

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 7817M

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 INFOR	MATION	method	limit/base	current	history1	history2				
Sample Number		Client Info		GFL0091554	GFL0071225	GFL0081236				
Sample Date		Client Info		12 Sep 2023	08 Jun 2023	04 May 2023				
Machine Age	hrs	Client Info		15936	14543	15374				
Oil Age	hrs	Client Info		600	600	600				
Oil Changed		Client Info		Not Changd	Changed	Changed				
Sample Status				NORMAL	ATTENTION	NORMAL				
CONTAMINAT	ION	method	limit/base	current	history1	history2				
Fuel		WC Method	>5	<1.0	<1.0	<1.0				
Glycol		WC Method		NEG	NEG	NEG				
WEAR METALS method limit/base current history1 history2										
Iron		ASTM D5185m	>100	51	32	52				
Chromium	ppm			1	<1	2				
Nickel	ppm	ASTM D5185m		0	<1	<1				
	ppm	ASTM D5185m	>4			<1				
Titanium	ppm	ASTM D5185m	0	<1	<1					
Silver	ppm	ASTM D5185m		0	0	0				
Aluminum	ppm	ASTM D5185m		10	4	13				
Lead	ppm	ASTM D5185m	>40	0	0	0				
Copper	ppm	ASTM D5185m		2	1	<1				
Tin	ppm	ASTM D5185m	>15	<1	0	0				
Vanadium	ppm	ASTM D5185m		<1	0	0				
Cadmium	ppm	ASTM D5185m		0	0	0				
						history2				
ADDITIVES		method	iiiiii/base	current	history1	nistory2				
Boron	ppm	ASTM D5185m	0	2	4	<1				
	ppm ppm									
Boron		ASTM D5185m	0	2	4	<1				
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 0	4 0	<1 0				
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 61	4 0 62	<1 0 62				
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 61 <1	4 0 62 <1	<1 0 62 <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 1037	4 0 62 <1 971	<1 0 62 <1 931				
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 1037 1183	4 0 62 <1 971 1099	<1 0 62 <1 931 1061				
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 1037 1183 1058	4 0 62 <1 971 1099 976	<1 0 62 <1 931 1061 1048				
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 1010 1070 1150 1270	2 0 61 <1 1037 1183 1058 1344	4 0 62 <1 971 1099 976 1225	<1 0 62 <1 931 1061 1048 1248				
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 1010 1070 1150 1270 2060 limit/base	2 0 61 <1 1037 1183 1058 1344 3733	4 0 62 <1 971 1099 976 1225 3308	<1 0 62 <1 931 1061 1048 1248 3127				
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 1010 1070 1150 1270 2060 limit/base	2 0 61 <1 1037 1183 1058 1344 3733 current	4 0 62 <1 971 1099 976 1225 3308 history1	<1 0 62 <1 931 1061 1048 1248 3127 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 limit/base	2 0 61 <1 1037 1183 1058 1344 3733 current 9	4 0 62 <1 971 1099 976 1225 3308 history1 5	<1 0 62 <1 931 1061 1048 1248 3127 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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	2 0 61 <1 1037 1183 1058 1344 3733 current 9 14	4 0 62 <1 971 1099 976 1225 3308 history1 5 5 ▲ 129	<1 0 62 <1 931 1061 1048 1248 3127 history2 4 4				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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	2 0 61 <1 1037 1183 1058 1344 3733 current 9 14 4 current	4 0 62 <1 971 1099 976 1225 3308 history1 5 5 ▲ 129 1	<1 0 62 <1 931 1061 1048 1248 3127 history2 4 4 4 2				
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 imit/base >25 	2 0 61 <1 1037 1183 1058 1344 3733 <i>current</i> 9 14 4 <i>current</i>	4 0 62 <1 971 1099 976 1225 3308 history1 5 129 1 129 1 1.2	<1 0 62 <1 931 1061 1048 1248 3127 history2 4 4 4 2 <u>history2</u> 1.1				
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	0 0 0 1010 1070 1150 1270 2060 imit/base >25 	2 0 61 <1 1037 1183 1058 1344 3733 current 9 14 4 current	4 0 62 <1 971 1099 976 1225 3308 history1 5 129 1 1 <i>bistory</i> 1	<1 0 62 <1 931 1061 1048 1248 3127 history2 4 4 4 2 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 limit/base >25 .20 limit/base >3 >20	2 0 61 <1 1037 1183 1058 1344 3733 <i>current</i> 9 14 4 <i>current</i> 1.1 8.7	4 0 62 <1 971 1099 976 1225 3308 history1 5 129 1 129 1 1.2 1.2 8.4	<1 0 62 <1 931 1061 1048 1248 3127 history2 4 4 2 history2 1.1 9.0				
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	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >3 >20 >30	2 0 61 <1 1037 1183 1058 1344 3733 <i>current</i> 9 14 4 <i>current</i> 1.1 8.7 20.9 <i>current</i>	4 0 62 <1 971 1099 976 1225 3308 history1 5 5 129 1 129 1 1.2 8.4 20.7 history1	<1 0 62 <1 931 1061 1048 1248 3127 history2 4 4 4 2 history2 1.1 9.0 20.7 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 imit/base >25 imit/base >30 >20 jmit/base	2 0 61 <1 1037 1183 1058 1344 3733 current 9 14 4 current 1.1 8.7 20.9	4 0 62 <1 971 1099 976 1225 3308 history1 5 129 1 129 1 1.2 8.4 20.7	<1 0 62 <1 931 1061 1048 1248 3127 history2 4 4 4 2 <u>history2</u> 1.1 9.0 20.7				



() 16 () 15 14 Base

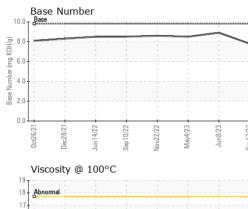
> 13 Abnorma 12 11

0ct26/21

Dec28/21

OIL ANALYSIS REPORT

VISUAL



Jun14/22

CENTER L2367	Laboratory Sample No. Lab Number Unique Number Test Package	: GFL0091554 : <mark>05953621</mark> : 10649580	Diagnosed : 20 S	ry, NC 27513 GFI Sep 2023 Sep 2023 S Davis	3 GFL Environmental - 465 - Pontiac 888 Baldwin Pontiac, MI US 48340 Contact: Ricky Matthews rickymathews@gflenv.com			
		13 12	Sep10/22	Sep12/23 0ct26/21 0ec28/21	Jun14,22	May4/23 Jun8/23 Sep12/23		
		Viscosity @ 100°C	5	Base Numb	er			
			Sep 10/22 Nov22/22 Man4/23 Jun8/23	Sep12/23				
		Non-ferrous Meta		Sep 12/23				
		0d:26(21) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Sep 10/22 lov/22/22 Mar/4/23					
Sep10/22 + Nov22/22 +	May4/23	60 50 40 <u>E</u> 30		/				
		GRAPHS Ferrous Alloys		10.4	17.1	10.4		
		FLUID PROPE Visc @ 100°C	CRTIES method cSt ASTM D445	limit/base current	history1 14.1	history2 13.4		
2		Emulsified Water Free Water	scalar *Visual scalar *Visual	>0.2 NEG NEG	NEG NEG	NEG NEG		
Sap 10.22	Appearance Odor	scalar *Visual scalar *Visual	NORML NORML	NORML NORML	NORML NORML			
	Debris Sand/Dirt	scalar *Visual scalar *Visual	NONE NONE NONE	NONE NONE	NONE NONE			
	Precipitate Silt	scalar *Visual scalar *Visual	NONE NONE NONE	NONE	NONE NONE			
	White Metal Yellow Metal	scalar *Visual scalar *Visual	NONE NONE	NONE	NONE			

Submitted By: Ricky Matthews

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