

# **OIL ANALYSIS REPORT**

# Area (MB9163) AUTOCAR 910031

Natural Gas Engine

Fluid PETRO CANADA DURON GEO LD 15W40 (9 GAL)

### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

#### Wear

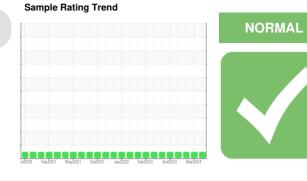
All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

## Fluid Condition

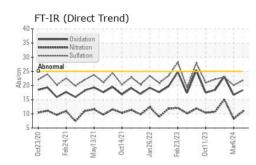
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

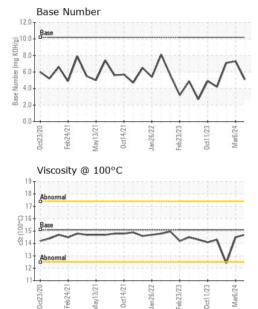


SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109643	GFL0087485	GFL0087479
Sample Date		Client Info		24 May 2024	06 Mar 2024	19 Jan 2024
Machine Age	hrs	Client Info		9330	8924	8710
Oil Age	hrs	Client Info		1197	791	577
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	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	5	4	9
Chromium	ppm	ASTM D5185m	>4	<1	<1	2
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	1	2
Lead	ppm	ASTM D5185m	>30	2	<1	9
Copper	ppm	ASTM D5185m	>35	1	<1	2
Tin	ppm	ASTM D5185m	>4	<1	0	1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method		current		history2
		memou	inniv base	Current	mistory i	motory
Boron	ppm	ASTM D5185m	50	14	30	9
	ppm ppm					
Boron		ASTM D5185m	50	14	30	9
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5	14 0	30 0	9
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	14 0 53	30 0 52	9 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	14 0 53 <1	30 0 52 <1	9 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	14 0 53 <1 604	30 0 52 <1 578	9 0 57 <1 626
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	14 0 53 <1 604 1620	30 0 52 <1 578 1610	9 0 57 <1 626 1640
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	50 5 50 0 560 1510 780	14 0 53 <1 604 1620 773	30 0 52 <1 578 1610 760	9 0 57 <1 626 1640 841
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	50 5 50 0 560 1510 780 870	14 0 53 <1 604 1620 773 985	30 0 52 <1 578 1610 760 908	9 0 57 <1 626 1640 841 1068
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 50 560 1510 780 870 2040	14 0 53 <1 604 1620 773 985 2739	30 0 52 <1 578 1610 760 908 2412	9 0 57 <1 626 1640 841 1068 2582
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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	14 0 53 <1 604 1620 773 985 2739 current	30 0 52 <1 578 1610 760 908 2412 history1	9 0 57 <1 626 1640 841 1068 2582 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	50 50 50 560 1510 780 870 2040 <b>limit/base</b> >+100	14 0 53 <1 604 1620 773 985 2739 current 5	30 0 52 <1 578 1610 760 908 2412 history1 3	9 0 57 <1 626 1640 841 1068 2582 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	50 50 50 560 1510 780 870 2040 <b>limit/base</b> >+100	14 0 53 <1 604 1620 773 985 2739 <u>current</u> 5 6	30 0 52 <1 578 1610 760 908 2412 history1 3 5	9 0 57 <1 626 1640 841 1068 2582 history2 5 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 <b>limit/base</b> >+100	14 0 53 <1 604 1620 773 985 2739 current 5 6 2	30 0 52 <1 578 1610 760 908 2412 history1 3 5 0	9 0 57 <1 626 1640 841 1068 2582 history2 5 7 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 2040 >+100 >20 20 }	14 0 53 <1 604 1620 773 985 2739 current 5 6 2	30 0 52 <1 578 1610 760 908 2412 history1 3 5 0 0	9 0 57 <1 626 1640 841 1068 2582 history2 5 7 2 5 7 2 history2 0.1 15.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 2040 >+100 >20 20 }	14 0 53 <1 604 1620 773 985 2739 <u>current</u> 5 6 2 2 2 <u>current</u> 0	30 0 52 <1 578 1610 760 908 2412 history1 3 5 0 history1 0	9 0 57 <1 626 1640 841 1068 2582 history2 5 7 2 5 7 2 bistory2 0.1
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 <b>Iimit/base</b> >+100 20 <b>Iimit/base</b>	14 0 53 <1 604 1620 773 985 2739 current 5 6 2 current 0 10.9	30 0 52 <1 578 1610 760 908 2412 history1 3 5 0 history1 0 8.3	9 0 57 <1 626 1640 841 1068 2582 history2 5 7 2 5 7 2 history2 0.1 15.1
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 50 560 1510 780 870 2040 <b>Iinit/base</b> >+100 20 <b>Iinit/base</b> >20	14 0 53 <1 604 1620 773 985 2739 current 5 6 2 2 current 0 10.9 21.8	30 0 52 <1 578 1610 760 908 2412 history1 3 5 0 0 history1 0 8.3 20.1	9 0 57 <1 626 1640 841 1068 2582 history2 5 7 2 5 7 2 bistory2 0.1 15.1 23.0
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	50 50 560 1510 780 870 2040 <b>imit/base</b> >+100 20 <b>imit/base</b> >20 30 <b>imit/base</b>	14 0 53 <1 604 1620 773 985 2739 Current 5 6 2 2 Current 0 10.9 21.8 Current	30 0 52 <1 578 1610 760 908 2412 history1 3 5 0 history1 0 8.3 20.1 history1	9 0 57 <1 626 1640 841 1068 2582 history2 5 7 2 5 7 2 history2 0.1 15.1 23.0 history2



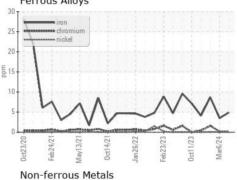
# **OIL ANALYSIS REPORT**

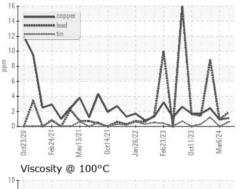


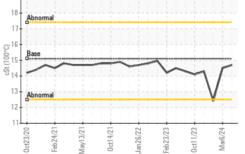


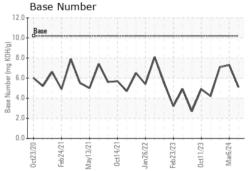
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	14.7	14.5	12.42
GRAPHS						

Ferrous Alloys









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 331 - Columbus Sample No. : GFL0109643 Received : 28 May 2024 180 Ada Moore Rd Lab Number : 06193409 Tested : 30 May 2024 Columbus, NC Unique Number : 11050161 Diagnosed : 30 May 2024 - Wes Davis US 28722 Test Package : FLEET Contact: Matt Segars Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. matt.segars@gflenv.com T: (800)207-6618 \* - 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)

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Submitted By: Matt Segars

F: (252)617-2494