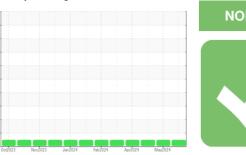


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id
834044
Component
Diesel Engine
Fluid

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

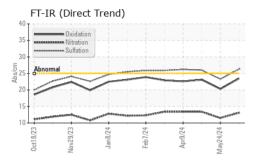
Fluid Condition

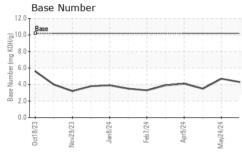
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

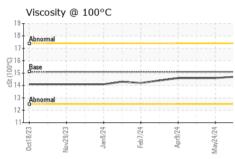
Machine Age hrs Client Info 1852 1717 1574 Oil Age hrs Client Info 1852 1717 0 Oil Changed Client Info Not Changed Not Changed Sample Status Not Changed NoRMAL NORMAL NORMAL CONTAMINATION method limil/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG WEAR METALS method limil/base current history2 history2 Iron ppm ASTM D5185m >12.0 54 57 60 Chromium ppm ASTM D5185m >2.2 5 2 1 <th>GEO ED 101140 (</th> <th>,</th> <th></th> <th></th> <th></th> <th></th> <th></th>	GEO ED 101140 (,					
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 1852 1717 1574 Oil Age hrs Client Info 1852 1717 0 Oil Changed Client Info Not Changd Not Changd Not Changd Not Changd Sample Status method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limil/base current history2 history2 Iron ppm ASTM D5185m >12.0 54 57 60 Chromium ppm ASTM D5185m >12.0 5 2 1 1 Iron ppm ASTM D5185m >12.0 5 2 1 1 1 Chromium ppm ASTM D5185m >2.0 6	Sample Number		Client Info		GFL0122798	GFL0122833	GFL0118850
Oil Age hrs Client Info 1852 1717 0 Oil Changed Sample Status Client Info Not Changed Not Changed Not Changed Not Changed Not Changed NorMAL Not Changed NorMAL Not Changed NorMAL Not Changed NorMAL NorMAL	Sample Date		Client Info		13 Jun 2024	24 May 2024	01 May 2024
Oil Changed Client Info Not Changd NORMAL NORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		1852	1717	1574
CONTAMINATION	Oil Age	hrs	Client Info		1852	1717	0
NORMAL NORMAL NORMAL	-		Client Info		Not Changd	Not Changd	Not Changd
Fuel					NORMAL	NORMAL	NORMAL
Water WC Method >0.2.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >12.0 54 57 60 Chromium ppm ASTM D5185m >2.0 2 2 2 Nickel ppm ASTM D5185m >5 2 <1 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 6 5 5 Lead ppm ASTM D5185m >40 5 4 5 Copper ppm ASTM D5185m >15 2 2 2 2 2 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 50	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Iron	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 2 2 2 2 Nickel ppm ASTM D5185m >5 2 <1 <1 Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 <1 0 0 0 Aluminum ppm ASTM D5185m >20 6 5 5 5 Lead ppm ASTM D5185m >20 6 5 5 5 Lead ppm ASTM D5185m >40 5 4 5 Copper ppm ASTM D5185m >15 2 3 3 3 3 3	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	54	57	60
Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 <1	Chromium	ppm	ASTM D5185m	>20	2	2	2
Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 6 5 5 Lead ppm ASTM D5185m >40 5 4 5 Copper ppm ASTM D5185m >330 11 12 12 Tin ppm ASTM D5185m >15 2 2 2 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 50 12 10 4 Boron ppm ASTM D5185m 50 12 10 4 Barium ppm ASTM D5185m 50 74 72 74 Manganesium ppm ASTM D5185m 50 74 72 74 Manganesium ppm ASTM D5185m 50 3892 821 919 Calcium ppm ASTM D5185m 1510 1722	Nickel	ppm	ASTM D5185m	>5	2	<1	<1
Aluminum ppm ASTM D5185m >20 6 5 5 Lead ppm ASTM D5185m >40 5 4 5 Copper ppm ASTM D5185m >330 11 12 12 Tin ppm ASTM D5185m >15 2 2 2 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 12 10 4 Barium ppm ASTM D5185m 50 74 72 74 Manganese ppm ASTM D5185m 50 74 72 74 Manganesium ppm ASTM D5185m 50 11722 1583 1734 Phosphorus ppm ASTM D5185m 780 895 <	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >40 5 4 5 Copper ppm ASTM D5185m >330 11 12 12 Tin ppm ASTM D5185m >15 2 2 2 2 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 12 10 4 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 12 10 4 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 74 72 74 Manganesium ppm ASTM D5185m 560 892	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper ppm ASTM D5185m >330 11 12 12 Tin ppm ASTM D5185m >15 2 2 2 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 50 12 10 4 Barium ppm ASTM D5185m 50 12 10 4 Barium ppm ASTM D5185m 50 74 72 74 Manganese ppm ASTM D5185m 50 74 72 74 Manganesium ppm ASTM D5185m 560 892 821 919 Calcium ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 870 1187 1068 1188	Aluminum	ppm	ASTM D5185m	>20	6	5	5
Tin	Lead	ppm	ASTM D5185m	>40	5	4	5
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 50 12 10 4 Barium ppm ASTM D5185m 50 74 72 74 Manganese ppm ASTM D5185m 50 74 72 74 Magnesium ppm ASTM D5185m 50 892 821 919 Calcium ppm ASTM D5185m 560 892 821 919 Calcium ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 870 1187 1068 1188 Sulfur ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><th>11</th><td>12</td><td>12</td></t<>	Copper	ppm	ASTM D5185m	>330	11	12	12
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 12 10 4 Barium ppm ASTM D5185m 5 2 0 3 Molybdenum ppm ASTM D5185m 50 74 72 74 Manganese ppm ASTM D5185m 50 10 10 11 Magnesium ppm ASTM D5185m 560 892 821 919 Calcium ppm ASTM D5185m 1510 1722 1583 1734 Phosphorus ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 13	Tin	ppm	ASTM D5185m	>15	2	2	2
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 12 10 4 Barium ppm ASTM D5185m 5 2 0 3 Molybdenum ppm ASTM D5185m 50 74 72 74 Manganese ppm ASTM D5185m 50 892 821 919 Calcium ppm ASTM D5185m 560 892 821 919 Calcium ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m >20	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 5 2 0 3 Molybdenum ppm ASTM D5185m 50 74 72 74 Manganese ppm ASTM D5185m 0 10 10 11 Magnesium ppm ASTM D5185m 560 892 821 919 Calcium ppm ASTM D5185m 1510 1722 1583 1734 Phosphorus ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 870 1187 1068 1188 Sulfur ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base </th <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 74 72 74 Manganese ppm ASTM D5185m 0 10 10 11 Magnesium ppm ASTM D5185m 560 892 821 919 Calcium ppm ASTM D5185m 560 892 821 919 Calcium ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 870 1187 1068 1188 Sulfur ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base <	Boron	ppm	ASTM D5185m	50	12	10	4
Manganese ppm ASTM D5185m 0 10 10 11 Magnesium ppm ASTM D5185m 560 892 821 919 Calcium ppm ASTM D5185m 1510 1722 1583 1734 Phosphorus ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 870 1187 1068 1188 Sulfur ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D74	Barium	ppm	ASTM D5185m	5	2	0	3
Magnesium ppm ASTM D5185m 560 892 821 919 Calcium ppm ASTM D5185m 1510 1722 1583 1734 Phosphorus ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 870 1187 1068 1188 Sulfur ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 <t< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td>50</td><th>74</th><td>72</td><td>74</td></t<>	Molybdenum	ppm	ASTM D5185m	50	74	72	74
Calcium ppm ASTM D5185m 1510 1722 1583 1734 Phosphorus ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 870 1187 1068 1188 Sulfur ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/.1mm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method	Manganese	ppm	ASTM D5185m	0	10	10	11
Phosphorus ppm ASTM D5185m 780 895 860 946 Zinc ppm ASTM D5185m 870 1187 1068 1188 Sulfur ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm <th< td=""><td>Magnesium</td><td>ppm</td><td>ASTM D5185m</td><td>560</td><th>892</th><td>821</td><td>919</td></th<>	Magnesium	ppm	ASTM D5185m	560	892	821	919
Zinc ppm ASTM D5185m 870 1187 1068 1188 Sulfur ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m 6 6 5 Potassium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 <td>Calcium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1510</td> <th>1722</th> <td>1583</td> <td>1734</td>	Calcium	ppm	ASTM D5185m	1510	1722	1583	1734
Sulfur ppm ASTM D5185m 2040 2971 2695 3127 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m 6 6 5 Potassium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.5 20.3 23.1	•	ppm	ASTM D5185m	780	895	860	946
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m 6 6 5 Potassium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.5 20.3 23.1	Zinc	ppm	ASTM D5185m	870	1187	1068	1188
Silicon ppm ASTM D5185m >25 18 19 20 Sodium ppm ASTM D5185m 6 6 5 Potassium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.5 20.3 23.1	Sulfur	ppm	ASTM D5185m	2040	2971	2695	3127
Sodium ppm ASTM D5185m 6 6 5 Potassium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.5 20.3 23.1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 13 9 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.5 20.3 23.1	Silicon	ppm	ASTM D5185m	>25	18	19	20
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.5 20.3 23.1	Sodium	ppm	ASTM D5185m		6	6	5
Soot % % *ASTM D7844 > 4 0.1 0.3 0.1 Nitration Abs/cm *ASTM D7624 > 20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 > 30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 23.5 20.3 23.1	Potassium	ppm	ASTM D5185m	>20	13	9	9
Nitration Abs/cm *ASTM D7624 >20 13.1 11.5 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.5 20.3 23.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 26.3 23.3 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.5 20.3 23.1	Soot %	%	*ASTM D7844	>4	0.1	0.3	0.1
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm 'ASTM D7414 >25 23.5 20.3 23.1	Nitration	Abs/cm	*ASTM D7624	>20	13.1	11.5	13.4
Oxidation Abs/.1mm *ASTM D7414 >25 23.5 20.3 23.1	Sulfation	Abs/.1mm	*ASTM D7415	>30	26.3	23.3	26.0
	FLUID DEGRADATION method limit/base current history1 history2						
	Oxidation	Abs/.1mm	*ASTM D7414	>25	23.5	20.3	23.1
		mg KOH/g			4.3		3.5



OIL ANALYSIS REPORT



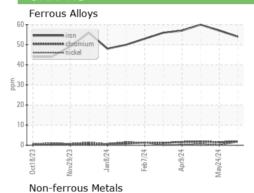


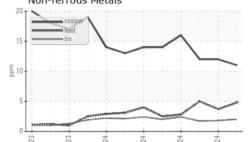


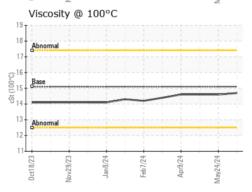
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

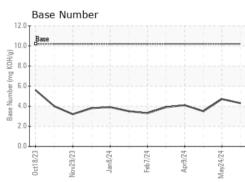
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.7	14.6	14.6

GRAPHS













Certificate 12367

Sample No. : GFL0122798 Lab Number : 06220516

Unique Number : 11098713 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 25 Jun 2024 **Tested** : 26 Jun 2024

Diagnosed : 26 Jun 2024 - Wes Davis

GFL Environmental - 837 - Harrison TS

22820 S State Route 291 Harrisonville, MO

US 64701 Contact: JEREMY BROWN

jeremyb@gflenv.com

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)

T:

F: