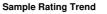


OIL ANALYSIS REPORT





Machine Id 731118

Component Natural Gas Engine

Fluid

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

DIAGNOSIS

A Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

🔺 Wear

Cylinder, crank, or cam shaft wear is indicated.

Contamination

There is no indication of any contamination in the oil.

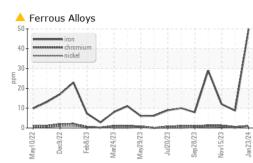
Fluid Condition

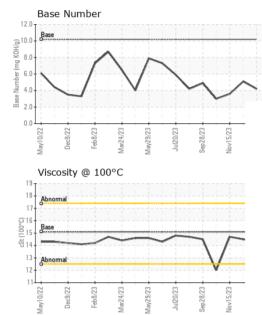
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

(GAL)		fay2022 Dec2	122 Feb2023 Mar2023	May2023 Jul2023 Sep2023 Nov	023 Jan2024	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103312	GFL0103363	GFL0099953
Sample Date		Client Info		23 Jan 2024	20 Dec 2023	15 Nov 2023
Machine Age	hrs	Client Info		6203	6012	5826
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	6 50	9	12
Chromium	ppm	ASTM D5185m	>4	1	<1	1
Nickel	ppm	ASTM D5185m	>2	1	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	5	2	3
Lead	ppm	ASTM D5185m	>30	2	4	12
Copper	ppm	ASTM D5185m	>35	- 14	1	<1
Tin	ppm	ASTM D5185m	>4	2	<1	1
Vanadium	ppm	ASTM D5185m	21	0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES	ppm	method	limit/base		-	-
					nistory i	
	nnm				history1	history2
Boron	ppm	ASTM D5185m	50	13	17	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	13 <1	17 0	12 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	13 <1 47	17 0 52	12 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	13 <1 47 11	17 0 52 <1	12 0 57 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	13 <1 47 11 752	17 0 52 <1 545	12 0 57 1 624
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	13 <1 47 11 752 1323	17 0 52 <1 545 1493	12 0 57 1 624 1698
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	13 <1 47 11 752 1323 759	17 0 52 <1 545 1493 759	12 0 57 1 624 1698 762
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870	13 <1 47 11 752 1323 759 842	17 0 52 <1 545 1493 759 984	12 0 57 1 624 1698 762 1038
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040	13 <1 47 11 752 1323 759 842 2165	17 0 52 <1 545 1493 759 984 2438	12 0 57 1 624 1698 762 1038 2453
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040	13 <1 47 11 752 1323 759 842 2165 current	17 0 52 <1 545 1493 759 984 2438 history1	12 0 57 1 624 1698 762 1038 2453 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	50 50 00 560 1510 780 870 2040	13 <1 47 11 752 1323 759 842 2165 current 29	17 0 52 <1 545 1493 759 984 2438 history1 4	12 0 57 1 624 1698 762 1038 2453 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	50 50 50 560 1510 780 870 2040 limit/base >+100	13 <1 47 11 752 1323 759 842 2165 <u>current</u> 29 2	17 0 52 <1 545 1493 759 984 2438 history1 4 2	12 0 57 1 624 1698 762 1038 2453 history2 5 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	50 50 50 560 1510 780 870 2040 limit/base >+100	13 <1 47 11 752 1323 759 842 2165 current 29	17 0 52 <1 545 1493 759 984 2438 history1 4	12 0 57 1 624 1698 762 1038 2453 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	50 50 50 560 1510 780 870 2040 limit/base >+100	13 <1 47 11 752 1323 759 842 2165 current 29 2 2 3	17 0 52 <1 545 1493 759 984 2438 history1 4 2	12 0 57 1 624 1698 762 1038 2453 history2 5 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	13 <1 47 11 752 1323 759 842 2165 current 29 2 2 3	17 0 52 <1 545 1493 759 984 2438 history1 4 2 2 0	12 0 57 1 624 1698 762 1038 2453 history2 5 8 8 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >20 limit/base	13 <1 47 11 752 1323 759 842 2165 current 29 2 3 3 current	17 0 52 <1 545 1493 759 984 2438 history1 4 2 0 0 history1	12 0 57 1 624 1698 762 1038 2453 history2 5 8 0 0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >20 limit/base	13 <1 47 11 752 1323 759 842 2165 current 29 2 3 current 0	17 0 52 <1 545 1493 759 984 2438 history1 4 2 2 0 history1 0	12 0 57 1 624 1698 762 1038 2453 history2 5 8 0 history2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 limit/base >+100 20 limit/base	13 <1 47 11 752 1323 759 842 2165 current 29 2 3 current 0 11.9 22.8	17 0 52 <1 545 1493 759 984 2438 history1 4 2 2 0 history1 0 history1 0 10.7	12 0 57 1 624 1698 762 1038 2453 history2 5 8 0 0 history2 0 11.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 50 150 1510 780 870 2040 Iimit/base >+100 >20 Iimit/base >20	13 <1 47 11 752 1323 759 842 2165 current 29 2 3 current 0 11.9 22.8	17 0 52 <1 545 1493 759 984 2438 history1 4 2 2 0 history1 0 10.7 21.2	12 0 57 1 624 1698 762 1038 2453 history2 5 8 0 0 history2 0 11.8 24.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	50 50 560 1510 780 870 2040 bimit/base >+100 bimit/base >20 30 bimit/base	13 <1 47 11 752 1323 759 842 2165 current 29 2 3 current 0 11.9 22.8 current	17 0 52 <1 545 1493 759 984 2438 history1 4 2 2 0 history1 0 10.7 21.2 history1	12 0 57 1 624 1698 762 1038 2453 history2 5 8 0 0 history2 0 11.8 24.9 history2



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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.3	14.5	14.7
GRAPHS						

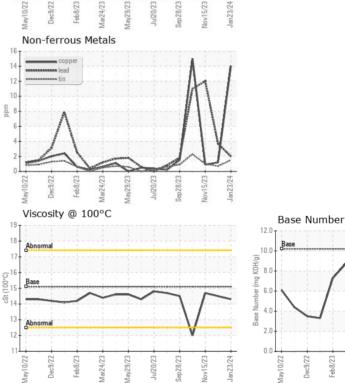
Ferrous Alloys APRIL OF 0 1000 Dec9/22 Mav10/22 Feb8/23 Mar24/23 en 28/23 Vov15/23 /av29/23

50

40 30

20

10



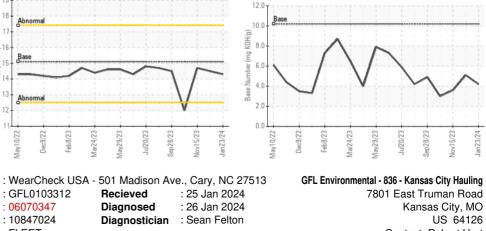
Recieved

Diagnosed

: 25 Jan 2024

: 26 Jan 2024

Diagnostician : Sean Felton



Contact: Robert Hart rhart@gflenv.com T: (580)461-1509 F:



Certificate L2367

Laboratory

Sample No.

Lab Number

Unique Number

Test Package : FLEET

: GFL0103312

: 06070347

: 10847024

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.

Contact/Location: See also GFL823, 834, 837, 840 - Robert Hart - GFL836