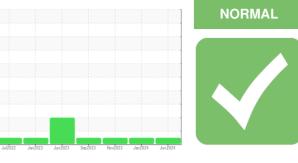


OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend



Machine Id

426112 Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- 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.

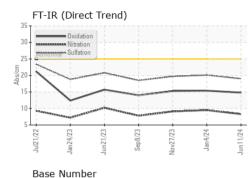
Fluid Condition

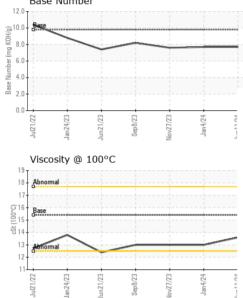
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI		method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0116037	GFL0097486	GFL0097474
Sample Date		Client Info		11 Jun 2024	04 Jan 2024	27 Nov 2023
Machine Age	hrs	Client Info		16112	15632	15599
Oil Age	hrs	Client Info		15091	15091	15091
•	1115			N/A	N/A	N/A
Oil Changed		Client Info				
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	0	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	9	12	14
Chromium	ppm	ASTM D5185m	>20	0	0	<1
Nickel	ppm		>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	<1	<1
Lead	ppm	ASTM D5185m	>40	0	2	<1
Copper	ppm	ASTM D5185m	>330	<1	3	<1
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 12	history1 7	history2 7
	ppm ppm	ASTM D5185m				
Boron Barium	ppm	ASTM D5185m	0	12	7	7
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	12 0	7 0	7 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	12 0 61 <1	7 0 58 0	7 0 60 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	12 0 61 <1 950	7 0 58 0 925	7 0 60 0 953
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	12 0 61 <1 950 1130	7 0 58 0 925 1119	7 0 60 0 953 1177
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	0 0 60 0 1010 1070 1150	12 0 61 <1 950 1130 1096	7 0 58 0 925 1119 946	7 0 60 0 953 1177 972
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	0 0 60 0 1010 1070 1150 1270	12 0 61 <1 950 1130 1096 1305	7 0 58 0 925 1119 946 1259	7 0 60 953 1177 972 1269
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	0 0 60 0 1010 1070 1150 1270 2060	12 0 61 <1 950 1130 1096 1305 3693	7 0 58 0 925 1119 946 1259 2901	7 0 60 953 1177 972 1269 3030
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	0 0 60 0 1010 1070 1150 1270 2060	12 0 61 <1 950 1130 1096 1305	7 0 58 0 925 1119 946 1259	7 0 60 953 1177 972 1269
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	0 0 60 0 1010 1070 1150 1270 2060	12 0 61 <1 950 1130 1096 1305 3693	7 0 58 0 925 1119 946 1259 2901	7 0 60 953 1177 972 1269 3030
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	0 0 60 0 1010 1070 1150 1270 2060	12 0 61 <1 950 1130 1096 1305 3693 current	7 0 58 0 925 1119 946 1259 2901 history1	7 0 60 953 1177 972 1269 3030 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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	12 0 61 <1 950 1130 1096 1305 3693 current 3	7 0 58 0 925 1119 946 1259 2901 history1 3	7 0 60 953 1177 972 1269 3030 history2 4
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	12 0 61 <1 950 1130 1096 1305 3693 current 3 5	7 0 58 0 925 1119 946 1259 2901 history1 3 9	7 0 60 953 1177 972 1269 3030 history2 4 9
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	12 0 61 <1 950 1130 1096 1305 3693 current 3 5 3	7 0 58 0 925 1119 946 1259 2901 history1 3 9 10	7 0 60 953 1177 972 1269 3030 history2 4 9 7
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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >3	12 0 61 <1 950 1130 1096 1305 3693 current 3 5 3 3	7 0 58 0 925 1119 946 1259 2901 history1 3 9 10 history1	7 0 60 953 1177 972 1269 3030 history2 4 9 7
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >3	12 0 61 <1 950 1130 1096 1305 3693 <i>current</i> 3 5 3 3 <i>current</i> 0.4	7 0 58 0 925 1119 946 1259 2901 history1 3 9 10 history1 0.5	7 0 60 953 1177 972 1269 3030 history2 4 9 7 7 history2 0.5
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	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1000 225 220 20 20 20 20 20 20 20 20 20 20 20	12 0 61 <1 950 1130 1096 1305 3693 <i>current</i> 3 5 3 3 <i>current</i> 0.4 8.3	7 0 58 0 925 1119 946 1259 2901 history1 3 9 10 history1 0.5 9.5	7 0 60 953 1177 972 1269 3030 history2 4 9 7 7 history2 0.5 9.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 33 20 30 20 330	12 0 61 <1 950 1130 1096 1305 3693 <i>current</i> 3 5 3 3 <i>current</i> 0.4 8.3 19.0 <i>current</i>	7 0 58 0 925 1119 946 1259 2901 history1 3 9 10 history1 0.5 9.5 20.1 history1	7 0 60 953 1177 972 1269 3030 history2 4 9 7 kistory2 0.5 9.1 19.7 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	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >3 >20 >30	12 0 61 <1 950 1130 1096 1305 3693 current 3 5 3 3 current 0.4 8.3 19.0	7 0 58 0 925 1119 946 1259 2901 history1 3 9 10 0.5 9.5 20.1	7 0 60 953 1177 972 1269 3030 history2 4 9 7 7 history2 0.5 9.1 19.7

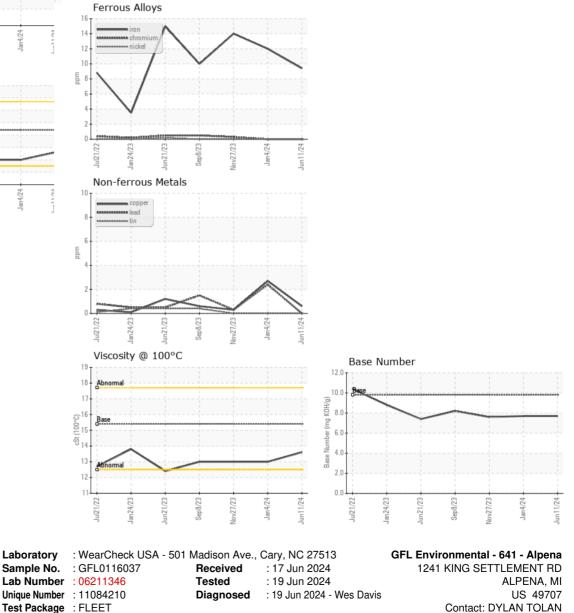


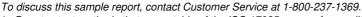
OIL ANALYSIS REPORT





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	>0.2	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	15.4	13.6	13.0	13.0
GRAPHS						





* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (989)854-7203

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

Certificate 12367

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Submitted By: GFL463 and GFL641 - DYLAN TOLAN

E:

dylan.tolan@gflenv.com