

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 913173 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

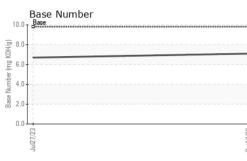
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

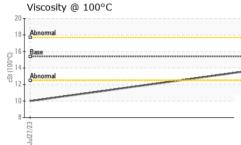
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092630	GFL0082535	
Sample Date		Client Info		12 Oct 2023	27 Jul 2023	
Machine Age	hrs	Client Info		1122	622	
Oil Age	hrs	Client Info		500	622	
Oil Changed		Client Info		Not Changd	Changed	
Sample Status				NORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.3	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	25	56	
Chromium	ppm	ASTM D5185m	>20	<1	2	
Nickel	ppm	ASTM D5185m	>5	8	9	
Titanium	ppm	ASTM D5185m	>2	0	<1	
Silver	ppm	ASTM D5185m	>2	<1	<1	
Aluminum	ppm	ASTM D5185m	>20	3	6	
Lead	ppm	ASTM D5185m	>40	0	0	
Copper	ppm	ASTM D5185m	>330	11	40	
Tin	ppm	ASTM D5185m	>15	<1	4	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES Boron	maa	method ASTM D5185m	limit/base	current	history1 185	history2
Boron	ppm pom	ASTM D5185m	0	6	history1 185 0	
Boron Barium	ppm	ASTM D5185m ASTM D5185m		6 0	185 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	6	185 0 139	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	6 0 66 1	185 0 139 6	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	6 0 66 1 962	185 0 139 6 707	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	6 0 66 1	185 0 139 6	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	6 0 66 1 962 1088	185 0 139 6 707 1631	
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	6 0 66 1 962 1088 957	185 0 139 6 707 1631 718	
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	0 0 60 0 1010 1070 1150 1270	6 0 66 1 962 1088 957 1230	185 0 139 6 707 1631 718 888	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 1010 1070 1150 1270 2060	6 0 66 1 962 1088 957 1230 2653	185 0 139 6 707 1631 718 888 2733	
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	0 0 60 1010 1070 1150 1270 2060	6 0 66 1 962 1088 957 1230 2653 current	185 0 139 6 707 1631 718 888 2733 history1	 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	6 0 66 1 962 1088 957 1230 2653 current 11	185 0 139 6 707 1631 718 888 2733 history1 ▲ 103	 history2
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 1010 1070 1150 1270 2060 imit/base >25	6 0 66 1 962 1088 957 1230 2653 <u>current</u> 11 5	185 0 139 6 707 1631 718 888 2733 2733 history1 ▲ 103 4	 history2
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 limit/base >25 >20	6 0 66 1 962 1088 957 1230 2653 <u>current</u> 11 5 9	185 0 139 6 707 1631 718 888 2733 history1 ▲ 103 4 11	 history2
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 Imit/base >20	6 0 66 1 962 1088 957 1230 2653 current 11 5 9 2	185 0 139 6 707 1631 718 888 2733 history1 ▲ 103 4 103 4 11 history1 0.7	 history2 history2
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 Imit/base >20	6 0 66 1 962 1088 957 1230 2653 2653 <i>current</i> 11 5 9 9 <i>current</i>	185 0 139 6 707 1631 718 888 2733 history1 ▲ 103 4 11 11 history1	 history2 history2 history2
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 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	6 0 66 1 962 1088 957 1230 2653 <i>current</i> 11 5 9 <i>current</i> 0.6 9.0	185 0 139 6 707 1631 718 888 2733 history1 ▲ 103 4 11 11 history1 0.7 11.3	 history2 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 imit/base >25 imit/base >4 >20	6 0 66 1 962 1088 957 1230 2653 <i>current</i> 11 5 9 <i>current</i> 0.6 9.0 20.0	185 0 139 6 707 1631 718 888 2733 history1 ▲ 103 4 113 history1 0.7 11.3 25.5	 history2 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 D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >4 >20 >30 imit/base	6 0 66 1 962 1088 957 1230 2653 <u>current</u> 11 5 9 <u>current</u> 0.6 9.0 20.0	185 0 139 6 707 1631 718 888 2733 history1 ▲ 103 4 11 0.7 11.3 25.5 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT

VISUAL





	VISUAL		methoa	iimit/base	current	riistory i	nistory2
	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	
0ct12/23	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual	20.L	NEG	NEG	
							_
	FLUID PROPE		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.6	▲ 10.0	
	GRAPHS						
	Ferrous Alloys						
	iron						
	50 - nickel						
	40		_				
	톨 30						
	20						
	10-						
	0	*********	******				
	Jui27/23			0ct12/23			
				ŏ			
	Non-ferrous Metal	5					
	35- copper						
	30 -						
	25						
	₫ 20 -						
	15-						
	10+						
	5 -						

	Jul27/23			0ct12/23			
				0			
	Viscosity @ 100°C				Base Numbe	er	
	18 Abnormal			10.0	Base		
	17-			- 8.0			
	16-Base			6,8,0 (B/HO)			
	16-Base			0.8 (6,0 HOX س) 6.0 -			
	16 Base			(),(),(),(),(),(),(),(),(),(),(),(),(),(
	16-Base			(B) HOX (B) HO			
	16 Base 5 15 Base 14			.0.6 KOH(c			
	16 Base 5 15 - 14 - 3 13 Abnormal 12 -			оно			
	16 Base 5 15 6 15 14 Abnormal 12 11 10 9			0.0-4 0.0-4 0.0-4 0.0-4 0.0-4 0.0-4 0.0-4 0.0-4	7/23		
	16 Base 5 15 Base 14			0.04 Base Number (mg KOH) Base 2.0-	Jul27/23		
Laboratory Sample No. Lab Number Unique Number Test Package	Base 16 15 14 Abnormal 12 14 25 13 Abnormal 12 14 25 13 4 25 13 25 25 25 25 25 25 25 25 25 25	01 Madis Received Diagnose Diagnosti	: 23 (ed : 24 (0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0			6 County Rd Horicon, V US 5303
Laboratory Sample No. Lab Number Unique Number	Information Base 0101 Abnormal 12 Abnormal 12 Information 10 State 11 Information 12 Information 10 State 11 Information 10 State 11 Information 12 Information 10 State 10 State	Received Diagnose Diagnosti ce at 1-80	: 23 (ed : 24 (cian : Wes 00-237-1369	ry, NC 27513 Det 2023 S Davis		N729 Conta	



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

Submitted By: See also GFL935 - Tim Kieffer

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