

OIL ANALYSIS REPORT

Sample Rating Trend

limit/base

current



history1

history2

Machine Id Component

Fluid

Diesel Engine PETRO CANADA DURON SHP 15W40 (5 GAL)

SAMPLE INFORMATION method

A Recommendation
Resample at the next service interval to monitor. (
Customer Sample Comment: Resample)

Wear

All component wear rates are normal.

Contamination

DIAGNOSIS

Light fuel dilution occurring. No other contaminants were detected in the oil.

Fluid Condition

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

Sample Number		Client Info		GFL0115046	GFL0106681	GFL0097670
Sample Date		Client Info		22 Feb 2024	14 Feb 2024	29 Oct 2023
Machine Age	hrs	Client Info		6467	6448	5989
Oil Age	hrs	Client Info		400	460	592
Oil Changed		Client Info		Not Changd	N/A	Changed
Sample Status				MARGINAL	SEVERE	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	0.0
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	18	13	23
Chromium	ppm	ASTM D5185m	>20	1	<1	1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	3
Lead	ppm	ASTM D5185m	>40	<1	<1	1
Copper	ppm	ASTM D5185m	>330	2	0	1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	3	7	7
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	52	61	63
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	855	852	959
Calcium						
Phosphorus	ppm	ASTM D5185m	1070	912	889	1121
1 noophorad	ppm ppm	ASTM D5185m ASTM D5185m	1070 1150	912 932	889 959	1121 1079
Zinc	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1070 1150 1270	912 932 1190	889 959 1134	1121 1079 1360
Zinc Sulfur	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1070 1150 1270 2060	912 932 1190 2683	889 959 1134 2697	1121 1079 1360 3023
Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1070 1150 1270 2060 limit/base	912 932 1190 2683 current	889 959 1134 2697 history1	1121 1079 1360 3023 history2
Zinc Sulfur CONTAMINAN [®] Silicon	ppm ppm ppm ppm TS ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1070 1150 1270 2060 limit/base >25	912 932 1190 2683 current 3	889 959 1134 2697 history1 7	1121 1079 1360 3023 history2 6
Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1070 1150 1270 2060 limit/base >25	912 932 1190 2683 current 3 5	889 959 1134 2697 history1 7 194	1121 1079 1360 3023 history2 6 120
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1070 1150 1270 2060 limit/base >25 >20	912 932 1190 2683 <u>current</u> 3 5 2	889 959 1134 2697 history1 7 194 2	1121 1079 1360 3023 history2 6 120 2
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1070 1150 1270 2060 limit/base >25 >20 >3.0	912 932 1190 2683 <u>current</u> 3 5 2 2 ▲ 2.0	889 959 1134 2697 history1 7 194 2 2 ▲ 10.2	1121 1079 1360 3023 history2 6 120 2 <1.0
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524	1070 1150 22060 limit/base >25 >20 >3.0 limit/base	912 932 1190 2683 current 3 5 2 2 2 2.0 2.0 current	889 959 1134 2697 history1 7 194 2 2 ▲ 10.2 history1	1121 1079 1360 3023 history2 6 120 2 <1.0 history2
Zinc Sulfur CONTAMINAN [®] Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7844	1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6	912 932 1190 2683 current 3 5 2 2 2 2 2.0 2.0 2.0 2.0 2.0 2.0 2.0	889 959 1134 2697 history1 7 194 2 2 ▲ 10.2 history1 0.2	1121 1079 1360 3023 history2 6 120 2 <1.0 history2 0.3
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm pm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7824	1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20	912 932 1190 2683 <u>current</u> 3 5 2 2 2.0 2.0 <u>current</u> 0.5 8.9	889 959 1134 2697 history1 7 194 2 ▲ 10.2 history1 0.2 9.8	1121 1079 1360 3023 history2 6 120 2 <1.0 2 <1.0 history2 0.3 10.4
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm TS ppm ppm ppm % % Abs/cm Abs/cm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7844 *ASTM D7844 *ASTM D7415	1070 1150 1270 2060 limit/base >20 >3.0 limit/base >6 >20 >30	912 932 1190 2683 current 3 5 2 2 2 2.0 current 0.5 8.9 19.5	 889 959 1134 2697 history1 7 194 2 ▲ 10.2 history1 0.2 9.8 20.9 	1121 1079 1360 3023 history2 6 120 2 <1.0 2 <1.0 history2 0.3 10.4 23.3
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm TS ppm ppm ppm ppm % % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7845 *ASTM D7415	1070 1150 1270 2060 limit/base >20 >3.0 limit/base >6 >20 >30 limit/base	912 932 1190 2683 <u>current</u> 3 5 2 2 2 2.0 <u>current</u> 0.5 8.9 19.5 <u>current</u>	 889 959 1134 2697 history1 7 194 2 10.2 history1 0.2 9.8 20.9 history1 	1121 1079 1360 3023 history2 6 120 2 <1.0 2 <1.0 history2 0.3 10.4 23.3 history2
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm TS ppm ppm ppm ppm % Abs/cm Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5824 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7415	1070 1150 1270 2060 imit/base >20 >3.0 imit/base >6 >20 >30 imit/base >25	912 932 1190 2683 current 3 5 2 2 2 2 2.0 current 0.5 8.9 19.5 current 16.6	 889 959 1134 2697 history1 7 194 2 10.2 history1 0.2 9.8 20.9 history1 19.4 	1121 1079 1360 3023 history2 6 120 2 <1.0 history2 0.3 10.4 23.3 history2 20.9



12 11

May9/22

Nov7/22 -

OIL ANALYSIS REPORT



		VISUA	AL		method	limit/base	e current	history	1 history2	
·····		White Me	etal	scalar	*Visual	NONE	NONE	NONE	NONE	
/		Yellow M	etal	scalar	*Visual	NONE	NONE	NONE	NONE	
		Precipita	te	scalar	*Visual	NONE	NONE	NONE	NONE	
		Silt		scalar	*Visual	NONE	NONE	NONE	NONE	
		Debris		scalar	*Visual	NONE	NONE	NONE	NONE	
		Sand/Dir	t	scalar	*Visual	NONE	NONE	NONE	NONE	
4/24 -	2/24	Appearar	nce	scalar	*Visual	NORML	NORML	NORML	NORML	
Feb 14	Feb 22	Odor		scalar	*Visual	NORML	NORML	NORML	NORML	
		Emulsifie	d Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
		Free Wat	er	scalar	*Visual		NEG	NEG	NEG	
				DTIEO		1				
		FLUIL	PROPE	RHE5	method	limit/base	e current	nistory	i nistory2	
		Visc @ 1	00°C	cSt	ASTM D445	5 15.4	13.6	▲ 12.4	14.7	
		GRAF	PHS							
		Ferrous	s Alloys							
23	24 -		iron							
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Apr26/ Dct29/	eb14/		copper							
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		³ 14				Num	4.0			
		13 Abnormal	-			Bass	2.0			
		12								
		122	122	/23	/24 -	/24	1/22	//23 +	/24 +	
		May9.	Nov7 Apr26,	0ct29,	Feb14	Feb22	May9 Nov7,	Apr26	Oct29 Feb14 Feb22	
4	Laboratory	: WearCheo	k USA - 50 ⁻	1 Madiso	n Ave., Car	y, NC 2751	3 GFL	. Environmenta	I - 405 - Arbor Hills	
ANAB	Sample No.	: GFL01150	40	Hecel Testo	ivea :0 ad :0) 1 Mar 2024 15 Mar 2024			7400 Napier Rd	
TESTING LABORATORY	Unique Number	: 10909371		Diagn	nosed :0	5 Mar 2024 - D	on Baldridge		US 48168	
Certificate L2367	Test Package	: FLEET (A	dditional Te	sts: Perc	centFuel)			C	ontact: John Nahal	
To discuss thi	is sample report,	contact Cus	tomer Servi	ce at 1-8	800-237-136	<i>59.</i>		-	jnahal@gflenv.com	
* - Denotes te Statements of	est methods that f conformity to si	are outside c	of the ISO 1. are based of	7025 sco In the sin	pe of accre	ditation. ance decisio	on rule (JCGM	106:2012)	T: F'	
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