

# **OIL ANALYSIS REPORT**

Sample Rating Trend





### Machine Id **RENT216** Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

# DIAGNOSIS

## Recommendation

Resample at the next service interval to monitor.

### Wear

Metal levels are typical for a new component breaking in.

#### 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 INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0067709	GFL0067699	GFL0067806
Sample Date		Client Info		27 Jun 2023	08 Jun 2023	23 May 2023
Machine Age	mls	Client Info		65023	62706	60542
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	5	3	11
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	3
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m		1	0	2
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m		1	<1	4
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m	210	0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	ppm			•	0	0
		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1 0	history2 0
Boron	ppm	ASTM D5185m	0	2	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 0	0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 61	0 0 59	0 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 61 <1	0 0 59 0	0 0 58 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 61 <1 899	0 0 59 0 872	0 0 58 <1 955
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	2 0 61 <1 899 1071	0 0 59 0 872 1050	0 0 58 <1 955 1137
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	2 0 61 <1 899 1071 973	0 0 59 0 872 1050 991	0 0 58 <1 955 1137 970
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	2 0 61 <1 899 1071 973 1190	0 0 59 0 872 1050 991 1157	0 0 58 <1 955 1137 970 1262
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	0 0 60 1010 1070 1150 1270 2060	2 0 61 <1 899 1071 973 1190 2929	0 0 59 0 872 1050 991 1157 2923	0 0 58 <1 955 1137 970 1262 3266
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	0 0 60 1010 1070 1150 1270 2060	2 0 61 <1 899 1071 973 1190 2929 current	0 0 59 0 872 1050 991 1157 2923 history1	0 0 58 <1 955 1137 970 1262 3266 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 0 60 1010 1070 1150 1270 2060	2 0 61 <1 899 1071 973 1190 2929 current 3	0 0 59 0 872 1050 991 1157 2923 history1 3	0 0 58 <1 955 1137 970 1262 3266 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 <i>limit/base</i> >25	2 0 61 <1 899 1071 973 1190 2929 current 3 2	0 0 59 0 872 1050 991 1157 2923 history1 3 0	0 0 58 <1 955 1137 970 1262 3266 history2 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25	2 0 61 <1 899 1071 973 1190 2929 current 3 2 2 2	0 0 59 0 872 1050 991 1157 2923 history1 3 0 1	0 0 58 <1 955 1137 970 1262 3266 history2 4 4 2
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 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	2 0 61 <1 899 1071 973 1190 2929 current 3 2 2 2 2	0 0 59 0 872 1050 991 1157 2923 history1 3 0 1 history1	0 0 58 <1 955 1137 970 1262 3266 history2 4 4 4 2 <i>history2</i>
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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 >20 <b>Imit/base</b>	2 0 61 <1 899 1071 973 1190 2929 <u>current</u> 3 2 2 2 <u>current</u> 0.3	0 0 59 0 872 1050 991 1157 2923 history1 3 0 1 1 history1 0.2	0 0 58 <1 955 1137 970 1262 3266 history2 4 4 4 2 <u>history2</u> 0.6
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 <b>TS</b>	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	2 0 61 <1 899 1071 973 1190 2929 current 3 2 2 2 current 0.3 6.3	0 0 59 0 872 1050 991 1157 2923 history1 3 0 1 1 history1 0.2 5.6	0 0 58 <1 955 1137 970 1262 3266 history2 4 4 2 <u>history2</u> 0.6 8.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	2 0 61 <1 899 1071 973 1190 2929 <u>current</u> 3 2 2 2 <u>current</u> 0.3	0 0 59 0 872 1050 991 1157 2923 history1 3 0 1 1 history1 0.2	0 0 58 <1 955 1137 970 1262 3266 history2 4 4 4 2 <u>history2</u> 0.6
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 limit/base >25 >20 limit/base >20	2 0 61 <1 899 1071 973 1190 2929 current 3 2 2 2 current 0.3 6.3	0 0 59 0 872 1050 991 1157 2923 history1 3 0 1 1 history1 0.2 5.6	0 0 58 <1 955 1137 970 1262 3266 history2 4 4 2 <u>history2</u> 0.6 8.3
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 <b>imit/base</b> >25 <b>imit/base</b> >4 >20	2 0 61 <1 899 1071 973 1190 2929 <u>current</u> 3 2 2 2 2 <u>current</u> 0.3 6.3 18.1	0 0 59 0 872 1050 991 1157 2923 history1 3 0 1 1 history1 0.2 5.6 18.4	0 0 58 <1 955 1137 970 1262 3266 history2 4 4 2 <u>history2</u> 0.6 8.3 20.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 /////////////////////////////////	2 0 61 <1 899 1071 973 1190 2929 current 3 2 2 2 current 0.3 6.3 18.1	0 0 59 0 872 1050 991 1157 2923 history1 3 0 1 3 0 1 1 history1 0.2 5.6 18.4 history1	0 0 58 <1 955 1137 970 1262 3266 history2 4 4 2 history2 0.6 8.3 20.3 history2

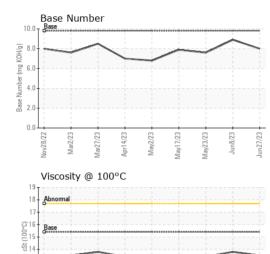


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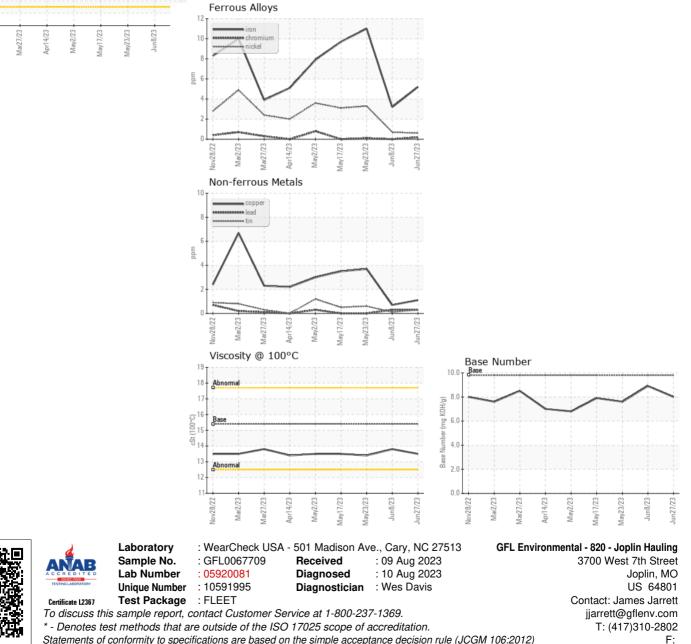
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Nov28/22 Mar2/23

# **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	13.5	13.8	13.4
GRAPHS						



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

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