

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 821054

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

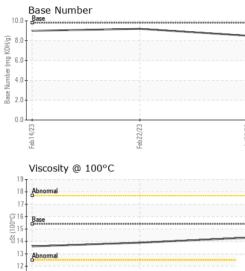
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0066057	GFL0066086	GFL0066081
Sample Date		Client Info		20 Jul 2023	22 Feb 2023	14 Feb 2023
Machine Age	hrs	Client Info		0	16661	16423
Oil Age	hrs	Client Info		0	500	600
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT		method	limit/base	current	history1	history2
Fuel		WC Method	>5		<1.0	<1.0
		WC Method	>0	<1.0 NEG	<1.0 NEG	<1.0 NEG
Glycol		WC Wethod		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	11	4	8
Chromium	ppm	ASTM D5185m	>20	<1	0	0
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	<1	<1
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	0	0
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
			11 1.0			history O
ADDITIVES		method				history2
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	current 9	history1 12	33
	ppm ppm					
Boron Barium	ppm	ASTM D5185m	0	9	12	33
Boron		ASTM D5185m ASTM D5185m	0	9 0	12 0	33 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	9 0 60	12 0 58	33 0 63
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	9 0 60 <1	12 0 58 <1	33 0 63 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	9 0 60 <1 1009	12 0 58 <1 1022	33 0 63 <1 884
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	9 0 60 <1 1009 1175	12 0 58 <1 1022 1270	33 0 63 <1 884 1191
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	9 0 60 <1 1009 1175 1015	12 0 58 <1 1022 1270 1085	33 0 63 <1 884 1191 943
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	9 0 60 <1 1009 1175 1015 1267	12 0 58 <1 1022 1270 1085 1370	33 0 63 <1 884 1191 943 1197
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	9 0 60 <1 1009 1175 1015 1267 3591	12 0 58 <1 1022 1270 1085 1370 3652	33 0 63 <1 884 1191 943 1197 3182
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	9 0 60 <1 1009 1175 1015 1267 3591 current	12 0 58 <1 1022 1270 1085 1370 3652 history1	33 0 63 <1 884 1191 943 1197 3182 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 0 1010 1070 1150 1270 2060 limit/base >25	9 0 60 <1 1009 1175 1015 1267 3591 <i>current</i> 4	12 0 58 <1 1022 1270 1085 1370 3652 history1 4	33 0 63 <1 884 1191 943 1197 3182 history2 13
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	9 0 60 <1 1009 1175 1015 1267 3591 current 4 5	12 0 58 <1 1022 1270 1085 1370 3652 history1 4 1	33 0 63 <1 884 1191 943 1197 3182 history2 13 3
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	9 0 60 <1 1009 1175 1015 1267 3591 current 4 5 3	12 0 58 <1 1022 1270 1085 1370 3652 history1 4 1 1	33 0 63 <1 884 1191 943 1197 3182 history2 13 3 0
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 Limit/base >20	9 0 60 <1 1009 1175 1015 1267 3591 current 4 5 3 3	12 0 58 <1 1022 1270 1085 1370 3652 history1 4 1 1 1 history1	33 0 63 <1 884 1191 943 1197 3182 history2 13 3 0 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 Limit/base >20	9 0 60 <1 1009 1175 1015 1267 3591 <u>current</u> 4 5 3 3 <u>current</u> 0.4	12 0 58 <1 1022 1270 1085 1370 3652 history1 4 1 1 1 history1 0.1	33 0 63 <1 884 1191 943 1197 3182 history2 13 3 0 history2 0.2
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 TS 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> >3 >20	9 0 60 <1 1009 1175 1015 1267 3591 <i>current</i> 4 5 3 <i>current</i> 0.4 7.7	12 0 58 <1 1022 1270 1085 1370 3652 history1 4 1 1 history1 0.1 6.2	33 0 63 <1 884 1191 943 1197 3182 history2 13 3 0 history2 0.2 8.2
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >3 20 20	9 0 60 <1 1009 1175 1015 1267 3591 <u>current</u> 4 5 3 3 <u>current</u> 0.4 7.7 19.6	12 0 58 <1 1022 1270 1085 1370 3652 history1 4 1 1 1 <i>history1</i> 0.1 6.2 18.4	33 0 63 <1 884 1191 943 1197 3182 history2 13 3 0 history2 0.2 8.2 19.9
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	9 0 60 <1 1009 1175 1015 1267 3591 <i>current</i> 4 5 3 3 <i>current</i> 0.4 7.7 19.6 <i>current</i>	12 0 58 <1 1022 1270 1085 1370 3652 history1 4 1 1 history1 0.1 6.2 18.4 history1	33 0 63 <1 884 1191 943 1197 3182 history2 13 3 0 history2 0.2 8.2 19.9 history2



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OIL ANALYSIS REPORT



		VISUAL		method	limit/base	current		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
2/23	- 50/00/11/		scalar	*Visual	NORML	NORML	NORML	NORML
Feb 22/23	00111	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PROP	ERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	14.3	13.9	13.6
		GRAPHS						
		Ferrous Alloys						
2/23		iron			1			
Feb22/23		nickel		/				
				/				
		E 6		/				
		4	\searrow					
		2						
		2						
			2		21 21			
		-eb 14/23	Feb22/23		Jul20/23			
					٦٢			
		Non-ferrous Met	als					
		10 copper						
		copper						
		8 - copper lead						
		copper						
		8 - copper lead						
		8 - copper lead						
		8 - Copper lead						
		8 - Copper 8 - Copper 6 - Copper 6 - Copper 10	1/23		1/3			
		8 - Copper lead	reb22/23 4		Jul20/23			
		B B Copper Isad			Jui20/23			
		8 - Copper 8 - Copper 6 - Copper 6 - Copper 10				Base Number	r	
		Copper lead				Base Number	r	
		Viscosity @ 100°			10.0	Base Number	r	
		Copper lead			10.0	Base Number	r	
		Copper lead			10.0	Base Number	r	
		Copper lead			10.0	Base Number	r	
		Copper 19 Viscosity @ 1000 19 10 10 10 10 10 10 10 10 10 10			10.0	Base Number	r	
		Viscosity @ 1000			0.0 8.0 10.0 10.0 10.0 10.0 10.0 10.0 10	Base Number	r	
		Viscosity @ 1000			10.0 (0HQ) 8.0 (0HQ) 6.0 (0HQ) 80 (0HQ)	Base Number	r	
		Viscosity @ 1000 Base 0,00000000000000000000000000000000000	C		10.0 (0)HOX Bui bao HOX BUI ba			
		Viscosity @ 1000			10.0 (PHO) 8.0 (DHO) 6.0 (DHO) 900 6.0 (DHO)	Base Number	Feb22/23	
		Viscosity @ 1000	C		10.0 (0)HOX 600 but Jangung see 2.0 EZU02007		Feb22/23	
	Laboratory	Viscosity @ 1000 bhommal bhommal Control 15 bhommal control 15 bhommal control 15 control 15	C		10.0 (PHOX Bul) 340 (PHOX Bul) 340 (PHOX Bul) 40 (PHOX BUL		Hepp2023)4C - Eau Clair
	Sample No.	Viscosity @ 1000 Viscosity @ 1000 Base bhommal Control 15 Base City of the second secon	501 Madia	dl :17/	10.0 (PHOX But Jack 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,		190 100 100 100 100 100 100 100 100 100	04C - Eau Clair MONDOVI RI
	Sample No. Lab Number	Viscosity @ 1000 Viscosity @ 1000 Base Base City of the second secon	501 Madia Received Diagnose	d :17/ ed :17/	ry, NC 27513 Aug 2023 Aug 2023		190 100 100 100 100 100 100 100 100 100	04C - Eau Clair MONDOVI RI AU CLAIRE, W
	Sample No. Lab Number Unique Numbe	Viscosity @ 1000	501 Madia	d :17/ ed :17/	10.0 (PHOX But Jack 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,		nvironmental - 90 3010 E/	04C - Eau Clair MONDOVI R
	Sample No. Lab Number Unique Numbe Test Package	Viscosity @ 1000	501 Madia Received Diagnos	d :177 ed :177 tician :We	10.0 (PHOY Bull Jack 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,		nvironmental - 90 3010 E/	04C - Eau Clair MONDOVI RI AU CLAIRE, W US 5470



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Contact/Location: See also GFL904,A,B,C, 927, 938 - ANDY KANE - GFL904C