

OIL ANALYSIS REPORT



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Machine Id 811042-101311

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.

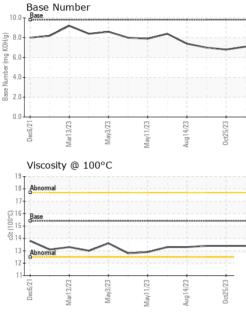
Fluid Condition

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		GFL0098839	GFL0098825	GFL0090949
Sample Date		Client Info		03 Nov 2023	25 Oct 2023	14 Sep 2023
Machine Age	hrs	Client Info		4201	4102	3781
Oil Age	hrs	Client Info		4201	321	411
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	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 METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	49	51	52
Chromium	ppm	ASTM D5185m	>20	2	3	3
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	11	13	14
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	1	2	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		ام م مالح میں		ourropt	Internet of	history ()
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	8	5	5
	ppm ppm					
Boron		ASTM D5185m	0	8	5	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	8 0	5 0	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 62	5 0 64	5 0 65
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 62 <1	5 0 64 <1	5 0 65 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	8 0 62 <1 987	5 0 64 <1 917	5 0 65 1 966
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	8 0 62 <1 987 1062	5 0 64 <1 917 1029	5 0 65 1 966 1096
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	8 0 62 <1 987 1062 1077	5 0 64 <1 917 1029 1010	5 0 65 1 966 1096 1024
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 62 <1 987 1062 1077 1328	5 0 64 <1 917 1029 1010 1236	5 0 65 1 966 1096 1024 1282
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	8 0 62 <1 987 1062 1077 1328 2786	5 0 64 <1 917 1029 1010 1236 3222	5 0 65 1 966 1096 1024 1282 3282
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 62 <1 987 1062 1077 1328 2786 current	5 0 64 <1 917 1029 1010 1236 3222 history1	5 0 65 1 966 1096 1024 1282 3282 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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	8 0 62 <1 987 1062 1077 1328 2786 current 7	5 0 64 <1 917 1029 1010 1236 3222 history1 8	5 0 65 1 966 1096 1024 1282 3282 history2 8
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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	8 0 62 <1 987 1062 1077 1328 2786 current 7 4 16	5 0 64 <1 917 1029 1010 1236 3222 history1 8 5	5 0 65 1 966 1096 1024 1282 3282 history2 8 8 8
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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	8 0 62 <1 987 1062 1077 1328 2786 current 7 4 16	5 0 64 <1 917 1029 1010 1236 3222 history1 8 5 20	5 0 65 1 966 1096 1024 1282 3282 history2 8 8 8 8 25
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 limit/base >25	8 0 62 <1 987 1062 1077 1328 2786 current 7 4 16 current	5 0 64 <1 917 1029 1010 1236 3222 history1 8 5 20 history1	5 0 65 1 966 1096 1024 1282 3282 history2 8 8 8 25 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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	8 0 62 <1 987 1062 1077 1328 2786 <u>current</u> 7 4 16 <u>current</u> 0.9	5 0 64 <1 917 1029 1010 1236 3222 history1 8 5 20 history1 0.9	5 0 65 1 966 1096 1024 1282 3282 history2 8 8 8 25 history2 1.1
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 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	8 0 62 <1 987 1062 1077 1328 2786 <i>current</i> 7 4 16 <i>current</i> 0.9 9.2	5 0 64 <1 917 1029 1010 1236 3222 history1 8 5 20 history1 0.9 9.1	5 0 65 1 966 1096 1024 1282 3282 history2 8 8 8 25 history2 1.1 9.5
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 3 20 3 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	8 0 62 <1 987 1062 1077 1328 2786 <u>current</u> 7 4 16 <u>current</u> 0.9 9.2 21.2	5 0 64 <1 917 1029 1010 1236 3222 history1 8 5 20 history1 0.9 9.1 20.6	5 0 65 1 966 1096 1024 1282 3282 history2 8 8 8 25 history2 1.1 9.5 20.8
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 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	8 0 62 <1 987 1062 1077 1328 2786 Current 7 4 16 Current 0.9 9.2 21.2 Current	5 0 64 <1 917 1029 1010 1236 3222 history1 8 5 20 history1 0.9 9.1 20.6 history1	5 0 65 1 966 1096 1024 1282 3282 history2 8 8 8 8 25 history2 1.1 9.5 20.8 history2



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	VISUAL		method	limit/base	current	history1	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
723	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Aug 14/23 0ct25/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
4	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.4	13.4
	GRAPHS						
	Ferrous Alloys						
123	iron	\square					
Aug 14/23 0ct25/23	80 - nickel	1 \					
4	60-	$ \rangle$					
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	Non-ferrous Meta	IS					
	copper						
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	Viscosity @ 100°	C			Base Number		
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	C 11						
				0.4 (0) 0.6 (0) 0.4 (0			
	Abnormal			⁶⁶ 2.0)		
	11			0.0			
		/23	\$/23		6/21	3/23	4/23 5/23
	Dec6/21 Mar13/23 May3/23	May11/23	Aug14/23	c7/c7100	Dec6/21 Mar13/23	May3/23 . May11/23 .	Aug14/23 0ct25/23
Laboratory	: WearCheck USA -	501 Madi	son Ave., Ca	rv. NC 27513	3 GFL Env	ironmental - 814 -	Little Rock Hauling
Sample No.	: GFL0098839	Receive		Nov 2023			005 Hwy 161 N.
Lab Number	: 05999686	Diagnos	ed : 07	Nov 2023			Little Rock, AR
Unique Number		Diagnos	tician : We	s Davis			US 72117
Test Package s sample report.	e : FLEET contact Customer Serv	vice at 1-8	300-237-1369	9.		Contac	t: Brad Manager

Test Pack To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Certificate L2367