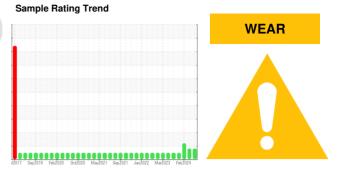


OIL ANALYSIS REPORT

(YA134217) 10753C

Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (28 QTS)



DIAGNOSIS

Recommendation

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

Wear

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

Contamination

There is no indication of any contamination in the

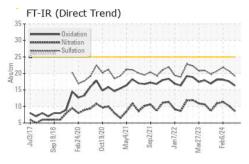
Fluid Condition

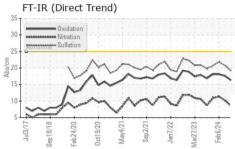
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

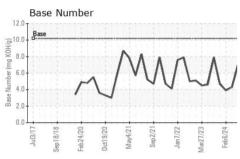
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0118400	GFL0112917	GFL0098142
Sample Date		Client Info		30 May 2024	07 May 2024	06 Feb 2024
Machine Age	hrs	Client Info		6764	6764	6764
Oil Age	hrs	Client Info		172	579	224
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
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	9	9	19
Chromium	ppm	ASTM D5185m	>4	1	1	3
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>9	2	1	3
Lead	ppm	ASTM D5185m	>30	2	1	0
Copper	ppm	ASTM D5185m	>35	<u></u> ▲ 68	<u>▲</u> 82	<1
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		on a blace of	limit/base	OLUKKO IST	biotomit	history2
ADDITIVES		method	IIIIII/Dase	current	history1	1115101 y2
Boron	ppm	ASTM D5185m	50	23	4	8
	ppm ppm					
Boron	• • • • • • • • • • • • • • • • • • • •	ASTM D5185m	50	23	4	8
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5 50	23 0	4 0	8
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	23 0 52	4 0 48	8 0 52
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	23 0 52 <1	4 0 48 <1	8 0 52 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	23 0 52 <1 630	4 0 48 <1 532	8 0 52 <1 557
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	23 0 52 <1 630 1737	4 0 48 <1 532 1596	8 0 52 <1 557 1451
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	23 0 52 <1 630 1737 922	4 0 48 <1 532 1596 694	8 0 52 <1 557 1451 718
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	23 0 52 <1 630 1737 922 1045	4 0 48 <1 532 1596 694 939	8 0 52 <1 557 1451 718 949
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 ASTM D5185m	50 5 50 0 560 1510 780 870 2040	23 0 52 <1 630 1737 922 1045 3029	4 0 48 <1 532 1596 694 939 2766	8 0 52 <1 557 1451 718 949 2325
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base	23 0 52 <1 630 1737 922 1045 3029 current	4 0 48 <1 532 1596 694 939 2766 history1	8 0 52 <1 557 1451 718 949 2325 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 Iimit/base >+100	23 0 52 <1 630 1737 922 1045 3029 current	4 0 48 <1 532 1596 694 939 2766 history1	8 0 52 <1 557 1451 718 949 2325 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 Iimit/base >+100	23 0 52 <1 630 1737 922 1045 3029 current 4	4 0 48 <1 532 1596 694 939 2766 history1 3	8 0 52 <1 557 1451 718 949 2325 history2 8 16
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20	23 0 52 <1 630 1737 922 1045 3029 current 4 4	4 0 48 <1 532 1596 694 939 2766 history1 3 8	8 0 52 <1 557 1451 718 949 2325 history2 8 16 ▲ 100
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 	23 0 52 <1 630 1737 922 1045 3029 current 4 4 5	4 0 48 <1 532 1596 694 939 2766 history1 3 8 22	8 0 52 <1 557 1451 718 949 2325 history2 8 16 ▲ 100 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 method ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	23 0 52 <1 630 1737 922 1045 3029 current 4 4 5 current	4 0 48 <1 532 1596 694 939 2766 history1 3 8 22 history1	8 0 52 <1 557 1451 718 949 2325 history2 8 16 ▲ 100 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 method ASTM D5185m ASTM D76185m ASTM D7844 *ASTM D7624 *ASTM D76145	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	23 0 52 <1 630 1737 922 1045 3029 current 4 4 5 current 0 8.6	4 0 48 <1 532 1596 694 939 2766 history1 3 8 22 history1 0 10.2	8 0 52 <1 557 1451 718 949 2325 history2 8 16 ▲ 100 history2 0 11.4
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 method ASTM D5185m ASTM D76185m ASTM D7844 *ASTM D7624 *ASTM D76145	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	23 0 52 <1 630 1737 922 1045 3029 current 4 4 5 current 0 8.6 19.2	4 0 48 <1 532 1596 694 939 2766 history1 3 8 22 history1 0 10.2 20.8	8 0 52 <1 557 1451 718 949 2325 history2 8 16 ▲ 100 history2 0 11.4 21.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base >20 >30 limit/base	23 0 52 <1 630 1737 922 1045 3029 current 4 4 5 current 0 8.6 19.2 current	4 0 48 <1 532 1596 694 939 2766 history1 3 8 22 history1 0 10.2 20.8 history1	8 0 52 <1 557 1451 718 949 2325 history2 8 16 ▲ 100 history2 0 11.4 21.8 history2

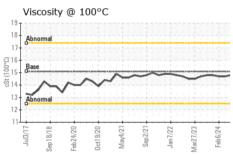


OIL ANALYSIS REPORT





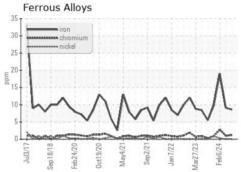


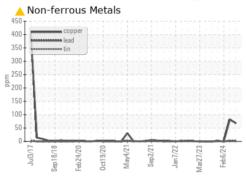


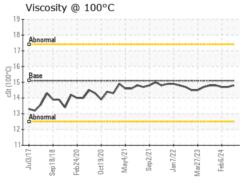
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

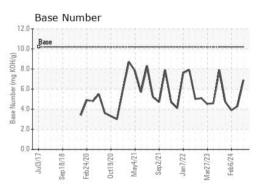
FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.8	14.7	14.7

GRAPHS













Certificate 12367

Laboratory Sample No. Lab Number : 06195092 Unique Number : 11057215 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0118400

Received : 30 May 2024 **Tested** : 31 May 2024 Diagnosed

: 31 May 2024 - Sean Felton

GFL Environmental - 017 - Durham

148 Stone Park Court Durham, NC

T: (919)596-1363

F: (919)598-1852

US 27703 Contact: bill.waring@wearcheck.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)

Report Id: GFL017 [WUSCAR] 06195092 (Generated: 05/31/2024 15:16:53) Rev: 1

Submitted By: Ren - William Russel