

# **OIL ANALYSIS REPORT**



Machine Id **541** Component **Diesel Engine** Fluid **PETRO CANADA DURON HP 15W40 (--- GAL)** 

#### DIAGNOSIS

#### Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time. Please specify the component make and model with your next sample.

# Wear

All component wear rates are normal.

## Contamination

Light fuel dilution occurring. No other contaminants were detected 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.

SAMIFLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0727304	WC0727393	
Sample Date		Client Info		10 Apr 2024	14 Feb 2023	
Machine Age	mls	Client Info		133832	5000	
Oil Age	mls	Client Info		0	0	
Oil Changed		Client Info		Changed	N/A	
Sample Status				NORMAL	ABNORMAL	
CONTAMINATION	N	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	26	35	
Chromium	ppm	ASTM D5185m	>20	2	2	
Nickel	ppm	ASTM D5185m	>4	<1	<1	
Titanium	ppm	ASTM D5185m		0	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>20	16	14	
Lead	ppm	ASTM D5185m	>40	2	13	
Copper	ppm	ASTM D5185m	>330	2	3	
Tin	ppm	ASTM D5185m	>15	0	1	
Vanadium	ppm	ASTM D5185m		<1	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 9	history1 149	history2
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	9	149	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	9 0	149 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	9 0 59	149 0 53	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	9 0 59 <1	149 0 53 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	9 0 59 <1 874	149 0 53 <1 319	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	9 0 59 <1 874 1044	149 0 53 <1 319 1341	
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	limit/base	9 0 59 <1 874 1044 957	149 0 53 <1 319 1341 854	  
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	limit/base	9 0 59 <1 874 1044 957 1106	149 0 53 <1 319 1341 854 982	   
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	limit/base	9 0 59 <1 874 1044 957 1106 3161	149 0 53 <1 319 1341 854 982 2485	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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	limit/base	9 0 59 <1 874 1044 957 1106 3161 current	149 0 53 <1 319 1341 854 982 2485 history1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base	9 0 59 <1 874 1044 957 1106 3161 <u>current</u> 4 2 0	149 0 53 <1 319 1341 854 982 2485 <b>history1</b> 5 <1 4	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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	limit/base	9 0 59 <1 874 1044 957 1106 3161 <u>current</u> 4 2	149 0 53 <1 319 1341 854 982 2485 2485 history1 5 <1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	9 0 59 <1 874 1044 957 1106 3161 <u>current</u> 4 2 0	149 0 53 <1 319 1341 854 982 2485 <b>history1</b> 5 <1 4	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5	9 0 59 <1 874 1044 957 1106 3161 <i>current</i> 4 2 0 1.6	149 0 53 <1 319 1341 854 982 2485 <b>history1</b> 5 <1 4 4 <b>∧</b> 7.8	     history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base	9 0 59 <1 874 1044 957 1106 3161 <i>current</i> 4 2 0 1.6 <i>current</i>	149 0 53 <1 319 1341 854 982 2485 history1 5 <1 4 4 × 7.8	     history2    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base >3	9 0 59 <1 874 1044 957 1106 3161 <i>current</i> 4 2 0 1.6 <i>current</i>	149 0 53 <1 319 1341 854 982 2485 history1 5 <1 4 5 <1 4 7.8 history1 0.6	     history2     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 <b>method</b> *ASTM D7844	limit/base >25 >20 >5 limit/base >3 >20	9 0 59 <1 874 1044 957 1106 3161 <i>current</i> 4 2 0 1.6 <i>current</i> 0.4 8.8	149 0 53 <1 319 1341 854 982 2485 history1 5 <1 4 7.8 history1 0.6 9.3	     history2    history2   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base >3 >20 >3	9 0 59 <1 874 1044 957 1106 3161 <i>current</i> 4 2 0 1.6 <i>current</i> 0.4 8.8 18.7	149 0 53 <1 319 1341 854 982 2485 <b>history1</b> 5 <1 4 5 <1 4 7.8 <b>history1</b> 0.6 9.3 21.8	     history2   history2  history2



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Contact/Location: BRANDON BRIGGS - WAYGOL

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