

OIL ANALYSIS REPORT

Sample Rating Trend



834050 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.

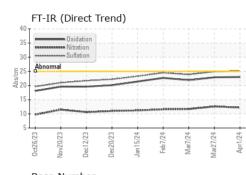
Fluid Condition

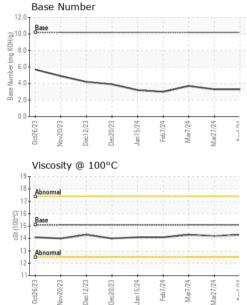
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0114190	GFL0114168	GFL0114126
Sample Date		Client Info		01 Apr 2024	27 Mar 2024	07 Mar 2024
Machine Age	hrs	Client Info		1179	1151	1063
Oil Age	hrs	Client Info		1179	1151	1063
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	66	65	53
Chromium	ppm	ASTM D5185m	>5	2	<1	<1
Nickel	ppm	ASTM D5185m	>4	2	<1	0
Titanium	ppm	ASTM D5185m	>5	<1	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>25	4	3	3
Lead	ppm	ASTM D5185m	>40	2	1	<1
Copper	ppm	ASTM D5185m	>150	16	13	14
Tin	ppm	ASTM D5185m	>4	3	1	2
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES		memou	initia base	current	Thistory I	Thotory
Boron	ppm	ASTM D5185m	50	8	7	12
	ppm ppm					
Boron		ASTM D5185m	50	8	7	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5 50	8 4	7	12 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	8 4 68	7 2 68	12 2 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	8 4 68 9	7 2 68 8	12 2 59 8
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	8 4 68 9 739	7 2 68 8 794	12 2 59 8 667
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	8 4 68 9 739 1267	7 2 68 8 794 1368	12 2 59 8 667 1133
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	8 4 68 9 739 1267 784	7 2 68 8 794 1368 784	12 2 59 8 667 1133 690
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	8 4 68 9 739 1267 784 994	7 2 68 8 794 1368 784 990	12 2 59 8 667 1133 690 871
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	8 4 68 9 739 1267 784 994 2620	7 2 68 8 794 1368 784 990 2837	12 2 59 8 667 1133 690 871 2172
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	50 5 50 0 560 1510 780 870 2040	8 4 68 9 739 1267 784 994 2620 current	7 2 68 8 794 1368 784 990 2837 history1	12 2 59 8 667 1133 690 871 2172 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 method	50 50 50 560 1510 780 870 2040 limit/base >25	8 4 68 9 739 1267 784 994 2620 current 22	7 2 68 8 794 1368 784 990 2837 history1 21	12 2 59 8 667 1133 690 871 2172 history2 20
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 ASTM D5185m ASTM D5185m	50 50 50 560 1510 780 870 2040 limit/base >25	8 4 68 9 739 1267 784 994 2620 current 22 4	7 2 68 8 794 1368 784 990 2837 history1 21 4	12 2 59 8 667 1133 690 871 2172 history2 20 4
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 2040 limit/base >25	8 4 68 9 739 1267 784 994 2620 current 22 4 4	7 2 68 8 794 1368 784 990 2837 history1 21 4 2	12 2 59 8 667 1133 690 871 2172 history2 20 4 <1
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 2040 2040 2040 225 >25 >20	8 4 68 9 739 1267 784 994 2620 current 22 4 4 4	7 2 68 8 794 1368 784 990 2837 history1 21 4 2 2 history1	12 2 59 8 667 1133 690 871 2172 history2 20 4 <1 kistory2
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 5 50 0 560 1510 780 870 2040 2040 2040 2040 225 >25 >20	8 4 68 9 739 1267 784 994 2620 current 22 4 4 4 4 0	7 2 68 8 794 1368 784 990 2837 history1 21 4 21 4 2 2 history1 0	12 2 59 8 667 1133 690 871 2172 history2 20 4 <1 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 5 50 0 560 1510 780 870 2040 limit/base >25 >20 limit/base	8 4 68 9 739 1267 784 994 2620 current 22 4 4 4 0 12.2	7 2 68 8 794 1368 784 990 2837 history1 21 4 21 4 2 2 history1 0 12.6	12 2 59 8 667 1133 690 871 2172 history2 20 4 <1 kistory2 0 11.7
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	50 50 560 1510 780 870 2040 2040 225 220 220 imit/base 220 30 imit/base	8 4 68 9 739 1267 784 994 2620 current 22 4 4 4 current 0 12.2 25.2 current	7 2 68 8 794 1368 784 990 2837 history1 21 4 21 4 2 2 history1 0 12.6 24.9 history1	12 2 59 8 667 1133 690 871 2172 history2 20 4 <1 history2 0 11.7 23.9 history2
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 50 150 780 870 2040 i mit/base >25 i mit/base >20 i mit/base	8 4 68 9 739 1267 784 994 2620 <u>current</u> 22 4 4 4 4 <u>current</u> 0 12.2 25.2	7 2 68 8 794 1368 784 990 2837 history1 21 4 2 2 history1 0 12.6 24.9	12 2 59 8 667 1133 690 871 2172 history2 20 4 <1 kistory2 0 11.7 23.9



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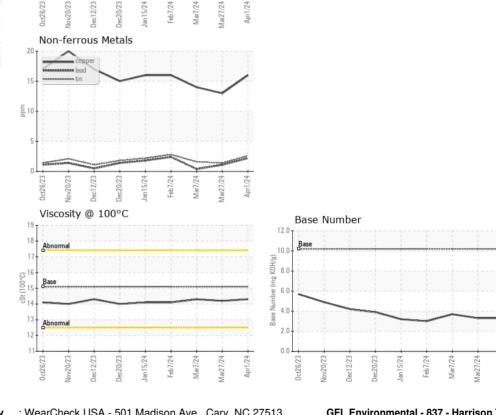


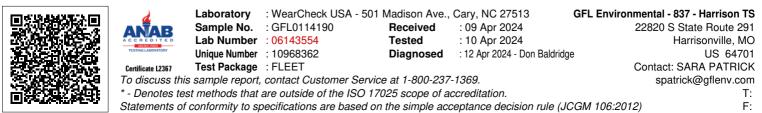


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White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML Odor scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual Not NEG NEG NEG Visc@ 100°C cSt <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>								
Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NOR NORE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML Odor scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual >0.1 NEG NEG NEG Visc @ 100°C cSt ASTM D445 15.1 14.3 14.2 14.3 <td co<="" th=""><th>VISUAL</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td>	<th>VISUAL</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	VISUAL		method	limit/base	current	history1	history2
Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML NORML Codor scalar *Visual NORML NORML NORML NORML Emulsified Water scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual NORML NEG NEG Free Water scalar *Visual NORML NEG NEG Free Water scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual 1 NEG NEG NEG Free Water 1 Scalar *Visual 1 NEG NEG NEG NEG Free Water 1 Scalar *Visual 1 NEG NEG NEG NEG Free Water 1 Scalar *Visual 1 NEG NEG NEG NEG NEG NEG Free Water 1 Scalar *Visual 1 NEG	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE 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 NORML Emulsified Water scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual NORML NEG NEG NEG Free Water scalar *Visual 1 NEG NEG NEG Free Water 1 Scalar *Visual 1 NEG NEG NEG NEG Free Water 1 Scalar *Visual 1 NEG NEG NEG NEG Free Water 1 Scalar *Visual 1 NEG NEG NEG NEG NEG Free Water 1 Scalar *Visual 1 NEG	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
Debris scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML NORML Emulsified Water scalar *Visual >0.1 NEG NEG NEG NEG Free Water scalar *Visual >0.1 NEG NEG NEG NEG Free Water scalar *Visual NORML NEG NEG NEG Free Water scalar *Visual 10 NEG NEG NEG Fere Water scalar *Visual 10 NEG NEG NEG Fere Water scalar *Visual 10 NEG NEG NEG NEG Fere Water scalar *Visual 10 NEG NEG NEG NEG Fere Water scalar *Visual 10 NEG	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML NORML Emulsified Water scalar *Visual >0.1 NEG NEG NEG NEG Free Water scalar *Visual NORM NEG NEG NEG NEG Scalar *Visual NORML Scalar *Visual >0.1 NEG NEG NEG NEG Scalar *Visual NEG NEG NEG Scalar *Visual NEG NEG NEG NEG NEG Scalar *Visual NEG NEG NEG NEG NEG NEG Scalar *Visual NEG NEG NEG NEG NEG Scalar *Visual NEG NEG NEG NEG NEG NEG Scalar *Visual NEG	Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
Appearance scalar *Visual NORML NOR NEG	Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
Odor scalar *Visual NORML NORML NORML NORML Emulsified Water scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual >0.1 NEG NEG NEG Fluid PROPERTIES method limit/base current history1 history2 Visc @ 100°C cSt ASTM D445 15.1 14.3 14.2 14.3 GRAPHS Ferrous Alloys Image: chromium indext in the image	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
Emulsified Water scalar *Visual >0.1 NEG NEG NEG Free Water scalar *Visual NEG NEG NEG NEG FLUID PROPERTIES method limit/base current history1 history2 Visc @ 100°C cSt ASTM D445 15.1 14.3 14.2 14.3 GRAPHS Ferrous Alloys Image: Construct of the state of th	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Free Water scalar *Visual NEG NEG NEG FLUID PROPERTIES method limit/base current history1 history2 Visc @ 100°C cSt ASTM D445 15.1 14.3 14.2 14.3 GRAPHS Ferrous Alloys Image: Construct of the state of	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
FLUID PROPERTIES method limit/base current history1 history2 Visc @ 100°C cSt ASTM D445 15.1 14.3 14.2 14.3 GRAPHS Ferrous Alloys Imit/base <	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG	
Visc @ 100°C cSt ASTM D445 15.1 14.3 14.2 14.3 GRAPHS Ferrous Alloys	Free Water	scalar	*Visual		NEG	NEG	NEG	
GRAPHS Ferrous Alloys	FLUID PROPE	ERTIES	method	limit/base	current	history1	history2	
Ferrous Alloys	Visc @ 100°C	cSt	ASTM D445	15.1	14.3	14.2	14.3	
	-							
iron nickel								
nicke	GRAPHS							
)- 	GRAPHS Ferrous Alloys							
J-	GRAPHS Ferrous Alloys							
	GRAPHS Ferrous Alloys		\checkmark					
	GRAPHS Ferrous Alloys	/	\checkmark					
	GRAPHS Ferrous Alloys		\checkmark					





Submitted By: JEREMY BROWN

Apr1/24