

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 913124 Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (28 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		GFL0091721	GFL0084017	
Sample Date		Client Info		29 Aug 2023	24 May 2023	
Machine Age	hrs	Client Info		1400	0	
Oil Age	hrs	Client Info		600	600	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.5	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	24	34	
Chromium	ppm	ASTM D5185m	>20	1	2	
Nickel	ppm	ASTM D5185m	>5	3	6	
Titanium	ppm	ASTM D5185m	>2	<1	<1	
Silver	ppm	ASTM D5185m	>2	<1	1	
Aluminum	ppm	ASTM D5185m	>20	1	4	
Lead	ppm	ASTM D5185m	>40	<1	2	
Copper	ppm	ASTM D5185m	>330	39	154	
Tin	ppm	ASTM D5185m	>15	2	4	
Vanadium	ppm	ASTM D5185m	210	0	0	
Cadmium	ppm	ASTM D5185m		0	0	
	ppin			Ū	-	
ADDITIVES						
		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	8	220	nistory2
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	0	8 0	220 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 68	220 0 121	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 68 2	220 0 121 5	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	8 0 68 2 1049	220 0 121 5 794	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	8 0 68 2 1049 1185	220 0 121 5 794 1576	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	8 0 68 2 1049 1185 985	220 0 121 5 794 1576 792	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	8 0 68 2 1049 1185 985 1359	220 0 121 5 794 1576 792 1013	
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	0 0 60 0 1010 1070 1150	8 0 68 2 1049 1185 985	220 0 121 5 794 1576 792	
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	8 0 68 2 1049 1185 985 1359	220 0 121 5 794 1576 792 1013	
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	8 0 68 2 1049 1185 985 1359 3025	220 0 121 5 794 1576 792 1013 2751	
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	8 0 68 2 1049 1185 985 1359 3025 current	220 0 121 5 794 1576 792 1013 2751 history1	
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 method	0 0 60 1010 1070 1150 1270 2060	8 0 68 2 1049 1185 985 1359 3025 current 8	220 0 121 5 794 1576 792 1013 2751 history1 ▲ 74	 history2
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	8 0 68 2 1049 1185 985 1359 3025 current 8 3	220 0 121 5 794 1576 792 1013 2751 history1 ▲ 74 4	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	8 0 68 2 1049 1185 985 1359 3025 current 8 3 3 3	220 0 121 5 794 1576 792 1013 2751 history1 ▲ 74 4 7	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25	8 0 68 2 1049 1185 985 1359 3025 current 8 3 3 3 2 5 current	220 0 121 5 794 1576 792 1013 2751 history1 4 74 4 7 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	8 0 68 2 1049 1185 985 1359 3025 current 8 3 3 3 current 0.6	220 0 121 5 794 1576 792 1013 2751 history1 ▲ 74 4 7 history1 0.4	 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> >20	8 0 68 2 1049 1185 985 1359 3025 <i>current</i> 8 3 3 3 <i>current</i> 0.6 8.8	220 0 121 5 794 1576 792 1013 2751 history1 ▲ 74 4 7 4 7 history1 0.4 9.8	 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 2060 225 20 225 20 imit/base >4 20 20	8 0 68 2 1049 1185 985 1359 3025 current 8 3 3 3 2 0.6 8.8 20.7	220 0 121 5 794 1576 792 1013 2751 history1 ▲ 74 4 7 7 history1 0.4 9.8 24.2	 history2 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 D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	8 0 68 2 1049 1185 985 1359 3025 current 8 3 3 3 current 0.6 8.8 20.7 current	220 0 121 5 794 1576 792 1013 2751 history1 ▲ 74 4 7 7 history1 0.4 9.8 24.2 history1	 history2 history2 history2 history2



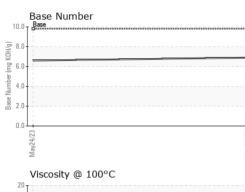
18-Abnormal

Base Abnorma

> 10 8. May24/23

OIL ANALYSIS REPORT

VISUAL



	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	
Aug29/23	Appearance	scalar	*Visual	NORML	NORML	NORML	
Augi	Odor	scalar	*Visual	NORML	NORML	NORML	
)°C	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE	DTIES	method	limit/base	current	history1	history2
			ASTM D445				
	Visc @ 100°C GRAPHS	cSt	ASTNI D445	15.4	13.3	▲ 10.4	
	Ferrous Alloys						
	30 - chromium						
	25						
	20						
	- 15-						
	10						
	5-	Marine Courses the same					
	0						
	May24/23			Aug29/23			
	May			Aug			
	Non-ferrous Metal	s					
	160 copper 1						
	140 - sessesses lead						
	120 - tin						
	100-						
	B 80-						
	60 -						
	40 -						
	20						
				/23			
	/lay24/23			Aug29/23			
	Viscosity @ 100°C			4			
	19 _T			10.0	Base Numbe	r	
	18 - Abnormal						
	16			(B)H) +		
	© 15 -			9 6.0			
	(2) 15 00 14 ³ ³ 13 ⁴ Abnormal			0.0 6.0 8ase Mumber (mg KOH/g) 4.0			
	Q			4.0	•		
	12			2.0			
	10						
	9 22			0.0			3
	May24/23			Aug29/23	May24/23		Aug29/23
	Ma			Au	Ň		Au
Laboratory Sample No. Lab Number Unique Number Test Package To discuss this sample report,	: 05946987 : 10642946 : FLEET	Receiveo Diagnoso Diagnost	d : 11 9 ed : 12 9 tician : Wes	Sep 2023 Sep 2023 s Davis	3 GFL Env	FOF	N MARTIN DR RT WAYNE, IN US 46806 ephanie Burton
* - Denotes test methods that Statements of conformity to spe	are outside of the ISO 1	7025 sco	pe of accred	litation.	JCGM 106:2012	T:	(260)747-5037 F:

Submitted By: See also GFL401 - ZACHORY ROEHM