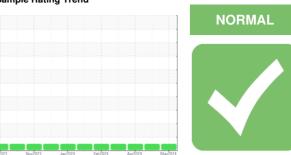


OIL ANALYSIS REPORT

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

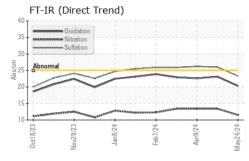
Fluid Condition

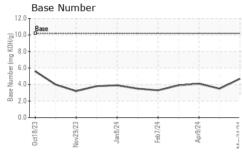
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

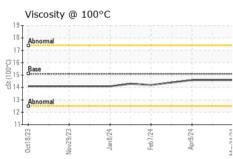
Sample Date	GLO LD 101140 (U ., (L)						
Sample Date Client Info 24 May 2024 01 May 2024 09 Apr 2024 Machine Age hrs Client Info 1717 1574 1441 1441 Oil Age hrs Client Info 1717 0 0 Oil Changed Client Info Not Changd NORMAL NORMAL	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2	
Machine Age hrs Client Info 1717 1574 1441 Oil Age hrs Client Info 1717 0 0 Oil Changed Client Info Not Changd Not Changd Not Changd Sample Status method limit/base current history1 history2 Fuel WC Method >3.0 <1.0	Sample Number		Client Info		GFL0122833	GFL0118850	GFL0114180	
Machine Age hrs Client Info 1717 1574 1441 Oil Age hrs Client Info 1717 0 0 Oil Changed Client Info Not Changd Not Changd Not Changd Sample Status method limit/base current history1 history2 Fuel WC Method >3.0 <1.0	Sample Date		Client Info		24 May 2024	01 May 2024	09 Apr 2024	
Oil Age hrs Client Info 1717 0 0 Oil Changed Client Info Not Changd	Machine Age	hrs	Client Info		-	,	1441	
Oil Changed Client Info Not Changd Not Changd NORMAL NORMAL NORMAL		hrs	Client Info		1717	0	0	
NORMAL NORMAL NORMAL	-		Client Info		Not Changd	Not Changd	Not Changd	
Fuel	Sample Status				NORMAL	NORMAL	NORMAL	
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 57 60 57 Chromium ppm ASTM D5185m >20 2 2 2 Nickel ppm ASTM D5185m >2 0 0 <1 Siliver ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >20 5 5 6 Lead ppm ASTM D5185m >40 4 5 3 3 Copper ppm ASTM D5185m >15 2 2 2 2 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 5 0 3 3 Boron ppm ASTM D5185m <	CONTAMINAT	ION	method	limit/base	current	history1	history2	
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG	
Irron	Glycol		WC Method		NEG	NEG	NEG	
Chromium ppm ASTM D5185m >20 2 2 2 2 Nickel ppm ASTM D5185m >5 <1	WEAR METAL	S	method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>120	57	60	57	
Titanium	Chromium	ppm	ASTM D5185m	>20	2	2	2	
Silver	Nickel	ppm	ASTM D5185m	>5	<1	<1	<1	
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	<1	
Lead	Silver	ppm	ASTM D5185m	>2	0	0	<1	
Copper ppm ASTM D5185m >330 12 12 16 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 10 4 12 Barium ppm ASTM D5185m 50 10 3 3 Molybdenum ppm ASTM D5185m 50 72 74 75 Manganese ppm ASTM D5185m 50 321 919 841 Calcium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 780 360 946 865 Zinc ppm ASTM D5185m 780 360 946 865	Aluminum	ppm	ASTM D5185m	>20	5	5	6	
Tin	Lead	ppm	ASTM D5185m	>40	4	5	3	
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 10 4 12 Barium ppm ASTM D5185m 50 72 74 75 Manganese ppm ASTM D5185m 50 72 74 75 Mangnesium ppm ASTM D5185m 50 821 919 841 Calcium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 870 1068 1188 1060 Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 <	Copper	ppm	ASTM D5185m	>330	12	12	16	
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 10 4 12 Barium ppm ASTM D5185m 50 72 74 75 Manganese ppm ASTM D5185m 50 72 74 75 Magnesium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m >20 9	Tin	ppm	ASTM D5185m	>15	2	2	2	
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 10 4 12 Barium ppm ASTM D5185m 5 0 3 3 Molybdenum ppm ASTM D5185m 50 72 74 75 Manganese ppm ASTM D5185m 50 821 919 841 Calcium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 70 1068 1188 1060 Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m >20	Vanadium	ppm	ASTM D5185m		0	0	0	
Boron ppm ASTM D5185m 50 10 4 12	Cadmium	ppm	ASTM D5185m		0	0	0	
Barium ppm ASTM D5185m 5 0 3 3 Molybdenum ppm ASTM D5185m 50 72 74 75 Manganese ppm ASTM D5185m 0 10 11 12 Magnesium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 1510 1583 1734 1592 Phosphorus ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 870 1068 1188 1060 Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m >20 9 9 10 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 72 74 75 Manganese ppm ASTM D5185m 0 10 11 12 Magnesium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 1510 1583 1734 1592 Phosphorus ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 870 1068 1188 1060 Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base	Boron	ppm	ASTM D5185m	50	10	4	12	
Manganese ppm ASTM D5185m 0 10 11 12 Magnesium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 1510 1583 1734 1592 Phosphorus ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 870 1068 1188 1060 Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 INFRA-RED method limit/base	Barium	ppm	ASTM D5185m	5	0	3	3	
Magnesium ppm ASTM D5185m 560 821 919 841 Calcium ppm ASTM D5185m 1510 1583 1734 1592 Phosphorus ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 870 1068 1188 1060 Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m 6 5 6 5 6 Potassium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D	Molybdenum	ppm	ASTM D5185m	50	72	74	75	
Calcium ppm ASTM D5185m 1510 1583 1734 1592 Phosphorus ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 870 1068 1188 1060 Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID D	Manganese	ppm	ASTM D5185m		10	11	12	
Phosphorus ppm ASTM D5185m 780 860 946 865 Zinc ppm ASTM D5185m 870 1068 1188 1060 Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs	Magnesium	ppm	ASTM D5185m	560	821	919	841	
Zinc ppm ASTM D5185m 870 1068 1188 1060 Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m 6 5 6 Potassium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM	Calcium	ppm	ASTM D5185m	1510	1583	1734	1592	
Sulfur ppm ASTM D5185m 2040 2695 3127 2782 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m 6 5 6 Potassium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.3 23.1 22.6	Phosphorus	ppm	ASTM D5185m	780	860	946	865	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m 6 5 6 Potassium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.3 23.1 22.6	Zinc	ppm	ASTM D5185m	870	1068	1188	1060	
Silicon ppm ASTM D5185m >25 19 20 21 Sodium ppm ASTM D5185m 6 5 6 Potassium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.3 23.1 22.6	Sulfur	ppm	ASTM D5185m	2040	2695	3127	2782	
Sodium ppm ASTM D5185m 6 5 6 Potassium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.3 23.1 22.6	CONTAMINAN	TS	method	limit/base	current	history1	history2	
Potassium ppm ASTM D5185m >20 9 9 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.3 23.1 22.6	Silicon	ppm	ASTM D5185m	>25	19		21	
INFRA-RED	Sodium	ppm	ASTM D5185m			5		
Soot % % *ASTM D7844 >4 0.3 0.1 0 Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.3 23.1 22.6	Potassium	ppm	ASTM D5185m	>20	9	9	10	
Nitration Abs/cm *ASTM D7624 >20 11.5 13.4 13.4 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.3 23.1 22.6	INFRA-RED		method	limit/base	current	history1	history2	
Sulfation Abs/.1mm *ASTM D7415 >30 23.3 26.0 26.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.3 23.1 22.6	Soot %	%	*ASTM D7844	>4	0.3	0.1	0	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.3 23.1 22.6	Nitration	Abs/cm	*ASTM D7624	>20	11.5	13.4	13.4	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	23.3	26.0	26.2	
	FLUID DEGRADATION method limit/base current history1 history2							
	Oxidation	Abs/.1mm	*ASTM D7414	>25	20.3	23.1	22.6	
	Base Number (BN)	mg KOH/g	ASTM D2896	10.2	4.7	3.5		



OIL ANALYSIS REPORT



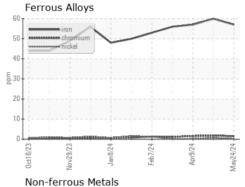


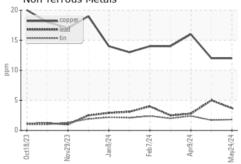


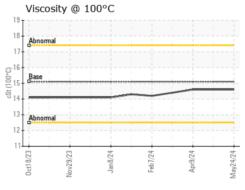
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

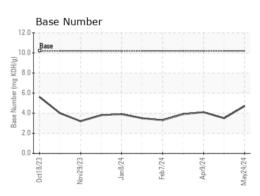
FLUID PROPE	:RHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.6	14.6	14.6

GRAPHS













Certificate 12367

Sample No.

: GFL0122833 Lab Number : 06195183 Unique Number : 11057306 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 30 May 2024 **Tested** : 31 May 2024 Diagnosed

: 31 May 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: