

OIL ANALYSIS REPORT

Sample Rating Trend





934022 Component Natural Gas Engine Fluid PETRO CANADA DURON GEO LD 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Machine Id

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

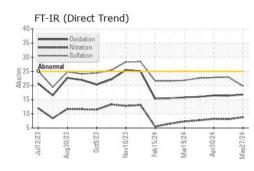
Fluid Condition

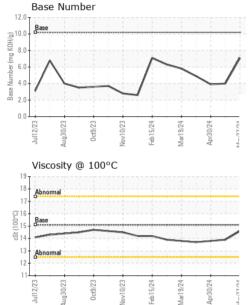
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info Zr May 2024 GFL0118764 GFL0118764 GFL0118844 Sample Date Client Info 27 May 2024 03 May 2024 04 04 04 04 04 04 04 04 04 03 May 2024 03 May 2024 <t< th=""><th>SAMPLE INFOR</th><th>MATION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 1560 2391 2351 Oil Age hrs Client Info 169 1513 1648 Oil Changed Client Info Not Changed Not Changed Not Changed Sample Status Not ORMAL NORMAL NORMAL NORMAL CONTAMINATION method Imit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG Mickel ppm ASTM D5185m >55 <1 <1 1 Nickel ppm ASTM D5185m >55 <1 <1 0 <1 Nickel ppm ASTM D5185m >5 <1 0 <1 3 Silver ppm ASTM D5185m >40 <1 1 3 10 Lead ppm ASTM D5185m >40 <1 1 3 Copper ppm ASTM D5185m >4 <1 1 3 </th <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>GFL0122841</th> <th>GFL0118764</th> <th>GFL0118844</th>	Sample Number		Client Info		GFL0122841	GFL0118764	GFL0118844
Oil Age Oil Changed hrs Client Info 169 1513 1648 Oil Changed Sample Status Client Info Not Changed Not Changed Not Changed CONTAMINATION method imit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG Wear WC Method >0.1 NEG NEG NEG Iron ppm ASTM D5185m >50 10 13 14 Chromium ppm ASTM D5185m >50 10 13 14 Chromium ppm ASTM D5185m >5 <1 0 1 Nickel ppm ASTM D5185m >3 0 0 <1 Aluminum ppm ASTM D5185m >4 <1 1 3 Vanadium ppm ASTM D5185m >4 <1 1 3 Vanadium ppm ASTM D5185m 50 24 9 2	Sample Date		Client Info		27 May 2024	03 May 2024	30 Apr 2024
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Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG Wear WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >5 <1	Oil Age	hrs	Client Info		169	1513	1648
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG Wear METALS method imit/base current history1 history2 Iron ppm ASTM D5165m >50 10 13 14 Chromium ppm ASTM D5165m >5 <1 0 1 Nickel ppm ASTM D5165m >5 <1 0 <1 Silver ppm ASTM D5165m >25 7 13 10 10 Lead ppm ASTM D5165m >25 7 13 10 1 Copper ppm ASTM D5165m >10 0 0 0 2 Cadmium ppm ASTM D5165m >10 0 0 2 Ead ppm ASTM D5165m 50 61 124 110 Magnasium ppm ASTM D5165m 50<	Oil Changed		Client Info		Not Changd	Changed	Not Changd
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Nickel ppm ASTM D5185m >4 <1	Iron	ppm	ASTM D5185m	>50	10	13	14
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Silver ppm ASTM D5185m >3 0 0 <1	Nickel	ppm	ASTM D5185m	>4	<1	0	1
Aluminum ppm ASTM D5185m >25 7 13 10 Lead ppm ASTM D5185m >40 <1 1 3 Copper ppm ASTM D5185m >150 3 5 4 Tin ppm ASTM D5185m >4 <1 1 3 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 2 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 24 9 2 Barium ppm ASTM D5185m 50 61 124 110 Magnesium ppm ASTM D5185m 50 51 1414 1463 Phosphorus ppm ASTM D5185m 780 897 745 781 Zinc ppm ASTM D5185m 2040 2910	Titanium	ppm	ASTM D5185m	>5	<1	0	<1
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Copper ppm ASTM D5185m >150 3 5 4 Tin ppm ASTM D5185m >4 <1 1 3 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 2 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 24 9 2 Barium ppm ASTM D5185m 50 61 124 110 Manganese ppm ASTM D5185m 50 61 124 110 Manganesium ppm ASTM D5185m 560 590 718 738 Calcium ppm ASTM D5185m 1510 1562 1414 1463 Phosphorus ppm ASTM D5185m 780 897 745 781 Zinc ppm ASTM D5185m 2040 2910 32	Aluminum	ppm	ASTM D5185m	>25	7	13	10
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Phosphorus ppm ASTM D5185m 780 897 745 781 Zinc ppm ASTM D5185m 870 968 879 936 Sulfur ppm ASTM D5185m 870 2968 879 936 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 10 10 Sodium ppm ASTM D5185m >25 7 10 10 Sodium ppm ASTM D5185m >20 14 10 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 8.8 8.1 8.2 Sulfation Abs/.1mm *ASTM D7644 >20 8.8 8.1 8.2 FLUID DEGRADATION method limit/base current <th>Boron Barium Molybdenum</th> <th>ppm ppm</th> <th>ASTM D5185m ASTM D5185m ASTM D5185m</th> <th>50 5 50</th> <th>24 <1 61</th> <th>9 0 124</th> <th>2 0 110</th>	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	24 <1 61	9 0 124	2 0 110
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CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m<>25 7 10 10 Sodium ppm ASTM D5185m 25 7 10 10 Sodium ppm ASTM D5185m 20 14 8 2 Potassium ppm ASTM D5185m >20 14 10 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 8.8 8.1 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.8 23.0 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.8 16.4 16.5	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	24 <1 61 <1 590 1562	9 0 124 2 718 1414	2 0 110 2 738 1463
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Potassium ppm ASTM D5185m >20 14 10 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 8.8 8.1 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.8 23.0 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.8 16.4 16.5	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	24 <1 61 <1 590 1562 897 968 2910	9 0 124 2 718 1414 745 879 3299	2 0 110 2 738 1463 781 936 3690
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Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 8.8 8.1 8.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.8 23.0 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.8 16.4 16.5	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 method	50 5 50 0 560 1510 780 870 2040 limit/base	24 <1 61 <1 590 1562 897 968 2910 current 7	9 0 124 2 718 1414 745 879 3299 history1 10	2 0 110 2 738 1463 781 936 3690 history2 10
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Sulfation Abs/.1mm *ASTM D7415 >30 19.8 23.0 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.8 16.4 16.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >25	24 <1 61 <1 590 1562 897 968 2910 current 7 4 14	9 0 124 2 718 1414 745 879 3299 history1 10 8 10	2 0 110 2 738 1463 781 936 3690 history2 10 2 10
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.8 16.4 16.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >25	24 <1 61 <1 590 1562 897 968 2910 current 7 4 14 14	9 0 124 2 718 1414 745 879 3299 history1 10 8 10 10 history1	2 0 110 2 738 1463 781 936 3690 history2 10 2 10 2 10 history2
Oxidation Abs/.1mm *ASTM D7414 >25 16.8 16.4 16.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >25 >20 limit/base	24 <1 61 <1 590 1562 897 968 2910 current 7 4 14 14 current 0.1	9 0 124 2 718 1414 745 879 3299 history1 10 8 10 8 10 8	2 0 110 2 738 1463 781 936 3690 history2 10 2 10 2 10 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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 imit/base >25 20 imit/base	24 <1 61 <1 590 1562 897 968 2910 current 7 4 14 current 0.1 8.8	9 0 124 2 718 1414 745 879 3299 history1 10 8 10 8 10 history1 0 8.1	2 0 110 2 738 1463 781 936 3690 history2 10 2 10 2 10 10 history2 0 8.2
	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 5 50 0 560 1510 780 870 2040 limit/base >25 ->20 limit/base	24 <1 61 <1 590 1562 897 968 2910 current 7 4 14 current 0.1 8.8 19.8	9 0 124 2 718 1414 745 879 3299 history1 10 8 10 10 bistory1 0 8.1 23.0	2 0 110 2 738 1463 781 936 3690 history2 10 2 10 2 10 bistory2 0 8.2 22.8
	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 D7844 *ASTM D7624	50 5 50 0 560 1510 780 870 2040 limit/base >25 >20 limit/base >20 s 30	24 <1 61 <1 590 1562 897 968 2910 current 7 4 14 14 0.1 8.8 19.8	9 0 124 2 718 1414 745 879 3299 history1 10 8 10 8 10 history1 0 8.1 23.0 history1	2 0 110 2 738 1463 781 936 3690 history2 10 2 10 2 10 history2 0 8.2 22.8 history2



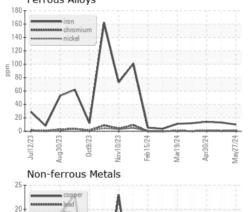
OIL ANALYSIS REPORT

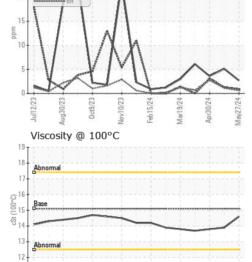


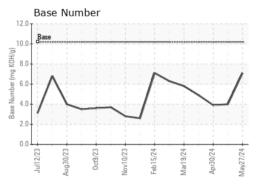


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.6	13.9	13.8
GRAPHS						

Ferrous Alloys







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 836 - Kansas City Hauling Sample No. : GFL0122841 Received : 31 May 2024 7801 East Truman Road Lab Number : 06196345 Tested : 03 Jun 2024 Kansas City, MO Unique Number : 11058468 Diagnosed : 03 Jun 2024 - Wes Davis US 64126 Test Package : FLEET Contact: Loyce Stewart Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. loyce.stewart@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: F:

Nov10/23

Feb 15/24

Mar19/24

May27/24 -

Apr30/24

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

0ct9/23

Aua30/23

11-

Report Id: GFL836 [WUSCAR] 06196345 (Generated: 06/03/2024 08:00:25) Rev: 1

Submitted By: JEREMY BROWN

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