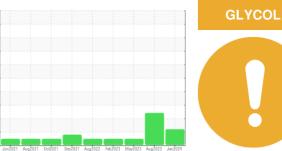


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

748003-361696

Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Sodium and/or potassium levels remain high. Test for glycol is negative.

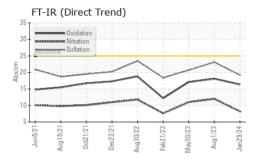
Fluid Condition

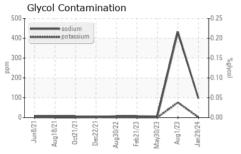
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

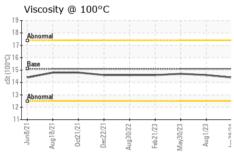
SAMPLE INFORMATION method limit/base current history1 history2 Sample Number Client Info GFL0096002 GFL0071716 GFL00717761 GRL00717761 GRL00717761 GRL00717761 GRL00717761 GRL00717761 GRL00717761 Sample Status Client Info 685 134448 11150 600 </th <th> LTR)</th> <th></th> <th>Jun2021 Au</th> <th>2021 Oct2021 Dec2021</th> <th>Aug2022 Feb2023 May2023 Aug20</th> <th>023 Jan2024</th> <th></th>	LTR)		Jun2021 Au	2021 Oct2021 Dec2021	Aug2022 Feb2023 May2023 Aug20	023 Jan2024	
Sample Date Client Info 29 Jan 2024 01 Aug 2023 30 May 2023 Machine Age hrs Client Info 685 13448 11150 Oil Age hrs Client Info 600 600 600 Oil Changed Client Info Changed Changed Oil Added Sample Status Client Info Changed Changed Changed Changed Changed Changed Changed NCRMAL Very Company ASTM DSISS Current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM DSISS >50 5 34 8 Chromium ppm ASTM DSISS >2 <1	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 29 Jan 2024 01 Aug 2023 30 May 2023 Machine Age hrs Client Info 685 13448 11150 Oil Age hrs Client Info 600 600 600 600 Oil Changed Client Info Changed Changed Oil Added Sample Status Image: Client Info Changed Changed Changed Changed NCRMAL NORMAL 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 DS185m >50 5 34 8 Chromium ppm ASTM DS185m >50 5 34 8 Chromium ppm ASTM DS185m >2 -1 -1 -1 0 Nickel ppm ASTM DS185	Sample Number		Client Info		GFL0096002	GFL0071716	GFL0071761
Machine Age hrs Client Info 685 13448 11150 Oil Age hrs Client Info 600 600 600 Oil Changed Client Info Changed Changed Oil Added Sample Status Image: Control of Machine Interestation of the Interestation of th			Client Info		29 Jan 2024	01 Aug 2023	30 May 2023
Oil Changed Sample Status Client Info Sample Status Changed ATTENTION Changed ABNORMAL NORMAL NORMAL 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 5 34 8 Chromium ppm ASTM D5185m >50 5 34 8 Chromium ppm ASTM D5185m >4 <1 2 <1 0 Nickel ppm ASTM D5185m >2 <1 <1 0 0 Silver ppm ASTM D5185m >9 2 2 2 1 4 0 Copper ppm ASTM D5185m >9 2 2 2 1 <1 0 Vanadium ppm ASTM D5185m >35 0 <1 <1 <td>•</td> <td>hrs</td> <td>Client Info</td> <td></td> <th>685</th> <td></td> <td></td>	•	hrs	Client Info		685		
Oil Changed Sample Status Client Info Sample Status Changed ATTENTION Changed ABNORMAL NORMAL NORMAL NORMAL Oil Added NORMAL NORMAL NORMAL 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 5 34 8 Chromium ppm ASTM D5185m >50 5 34 8 Chromium ppm ASTM D5185m >4 <1 2 <1 0 Nickel ppm ASTM D5185m >2 <1 <1 0 0 Silver ppm ASTM D5185m >9 2 2 2 1 4 0 0 Silver ppm ASTM D5185m >30 <1 4 0 0 0 1 1 1 0 0 1	Oil Age	hrs	Client Info		600	600	600
ATTENTION	-		Client Info		Changed	Changed	Oil Added
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 5 34 8 Chromium ppm ASTM D5185m >4 <1 2 <1 Nickel ppm ASTM D5185m >2 <1 <1 0 Titanium ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 <1 4 0 Copper ppm ASTM D5185m >30 <1 4 0 Cadd ppm ASTM D5185m >30 <1 <1 0 Vanadium ppm ASTM D5185m >30 <1 <1 <1 Vanadium ppm ASTM D5185m 50 21 13 5<					_		NORMAL
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 5 34 8 Chromium ppm ASTM D5185m >4 <1 2 <1 Nickel ppm ASTM D5185m >2 <1 <1 0 Titanium ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 <1 4 0 Copper ppm ASTM D5185m >30 <1 4 0 Copper ppm ASTM D5185m >30 <1 <1 0 Vanadium ppm ASTM D5185m >30 <1 <1 0 Vanadium ppm ASTM D5185m 50 21 13 5	CONTAMINAT	ION	method	limit/base	current	history1	history2
Iron			WC Method	>0.1	NEG	NEG	NEG
Chromium ppm ASTM D5185m >4 <1 2 <1 Nickel ppm ASTM D5185m >2 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium ppm ASTM D5185m >4 <1 2 <1 Nickel ppm ASTM D5185m >2 <1	Iron	ppm	ASTM D5185m	>50	5	34	8
Nickel					_		
Titanium ppm ASTM D5185m 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >9 2 2 1 Lead ppm ASTM D5185m >30 <1							
Sliver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >9 2 2 1 Lead ppm ASTM D5185m >30 <1 4 0 Copper ppm ASTM D5185m >35 0 <1 <1 Tin ppm ASTM D5185m >4 <1 0 0 Vanadium ppm ASTM D5185m >4 <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 nistory2 Boron ppm ASTM D5185m 5 0 0 0 ADDITIVES method limit/base current history1 nistory2 Boron ppm ASTM D5185m 5 0 0 0 Boron ppm ASTM D5185m 50 52 78 51							
Aluminum ppm ASTM D5185m >9 2 2 1 Lead ppm ASTM D5185m >30 <1				>3	-		
Lead ppm ASTM D5185m >30 <1 4 0 Copper ppm ASTM D5185m >35 0 <1 <1 Tin ppm ASTM D5185m >4 <1 <0 0 Vanadium ppm ASTM D5185m <1 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 21 13 5 Barium ppm ASTM D5185m 50 21 13 5 Barium ppm ASTM D5185m 50 52 78 51 Manganese ppm ASTM D5185m 50 52 78 51 Magnesium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 780 771 746<	CC.						
Copper ppm ASTM D5185m >35 0 <1 <1 Tin ppm ASTM D5185m >4 <1					_		
Tin							
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 21 13 5 Barium ppm ASTM D5185m 50 22 78 51 Molybdenum ppm ASTM D5185m 50 52 78 51 Manganese ppm ASTM D5185m 50 546 540 534 Calcium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 780 771 746 728 Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >+100 4 8 3<	• •				-		
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 21 13 5 Barium ppm ASTM D5185m 50 0 0 0 Molybdenum ppm ASTM D5185m 50 52 78 51 Manganese ppm ASTM D5185m 0 <1				>4			
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 21 13 5 Barium ppm ASTM D5185m 5 0 0 0 Molybdenum ppm ASTM D5185m 50 52 78 51 Manganese ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 780 771 746 728 Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >20 <t< td=""><td></td><td></td><td></td><td></td><th></th><td></td><td></td></t<>							
Boron ppm ASTM D5185m 50 21 13 5 Barium ppm ASTM D5185m 5 0 0 0 Molybdenum ppm ASTM D5185m 50 52 78 51 Manganese ppm ASTM D5185m 50 52 78 51 Magnesium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 780 771 746 728 Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m 2040 2454 3346 3029 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >20		ррпп			-		
Barium ppm ASTM D5185m 5 0 0 0 Molybdenum ppm ASTM D5185m 50 52 78 51 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 1510 1432 1610 1558 Phosphorus ppm ASTM D5185m 780 771 746 728 Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m 2040 2454 3346 3029 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >20 2 76 <1 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 52 78 51 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 1510 1432 1610 1558 Phosphorus ppm ASTM D5185m 780 771 746 728 Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m 2040 2454 3346 3029 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >20 2 76 <1 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 0 <	Boron	ppm	ASTM D5185m			13	
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 1510 1432 1610 1558 Phosphorus ppm ASTM D5185m 780 771 746 728 Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m 2040 2454 3346 3029 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >20 2 432 6 Potassium ppm ASTM D5185m >20 2 76 <1	Barium	ppm	ASTM D5185m	5	0	0	0
Magnesium ppm ASTM D5185m 560 546 540 534 Calcium ppm ASTM D5185m 1510 1432 1610 1558 Phosphorus ppm ASTM D5185m 780 771 746 728 Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m 2040 2454 3346 3029 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >20 2 76 <1 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7845 >20 8.2	Molybdenum	ppm	ASTM D5185m	50	52	78	51
Calcium ppm ASTM D5185m 1510 1432 1610 1558 Phosphorus ppm ASTM D5185m 780 771 746 728 Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m 2040 2454 3346 3029 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >97 ▲ 432 6 Potassium ppm ASTM D5185m >20 2 ▲ 76 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 780 771 746 728 Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m 2040 2454 3346 3029 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >20 2 432 6 Potassium ppm ASTM D5185m >20 2 76 <1	Magnesium	ppm	ASTM D5185m	560	546	540	534
Zinc ppm ASTM D5185m 870 960 1026 1021 Sulfur ppm ASTM D5185m 2040 2454 3346 3029 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m 97 432 6 Potassium ppm ASTM D5185m >20 2 76 <1	Calcium	ppm	ASTM D5185m	1510	1432	1610	1558
Sulfur ppm ASTM D5185m 2040 2454 3346 3029 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m >>20 97 ▲ 432 6 Potassium ppm ASTM D5185m >20 2 ▲ 76 <1	Phosphorus	ppm	ASTM D5185m	780	771	746	728
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m 97 ▲ 432 6 Potassium ppm ASTM D5185m >20 2 ▲ 76 <1	Zinc	ppm	ASTM D5185m	870	960	1026	1021
Silicon ppm ASTM D5185m >+100 4 8 3 Sodium ppm ASTM D5185m 97 432 6 Potassium ppm ASTM D5185m >20 2 76 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 8.2 12.0 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 18.1 17.1	Sulfur	ppm	ASTM D5185m	2040	2454	3346	3029
Sodium ppm ASTM D5185m 97 432 6 Potassium ppm ASTM D5185m >20 2 432 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 8.2 12.0 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 18.1 17.1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 ▲ 76 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 8.2 12.0 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 18.1 17.1	Silicon	ppm	ASTM D5185m	>+100	4	8	3
INFRA-RED	Sodium	ppm	ASTM D5185m		97	▲ 432	6
Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 8.2 12.0 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 18.1 17.1	Potassium	ppm	ASTM D5185m	>20	2	▲ 76	<1
Nitration Abs/cm *ASTM D7624 >20 8.2 12.0 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 18.1 17.1	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 8.2 12.0 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 18.1 17.1	Soot %	%	*ASTM D7844		0	0	0
Sulfation Abs/.1mm *ASTM D7415 >30 19.2 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 18.1 17.1				>20			
Oxidation Abs/.1mm *ASTM D7414 >25 16.3 18.1 17.1							
	FLUID DEGRAI	OITAC	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.3	18.1	17.1

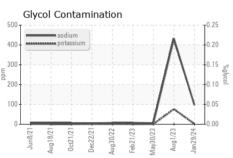


OIL ANALYSIS REPORT



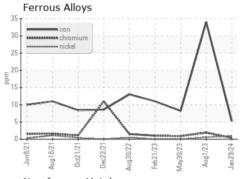


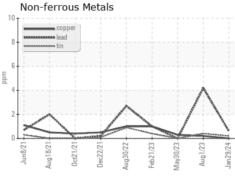


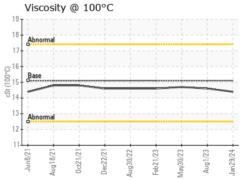


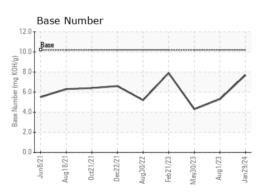
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROP	EHILO					
Visc @ 100°C	cSt	ASTM D445	15.1	14.4	14.6	14.7













Laboratory Sample No.

Lab Number : 06074439 Unique Number : 10856530

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0096002

Received **Tested** Diagnosed

: 30 Jan 2024 : 01 Feb 2024

: 01 Feb 2024 - Jonathan Hester

GFL Environmental - 883 - Orange City 1378 South Volusia Ave Orange City, FL US 32763

Contact: JEFF COOPERSMITH JCOOPERSMITH@GFLENV.COM T: (386)503-8468

Test Package : FLEET (Additional Tests: Glycol) Certificate 12367 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)