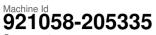


OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine

Eluid

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.

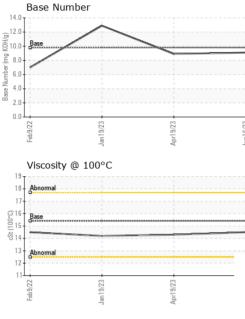
SAMPLE INFORI	MATION	method	limit/base	current	history 1	history 2
Sample Number		Client Info		GFL0083413	GFL0074163	GFL0065232
Sample Date		Client Info		16 Jun 2023	19 Apr 2023	19 Jan 2023
Machine Age	hrs	Client Info		9006	8422	114362
Oil Age	hrs	Client Info		9006	8422	27670
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ATTENTION	SEVERE
CONTAMINAT	ION	method	limit/base	current	history 1	history 2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	0.10
WEAR METAL	method	limit/base	current	history 1	history 2	
Iron	ppm	ASTM D5185m	>100	8	8	14
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	0	3	2
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	16	1
Tin	ppm	ASTM D5185m	>15	<1	0	0
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history 1	history 2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 0	history 1 1	history 2 0
	ppm ppm					
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0	1 0 63	0
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	0 0 60 0	0 <1 63 <1	1 0 63 <1	0 0 92 <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	0 <1 63 <1 988	1 0 63 <1 996	0 0 92 <1 880
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	0 <1 63 <1 988 1091	1 0 63 <1 996 1103	0 0 92 <1 880 1030
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	0 <1 63 <1 988 1091 1030	1 0 63 <1 996 1103 1055	0 92 <1 880 1030 966
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	0 <1 63 <1 988 1091 1030 1282	1 0 63 <1 996 1103 1055 1330	0 92 <1 880 1030 966 1163
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	0 <1 63 <1 988 1091 1030	1 0 63 <1 996 1103 1055	0 0 92 <1 880 1030 966 1163 2775
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	0 <1 63 <1 988 1091 1030 1282 3658 current	1 0 63 <1 996 1103 1055 1330 3528 history 1	0 92 <1 880 1030 966 1163 2775 history 2
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 method	0 0 60 1010 1070 1150 1270 2060	0 <1 63 <1 988 1091 1030 1282 3658 current 4	1 0 63 <1 996 1103 1055 1330 3528 history 1 9	0 0 92 <1 880 1030 966 1163 2775 history 2 5
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 0 1010 1070 1150 1270 2060 limit/base	0 <1 63 <1 988 1091 1030 1282 3658 current 4 58	1 0 63 <1 996 1103 1055 1330 3528 history 1 9 ▲ 140	0 0 92 <1 880 1030 966 1163 2775 history 2 5 5 ▲ 754
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	0 <1 63 <1 988 1091 1030 1282 3658 current 4	1 0 63 <1 996 1103 1055 1330 3528 history 1 9 9 ▲ 140 9	0 92 <1 880 1030 966 1163 2775 history 2 5 5 5 754 365
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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	0 <1 63 <1 988 1091 1030 1282 3658 current 4 58 21 current	1 0 63 <1 996 1103 1055 1330 3528 history 1 9 140 9 9 140	0 92 <1 880 1030 966 1163 2775 ► history 2 5 ↓ 754 ▲ 365 ► history 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 2060 225 >25 >20 Limit/base >20	0 <1 63 <1 988 1091 1030 1282 3658 <i>current</i> 4 58 21 <i>current</i> 0.7	1 0 63 <1 996 1103 1055 1330 3528 history 1 9 140 9 9 140 9 9 history 1 0.3	0 0 92 <1 880 1030 966 1163 2775 ► history 2 5 5 5 5 5 5 ► 754 ▲ 754 ▲ 365 ► history 2 1
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 2060 225 220 220 1imit/base >22 20	0 <1 63 <1 988 1091 1030 1282 3658 <i>current</i> 4 58 21 <i>current</i> 0.7 7.8	1 0 63 <1 996 1103 1055 1330 3528 history 1 9 ▲ 140 9 9 history 1 0.3 6.3	0 0 92 <1 880 1030 966 1163 2775 ► istory 2 5 ► 754 ▲ 365 ► istory 2 1 1 11.2
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 2060 225 >25 >20 Limit/base >20	0 <1 63 <1 988 1091 1030 1282 3658 <i>current</i> 4 58 21 <i>current</i> 0.7	1 0 63 <1 996 1103 1055 1330 3528 history 1 9 140 9 9 140 9 9 history 1 0.3	0 0 92 <1 880 1030 966 1163 2775 ► history 2 5 5 5 5 5 5 ► 754 ▲ 754 ▲ 365 ► history 2 1
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 2060 225 220 220 1imit/base >22 20	0 <1 63 <1 988 1091 1030 1282 3658 <i>current</i> 4 58 21 <i>current</i> 0.7 7.8	1 0 63 <1 996 1103 1055 1330 3528 history 1 9 ▲ 140 9 9 history 1 0.3 6.3	0 0 92 <1 880 1030 966 1163 2775 ► istory 2 5 ► 754 ▲ 365 ► istory 2 1 1 11.2
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 33 20 20	0 <1 63 <1 988 1091 1030 1282 3658 <u>current</u> 4 58 21 <u>current</u> 0.7 7.8 20.1	1 0 63 <1 996 1103 1055 1330 3528 history 1 9 140 9 9 history 1 0.3 6.3 18.7	0 0 92 <1 880 1030 966 1163 2775 ► istory 2 5 ► 754 ► 365 ► istory 2 1 1.1.2 20.1
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 D7624 *ASTM D7415	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	0 <1 63 <1 988 1091 1030 1282 3658 <i>current</i> 4 58 21 <i>current</i> 0.7 7.8 20.1 <i>current</i>	1 0 63 <1 996 1103 1055 1330 3528 history 1 9 ▲ 140 9 ▲ 140 9 history 1 0.3 6.3 18.7 history 1	0 0 92 <1 880 1030 966 1163 2775 ► 163 ► 1754 ► 365 ► 154 ► 365 ► 11.2 20.1 ► 11.2 20.1

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OIL ANALYSIS REPORT

VISUAL



4	Laboratory Sample No. Lab Number	: WearCheck USA : GFL0083413 : <mark>05885374</mark>	Received	01 Madison Ave., Cary, NC 27513 Received : 28 Jun 2023 Diagnosed : 30 Jun 2023 Diagnostician : Wes Davis ce at 1-800-237-1369. 7025 scope of accreditation.			GFL Environmental - 865 - East Mount Haulir 7213 East Mount Houston Roa Houston, T US 7705 Contact: Saul Castill saul.castillo@gflenv.cor T		
		13 12 11 11 11 11 11 11 11 11 11 11 11 12 11 11		Apr19/23	2.0	Feb9/22 Jan19/23	Apr19/23	5	
		Contraction 16 Base			(B) 10.0 - B) 10.0 K (B) 10.0 - B) 20	/			
		Base			H 10.0	Base			
		17			12.0- ©	Bara			
		19 18 - Abnormal			14.0				
		Viscosity @ 100		~	-	Base Number			
		Feb 9/22 Jan 19/23		Apr19/23	Jun16/23				
		2		and an and a second sec	1100000				
		4	/						
		E 8-	/						
		10-		$\langle \rangle$					
		14- 12-	/	$\langle \rangle$					
		Non-ferrous Me	tals	~					
		Feb 9/22 Jan 19/23		Apr19/23	Jun 16/23				
		10-							
		E 15							
	April	25							
6	4b113/23 +	30							
		Ferrous Alloys							
		Visc @ 100°C GRAPHS	cSt	ASTM D445	15.4	14.5	14.3	14.2	
		FLUID PROF	PERTIES	method	limit/base	current	history 1	history 2	
		Free Water	scalar	*Visual		NEG	NEG	NEG	
	ر ب	Odor Emulsified Water	scalar scalar	*Visual *Visual	NORML >0.2	NORML NEG	NORML NEG	NORML NEG	
	Apr1 9/23 Jun 16/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
		Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	

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

Submitted By: TECHNICIAN ACCOUNT