> <td>8</td>	Boron	ppm	ASTM D5185m	0	10	3	8
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 934 792 864 Calcium ppm ASTM D5185m 1070 1046 948 1060 Phosphorus ppm ASTM D5185m 1150 1027 870 1018 Zinc ppm ASTM D5185m 1270 1248 1117 1218 Sulfur ppm ASTM D5185m 2060 3572 2968 3441 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m 25 4 6 2 Sodium ppm ASTM D5185m 20 11 3 2 INFRA-RED method limit/base current history1 history1 Soot % *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30	Barium	ppm	ASTM D5185m	0	0	1	0
Magnesium ppm ASTM D5185m 1010 934 792 864 Calcium ppm ASTM D5185m 1070 1046 948 1060 Phosphorus ppm ASTM D5185m 1150 1027 870 1018 Zinc ppm ASTM D5185m 1270 1248 1117 1218 Sulfur ppm ASTM D5185m 2060 3572 2968 3441 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 6 2 Sodium ppm ASTM D5185m >20 11 3 2 Potassium ppm ASTM D5185m >20 11 3 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7	Molybdenum	ppm	ASTM D5185m	60	56	55	56
Calcium ppm ASTM D5185m 1070 1046 948 1060 Phosphorus ppm ASTM D5185m 1150 1027 870 1018 Zinc ppm ASTM D5185m 1270 1248 1117 1218 Sulfur ppm ASTM D5185m 2060 3572 2968 3441 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 6 2 Sodium ppm ASTM D5185m 20 11 3 2 Potassium ppm ASTM D5185m >20 11 3 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION *ASTM	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1027 870 1018 Zinc ppm ASTM D5185m 1270 1248 1117 1218 Sulfur ppm ASTM D5185m 2060 3572 2968 3441 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 6 2 Sodium ppm ASTM D5185m 2 3 2 Potassium ppm ASTM D5185m >20 11 3 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method l	Magnesium	ppm	ASTM D5185m	1010	934	792	864
Zinc ppm ASTM D5185m 1270 1248 1117 1218 Sulfur ppm ASTM D5185m 2060 3572 2968 3441 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 6 2 Sodium ppm ASTM D5185m 2 3 2 Potassium ppm ASTM D5185m >20 11 3 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414	Calcium	ppm	ASTM D5185m	1070	1046	948	1060
Sulfur ppm ASTM D5185m 2060 3572 2968 3441 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 6 2 Sodium ppm ASTM D5185m 2 3 2 Potassium ppm ASTM D5185m >20 11 3 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	Phosphorus	ppm	ASTM D5185m	1150	1027	870	1018
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 6 2 Sodium ppm ASTM D5185m 2 3 2 Potassium ppm ASTM D5185m >20 11 3 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	Zinc	ppm	ASTM D5185m	1270	1248	1117	1218
Silicon ppm ASTM D5185m >25 4 6 2 Sodium ppm ASTM D5185m 2 3 2 Potassium ppm ASTM D5185m >20 11 3 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	Sulfur	ppm	ASTM D5185m	2060	3572	2968	3441
Sodium ppm ASTM D5185m 2 3 2 Potassium ppm ASTM D5185m >20 11 3 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	CONTAMINANT	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 11 3 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	Silicon	ppm	ASTM D5185m	>25	4	6	2
INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	Sodium	ppm	ASTM D5185m		2	3	2
Soot % % *ASTM D7844 >4 0.2 0.8 0.2 Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	Potassium	ppm	ASTM D5185m	>20	11	3	2
Nitration Abs/cm *ASTM D7624 >20 7.3 9.5 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.7 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	Soot %	%	*ASTM D7844	>4	0.2	0.8	0.2
FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	Nitration	Abs/cm	*ASTM D7624	>20	7.3	9.5	6.8
Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.8 14.0	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.9	19.7	18.4
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.6 6.0 9.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.9	14.8	14.0
		mg KOH/g	ASTM D2896	9.8	8.6	6.0	9.8



OIL ANALYSIS REPORT

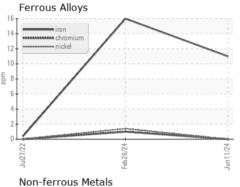


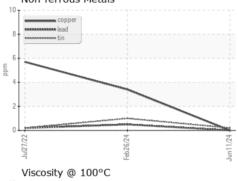


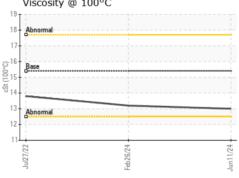


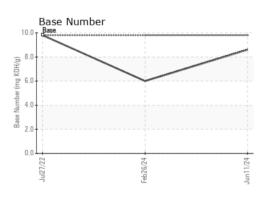
FLUID PROPI	EHILO	method			riistory i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	13.0	13.2	13.8

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0104080 Lab Number : 06214430

Unique Number : 11087294 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 19 Jun 2024 **Tested** : 20 Jun 2024

Diagnosed : 20 Jun 2024 - Wes Davis GFL Environmental - 028 - Weldon

2211 US Highway 301 Halifax, NC

US 27839 Contact: TRAVIS PORCH tporch@gflenv.com

T: (252)532-3344

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)