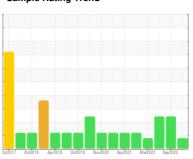


OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id **11271**

Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (11 GAL)

DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

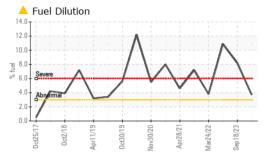
Fluid Condition

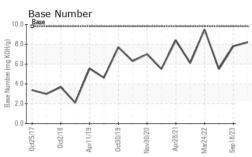
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

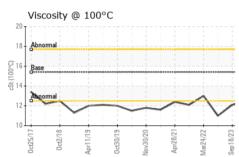
SAMPLE INFORMATION method limit/base current history1 history2 Sample Number Client Info GFL0069750 GFL0069770 GFL0050883 Sample Date Client Info 7554 7332 7054 Oil Age hrs Client Info 0 278 7054 Oil Changed Client Info N/A Not Changed Changed Changed Sample Status ABNORMAL SEVERE SEVERE SEVERE CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >55 <1 <1 1 history1 history2 Iron ppm ASTM D5185m >55 <1 <1 <1 <1	GAL)		Jet2017 Oct2	018 Apr2019 Oct2019	Nov2020 Apr2021 Mar2022	Sep2023	
Sample Date Client Info 04 Jan 2024 18 Sep 2023 17 May 2023 Machine Age hrs Client Info 7554 7332 7054 Oil Age hrs Client Info 0 278 7054 Oil Changed Client Info N/A Not Changed Changed Sample Status ABNORMAL SEVERE SEVERE CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m 25 <1	SAMPLE INFORM	1ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 7554 7332 7054 Oil Age hrs Client Info 0 278 7054 Oil Changed Client Info NA Not Changed Changed Changed Sample Status Local Control Info NA Not Changed Changed Changed CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >5 <1 <1 1 Nickel ppm ASTM D5185m >5 <1 <1 1 Nickel ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >2 0 0 <1 <1 <1 <td>Sample Number</td> <td></td> <td>Client Info</td> <td></td> <td>GFL0069750</td> <td>GFL0069770</td> <td>GFL0050883</td>	Sample Number		Client Info		GFL0069750	GFL0069770	GFL0050883
Oil Age hrs Client Info N/A N/A Not Changed Changed Sample Status Client Info N/A Not Changed Changed Changed Sample Status CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 2 12 32 Chromium ppm ASTM D5185m >5 <1	Sample Date		Client Info		04 Jan 2024	18 Sep 2023	17 May 2023
Client Info	Machine Age	hrs	Client Info		7554	7332	7054
Sample Status	Oil Age	hrs	Client Info		0	278	7054
CONTAMINATION method limit/base current history1 history2 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 >5 <1	Oil Changed		Client Info		N/A	Not Changd	Changed
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 2 12 32 Chromium ppm ASTM D5185m >5 <1	Sample Status				ABNORMAL	SEVERE	SEVERE
Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 2 12 32 Chromium ppm ASTM D5185m >5 <1 <1 1 Nickel ppm ASTM D5185m >4 0 <1 <1 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 <1 Lead ppm ASTM D5185m >100 <1 <1 2 Copper ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 10 13 8	CONTAMINATION	NC	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 2 12 32 Chromium ppm ASTM D5185m >5 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >5 <1 <1 1 Nickel ppm ASTM D5185m >4 0 <1	WEAR METALS	6	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>75	2	12	32
Titanium	Chromium	ppm	ASTM D5185m	>5	<1	<1	1
Silver	Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Aluminum ppm ASTM D5185m >15 1 2 3 Lead ppm ASTM D5185m >25 0 0 <1	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Lead ppm ASTM D5185m >25 0 0 <1 Copper ppm ASTM D5185m >100 <1 <1 2 Tin ppm ASTM D5185m >4 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 10 13 8 Boron ppm ASTM D5185m 0 11 0 0 Molybdenum ppm ASTM D5185m 0 11 0 0 Magnesium ppm ASTM D5185m 0 11 0 0 Calcium ppm ASTM D5185m 1010 782 855 707 Calcium ppm ASTM D5185m 1010 782 855 707 Calcium ppm ASTM D5185m 1070 994 1089 965 Phosphorus ppm ASTM D5185m 1270 1059	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >100 <1 <1 2 Tin ppm ASTM D5185m >4 <1	Aluminum	ppm	ASTM D5185m	>15	1	2	3
Tin ppm ASTM D5185m >4 <1 <1 <1 <1 C1	Lead	ppm	ASTM D5185m	>25	0	0	<1
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 13 8 Barium ppm ASTM D5185m 0 11 0 0 Molybdenum ppm ASTM D5185m 0 0 11 0 0 Manganese ppm ASTM D5185m 0 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 782 855 707 Calcium ppm ASTM D5185m 1070 994 1089 965 Phosphorus ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m 2060 2893 3493 2385 CONTAMINANTS method limit/base current <td>Copper</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>100</td> <td><1</td> <td><1</td> <td>2</td>	Copper	ppm	ASTM D5185m	>100	<1	<1	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 13 8 Barium ppm ASTM D5185m 0 11 0 0 Molybdenum ppm ASTM D5185m 60 58 62 54 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 782 855 707 Calcium ppm ASTM D5185m 1070 994 1089 965 Phosphorus ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m >2060 2893 3493 2385 CONTAMINANTS method limit/base current	Tin	ppm	ASTM D5185m	>4	<1	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 10 13 8 Barium ppm ASTM D5185m 0 11 0 0 Molybdenum ppm ASTM D5185m 60 58 62 54 Manganese ppm ASTM D5185m 10 0 782 855 707 Calcium ppm ASTM D5185m 1070 994 1089 965 Phosphorus ppm ASTM D5185m 1150 956 958 798 Zinc ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m 2060 2893 3493 2385 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 2 4 4 4 Sodium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D3524 >3.0 ▲ 3.7 ◆ 8.2 ♠ 10.9 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7844 >6 0.1 0.3 0.7 Nitration Abs/cm 'ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Coxidation Abs/limm 'ASTM D7415 >25 13.0 15.8 23.2	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 11 0 0 Molybdenum ppm ASTM D5185m 60 58 62 54 Manganese ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 62 54 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 782 855 707 Calcium ppm ASTM D5185m 1070 994 1089 965 Phosphorus ppm ASTM D5185m 1150 956 958 798 Zinc ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m 2060 2893 3493 2385 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 2 4 4 Sodium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D5185m >20 2 4 6 Fuel % ASTM D7844	Boron	ppm	ASTM D5185m	0	10	13	8
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 782 855 707 Calcium ppm ASTM D5185m 1070 994 1089 965 Phosphorus ppm ASTM D5185m 1150 956 958 798 Zinc ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m 2060 2893 3493 2385 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 2 4 4 Sodium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D5185m >20 2 4 6 Fuel % ASTM D5185m >20 2 4 6 Fuel % ASTM D5185m >20	Barium	ppm	ASTM D5185m	0	11	0	0
Magnesium ppm ASTM D5185m 1010 782 855 707 Calcium ppm ASTM D5185m 1070 994 1089 965 Phosphorus ppm ASTM D5185m 1150 956 958 798 Zinc ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m 2060 2893 3493 2385 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 2 4 4 Sodium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D544 >6 <t< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td>60</td><td>58</td><td>62</td><td>54</td></t<>	Molybdenum	ppm	ASTM D5185m	60	58	62	54
Calcium ppm ASTM D5185m 1070 994 1089 965 Phosphorus ppm ASTM D5185m 1150 956 958 798 Zinc ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m 2060 2893 3493 2385 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 2 4 4 Sodium ppm ASTM D5185m >20 2 4 6 Footassium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D3524 >3.0 3.7 8.2 10.9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus ppm ASTM D5185m 1150 956 958 798 Zinc ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m 2060 2893 3493 2385 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 2 4 4 Sodium ppm ASTM D5185m >20 2 4 6 Potassium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D5185m >20 2 4 6 Fuel % ASTM D3524 >3.0 3.7 8.2 10.9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415	Magnesium	ppm	ASTM D5185m	1010	782	855	707
Zinc ppm ASTM D5185m 1270 1059 1165 997 Sulfur ppm ASTM D5185m 2060 2893 3493 2385 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 2 4 4 Sodium ppm ASTM D5185m >20 2 4 6 Potassium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D3524 >3.0 3.7 ■ 8.2 ■ 10.9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.3 0.7 Nitration Abs/cm *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method <td>Calcium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1070</td> <td>994</td> <td>1089</td> <td>965</td>	Calcium	ppm	ASTM D5185m	1070	994	1089	965
Sulfur ppm ASTM D5185m 2060 2893 3493 2385 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 2 4 4 Sodium ppm ASTM D5185m 0 6 5 Potassium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D3524 >3.0 3.7 8.2 10.9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.3 0.7 Nitration Abs/cm *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25	Phosphorus	ppm	ASTM D5185m	1150	956	958	798
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 2 4 4 Sodium ppm ASTM D5185m 0 6 5 Potassium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D3524 >3.0 3.7 ■ 8.2 ■ 10.9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.3 0.7 Nitration Abs/cm *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.8 23.2	Zinc	ppm	ASTM D5185m	1270	1059	1165	997
Silicon ppm ASTM D5185m >25 2 4 4 Sodium ppm ASTM D5185m 0 6 5 Potassium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D3524 >3.0 3.7 ● 8.2 10.9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.3 0.7 Nitration Abs/cm *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.8 23.2	Sulfur	ppm	ASTM D5185m	2060	2893	3493	2385
Sodium ppm ASTM D5185m 0 6 5 Potassium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D3524 >3.0 3.7 ■ 8.2 ■ 10.9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.3 0.7 Nitration Abs/cm *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.8 23.2	CONTAMINANT	ΓS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 4 6 Fuel % ASTM D3524 >3.0 ▲ 3.7 ♠ 8.2 ♠ 10.9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.3 0.7 Nitration Abs/cm *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.8 23.2	Silicon	ppm	ASTM D5185m	>25	2	4	4
Fuel % ASTM D3524 >3.0 ▲ 3.7 ♠ 8.2 ♠ 10.9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.1 0.3 0.7 Nitration Abs/cm *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.8 23.2	Sodium	ppm	ASTM D5185m		0	6	5
INFRA-RED	Potassium	ppm	ASTM D5185m	>20	2	4	6
Soot % % *ASTM D7844 > 6 0.1 0.3 0.7 Nitration Abs/cm *ASTM D7624 > 20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 > 30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 13.0 15.8 23.2	Fuel	%	ASTM D3524	>3.0	△ 3.7	● 8.2	10.9
Nitration Abs/cm *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.8 23.2	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 5.6 8.5 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.8 23.2	Soot %	%	*ASTM D7844	>6	0.1	0.3	0.7
Sulfation Abs/.1mm *ASTM D7415 >30 17.4 18.8 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.8 23.2	Nitration	Abs/cm	*ASTM D7624	>20		8.5	12.4
Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.8 23.2	Sulfation	Abs/.1mm	*ASTM D7415	>30		18.8	23.0
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.0	15.8	23.2
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.2	7.8	5.5

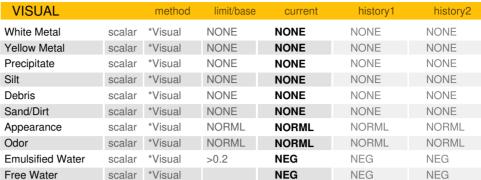


OIL ANALYSIS REPORT



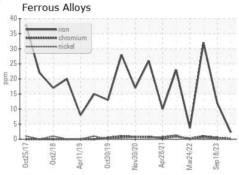


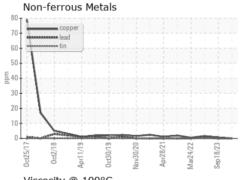


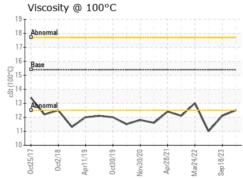


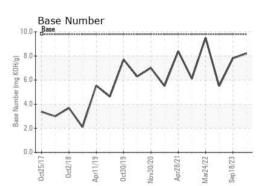
FLUID PROP	EHIIES	method	iiiiii/base	current	riistory i	HIStory
Visc @ 100°C	cSt	ASTM D445	15.4	12.5	▲ 12.1	<u> </u>

GRAPHS













Laboratory Sample No. Lab Number **Unique Number**

: GFL0069750 : 06052711 : 10818660

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

: 05 Jan 2024 : 09 Jan 2024 Diagnostician : Wes Davis

Test Package : FLEET (Additional Tests: PercentFuel)

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)

GFL Environmental - 031 - Greenville/Spartanburg 1635 Antioch Church Rd

Piedmont, SC US 29673

Contact: TECHNICIAN ACCOUNT

catherine.anastasio@wearcheck.com T:

F: