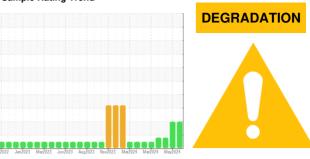


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **731116**

Natural Gas Engine

Fluid

PETRO CANADA DURON GEO LD 15W40 (--- GAL)

DIAGNOSIS

Recommendation

The oil is near the end of it's useful service life, recommend schedule an oil change. Resample at the next service interval to monitor.

🔔 Wear

Cylinder, crank, or cam shaft wear is indicated. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the

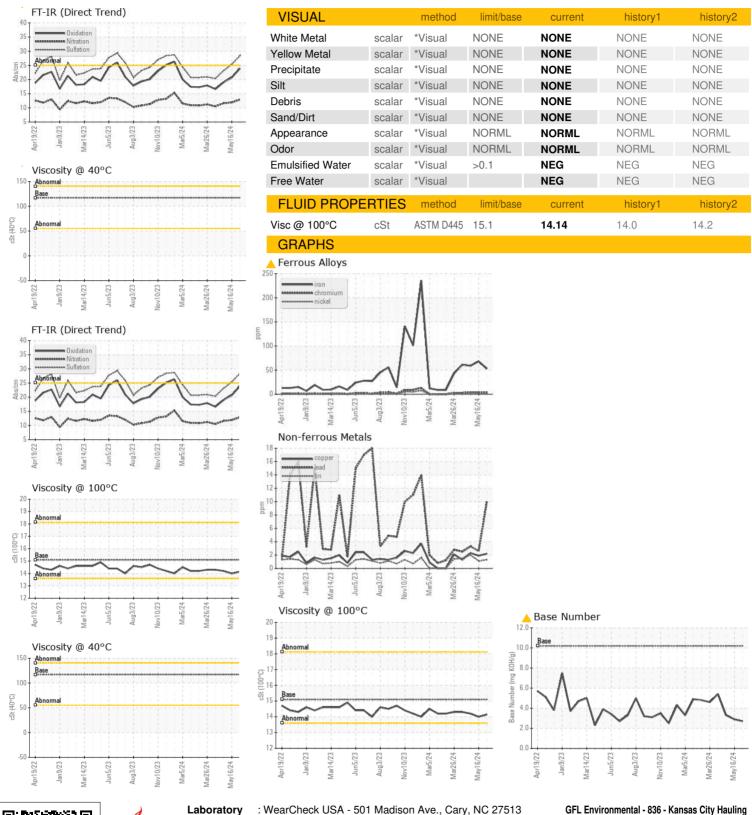
▲ Fluid Condition

The BN level is low. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION method limit/base current history1 history2 Sample Date Client Info 23 May 2024 16 May 2024 23 Apr 2024 24 Apr 2024 23 Apr 2024 23 Apr 2024 24 Apr 2024 23 Apr 2024 23 Apr 2024 24 Apr 2024 23 Apr 2024 24 Apr 2024 23 Apr 2024 24 Apr 2024	(GAL)							
Sample Date Client Info 23 May 2024 16 May 2024 23 Apr 2024 24 Apr 2024 23 Apr 2024 24 Apr 2024 23 Apr 2024 24 Apr 2024 23 Apr 2024 24 Apr 2024 24 Apr 2024 24 Apr 2024 25 Apr 2024 24 Apr 2024 25 Apr 2024 26 Apr 2024 27 Apr 2024 27 Apr 2024 27 Apr 2024 27 Apr 2024 28 Apr 2024 29 Apr 2024 29 Apr 2024 20 Apr 2024 29 Apr 2024 20 Apr 2024	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2	
Machine Age hrs Client Info 7051 7027 6885 Oil Age hrs Client Info 1200 0 0 Oil Changed Client Info Not Changd Not Changd Not Changd Sample Status Location Info MBNORMAL ABNORMAL ABNORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method 0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 \$53 \$68 \$59 Chromium ppm ASTM D5185m >4 \$4 \$4 \$4 Nickel ppm ASTM D5185m >4 \$4 \$4 \$4 Silver ppm ASTM D5185m >3 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 <t< td=""><td>Sample Number</td><td></td><td>Client Info</td><td></td><td>GFL0120164</td><td>GFL0120175</td><td>GFL0117159</td></t<>	Sample Number		Client Info		GFL0120164	GFL0120175	GFL0117159	
Oil Age hrs Client Info Not Changd Not Changd ABNORMAL	Sample Date		Client Info		23 May 2024	16 May 2024	23 Apr 2024	
Oil Changed Sample Status Client Info Not Changd ABNORMAL ABNO	Machine Age	hrs	Client Info		7051	7027	6885	
Sample Status ABNORMAL	Oil Age	hrs	Client Info		1200	0	0	
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 \$53 \$68 \$59 Chromium ppm ASTM D5185m >4 4 4 4 Nickel ppm ASTM D5185m >2 2 2 3 Silver ppm ASTM D5185m >3 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd	
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 ♣ 53 ♠ 68 ♠ 59 Chromium ppm ASTM D5185m >2 2 2 2 3 Nickel ppm ASTM D5185m >2 2 2 2 3 Titanium ppm ASTM D5185m >3 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL	
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 ♣ 53 ♣ 68 ♣ 59 Chromium ppm ASTM D5185m >4 4 4 Nickel ppm ASTM D5185m >2 2 2 3 Titanium ppm ASTM D5185m >3 <1 <1 <1 Silver ppm ASTM D5185m >3 <1 <1 <1 Aluminum ppm ASTM D5185m >30 10 3 3 Lead ppm ASTM D5185m >9 8 7 6 Lead ppm ASTM D5185m >9 8 7 6 Lead ppm ASTM D5185m >35 2 2 2 2 Tin ppm ASTM D5185m >4 1 1 2 2 Cadmium ppm ASTM D5185m 50 4 <t< th=""><th>CONTAMINAT</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINAT	ION	method	limit/base	current	history1	history2	
Iron	Water		WC Method	>0.1	NEG	NEG	NEG	
Chromium ppm ASTM D5185m >4 4 4 4 4 Nickel ppm ASTM D5185m >2 2 2 3 Tittanium ppm ASTM D5185m >3 <1	WEAR METAL	S	method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>50	▲ 53	△ 68	△ 59	
Titanium ppm ASTM D5185m <1 <1 <1 Silver ppm ASTM D5185m >3 <1	Chromium	ppm	ASTM D5185m	>4	4	4	4	
Silver	Nickel	ppm	ASTM D5185m	>2	2	2	3	
Aluminum ppm ASTM D5185m >9 8 7 6 Lead ppm ASTM D5185m >30 10 3 3 Copper ppm ASTM D5185m >35 2 2 2 Tin ppm ASTM D5185m >4 1 1 2 Vanadium ppm ASTM D5185m <1	Titanium	ppm	ASTM D5185m		<1	<1	<1	
Lead ppm ASTM D5185m >30 10 3 3 Copper ppm ASTM D5185m >35 2 2 2 Tin ppm ASTM D5185m >4 1 1 2 Vanadium ppm ASTM D5185m >4 1 1 2 Vanadium ppm ASTM D5185m >4 1 1 2 Vanadium ppm ASTM D5185m <-1 <1 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 4 6 7 Barium ppm ASTM D5185m 50 58 62 61 Molybdenum ppm ASTM D5185m 50 58 62 61 Manganese ppm ASTM D5185m 560 522 558 527 Calcium ppm ASTM D5185m 1510 1760 17	Silver	ppm	ASTM D5185m	>3	<1	<1	<1	
Copper ppm ASTM D5185m ≥35 2 2 2 2 Tin ppm ASTM D5185m >4 1 1 2 Vanadium ppm ASTM D5185m <1	Aluminum	ppm	ASTM D5185m	>9	8	7	6	
Tin ppm ASTM D5185m >4 1 1 2 Vanadium ppm ASTM D5185m <1 <1 <1 <1 Cadmium ppm ASTM D5185m <1 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 4 6 7 Barium ppm ASTM D5185m 50 0 0 <1	Lead	ppm	ASTM D5185m	>30	10	3	3	
Vanadium ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Copper	ppm	ASTM D5185m	>35	2	2	2	
Cadmium ppm ASTM D5185m <1 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 4 6 7 Barium ppm ASTM D5185m 50 0 0 <1	Tin	ppm	ASTM D5185m	>4	1	1	2	
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 4 6 7 Barium ppm ASTM D5185m 5 0 0 <1	Vanadium	ppm	ASTM D5185m		<1	<1	<1	
Boron ppm ASTM D5185m 50 4 6 7 Barium ppm ASTM D5185m 5 0 0 <1 Molybdenum ppm ASTM D5185m 50 58 62 61 Manganese ppm ASTM D5185m 0 2 1 2 Magnesium ppm ASTM D5185m 560 522 558 527 Calcium ppm ASTM D5185m 760 1760 1707 1653 Phosphorus ppm ASTM D5185m 780 736 871 704 Zinc ppm ASTM D5185m 870 966 1039 979 Sulfur ppm ASTM D5185m 2040 3466 2941 2825 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >20 <td>Cadmium</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td><1</td> <td>0</td> <td><1</td>	Cadmium	ppm	ASTM D5185m		<1	0	<1	
Barium ppm ASTM D5185m 5 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum ppm ASTM D5185m 50 58 62 61 Manganese ppm ASTM D5185m 0 2 1 2 Magnesium ppm ASTM D5185m 560 522 558 527 Calcium ppm ASTM D5185m 1510 1760 1707 1653 Phosphorus ppm ASTM D5185m 780 736 871 704 Zinc ppm ASTM D5185m 870 966 1039 979 Sulfur ppm ASTM D5185m 2040 3466 2941 2825 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 0 0	Boron	ppm	ASTM D5185m	50	4	6	7	
Manganese ppm ASTM D5185m 0 2 1 2 Magnesium ppm ASTM D5185m 560 522 558 527 Calcium ppm ASTM D5185m 1510 1760 1707 1653 Phosphorus ppm ASTM D5185m 780 736 871 704 Zinc ppm ASTM D5185m 870 966 1039 979 Sulfur ppm ASTM D5185m 2040 3466 2941 2825 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844	Barium	ppm	ASTM D5185m	5	0	0	<1	
Magnesium ppm ASTM D5185m 560 522 558 527 Calcium ppm ASTM D5185m 1510 1760 1707 1653 Phosphorus ppm ASTM D5185m 780 736 871 704 Zinc ppm ASTM D5185m 870 966 1039 979 Sulfur ppm ASTM D5185m 2040 3466 2941 2825 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7415 >3	Molybdenum	ppm	ASTM D5185m	50	58	62	61	
Calcium ppm ASTM D5185m 1510 1760 1707 1653 Phosphorus ppm ASTM D5185m 780 736 871 704 Zinc ppm ASTM D5185m 870 966 1039 979 Sulfur ppm ASTM D5185m 2040 3466 2941 2825 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >20 3 4 4 Potassium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION "AS	Manganese	ppm	ASTM D5185m	0	2	1	2	
Phosphorus ppm ASTM D5185m 780 736 871 704 Zinc ppm ASTM D5185m 870 966 1039 979 Sulfur ppm ASTM D5185m 2040 3466 2941 2825 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >>15 26 9 Potassium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current	Magnesium	ppm	ASTM D5185m	560	522	558	527	
Zinc ppm ASTM D5185m 870 966 1039 979 Sulfur ppm ASTM D5185m 2040 3466 2941 2825 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >+100 15 26 9 Potassium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414	Calcium	ppm	ASTM D5185m	1510	1760	1707	1653	
Sulfur ppm ASTM D5185m 2040 3466 2941 2825 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >>20 3 4 4 Potassium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	Phosphorus	ppm	ASTM D5185m	780	736	871	704	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	Zinc	ppm	ASTM D5185m	870	966	1039	979	
Silicon ppm ASTM D5185m >+100 19 22 21 Sodium ppm ASTM D5185m 15 26 9 Potassium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	Sulfur	ppm	ASTM D5185m	2040	3466	2941	2825	
Sodium ppm ASTM D5185m 15 26 9 Potassium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	CONTAMINAN	TS	method	limit/base	current	history1	history2	
Potassium ppm ASTM D5185m >20 3 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	Silicon	ppm	ASTM D5185m	>+100	19	22	21	
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	Sodium	ppm	ASTM D5185m		15	26	9	
Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	Potassium	ppm	ASTM D5185m	>20	3	4	4	
Nitration Abs/cm *ASTM D7624 >20 12.9 11.9 11.6 Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	INFRA-RED		method	limit/base	current	history1	history2	
Sulfation Abs/.1mm *ASTM D7415 >30 28.4 25.3 23.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	Soot %	%	*ASTM D7844		0	0.1	0.1	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	Nitration	Abs/cm	*ASTM D7624	>20	12.9	11.9	11.6	
Oxidation Abs/.1mm *ASTM D7414 >25 23.9 20.7 19.0	Sulfation	Abs/.1mm	*ASTM D7415	>30	28.4	25.3	23.1	
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2	
Base Number (BN) mg KOH/g ASTM D2896 10.2 ▲ 2.7 ▲ 2.9 3.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	23.9	20.7	19.0	
	Base Number (BN)	mg KOH/g	ASTM D2896	10.2	2.7	<u>^</u> 2.9	3.3	



OIL ANALYSIS REPORT







Certificate 12367

Laboratory Sample No.

: GFL0120164 Lab Number : 06192627 Unique Number: 11049379

Test Package : FLEET (Additional Tests: KV40)

Received **Tested** Diagnosed

: 28 May 2024 : 05 Jun 2024

: 05 Jun 2024 - Jonathan Hester

7801 East Truman Road Kansas City, MO US 64126

Contact: Loyce Stewart loyce.stewart@gflenv.com T:

To discuss this sample report, contact Customer Service at 1-800-237-1369. st - 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)

Report Id: GFL836 [WUSCAR] 06192627 (Generated: 06/05/2024 13:27:17) Rev: 2

Contact/Location: GFL823,834,836,837,840 - Loyce Stewart - GFL836

F: