

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id **727145** Component **Diesel Engine** Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

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.

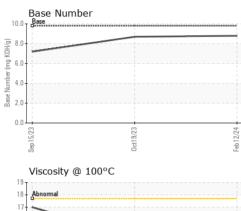
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0097803	GFL0097831	GFL0085292
Sample Date		Client Info		12 Feb 2024	19 Oct 2023	15 Sep 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		500	200	600
Oil Changed		Client Info		Changed	N/A	N/A
Sample Status				NORMAL	NORMAL	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	22	22	• 144
Chromium	ppm	ASTM D5185m	>5	2	<1	6
Nickel	ppm	ASTM D5185m	>2	<1	<1	2
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	<1	0
Aluminum	ppm	ASTM D5185m	>30	2	3	1 0
Lead	ppm	ASTM D5185m	>30	1	0	6
Copper	ppm	ASTM D5185m	>150	1	<1	4
Tin	ppm	ASTM D5185m	>5	<1	0	1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 8	history1 <1	5
	ppm ppm					-
Boron		ASTM D5185m	0	8	<1	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	8 0	<1 0	5 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	8 0 67	<1 0 58 <1 976	5 0 66
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 67 <1 1060 1157	<1 0 58 <1	5 0 66 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	8 0 67 <1 1060 1157 1151	<1 0 58 <1 976 1063 1069	5 0 66 2 1089 1345 1114
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 67 <1 1060 1157 1151 1312	<1 0 58 <1 976 1063 1069 1312	5 0 66 2 1089 1345 1114 1423
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	0 0 60 0 1010 1070 1150	8 0 67 <1 1060 1157 1151	<1 0 58 <1 976 1063 1069	5 0 66 2 1089 1345 1114
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 67 <1 1060 1157 1151 1312	<1 0 58 <1 976 1063 1069 1312	5 0 66 2 1089 1345 1114 1423
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 0 1010 1070 1150 1270 2060	8 0 67 <1 1060 1157 1151 1312 3671	<1 0 58 <1 976 1063 1069 1312 3032	5 0 66 2 1089 1345 1114 1423 3504 history2 ▲ 21
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 67 <1 1060 1157 1151 1312 3671 current	<1 0 58 <1 976 1063 1069 1312 3032 history1 6 3	5 0 66 2 1089 1345 1114 1423 3504 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 67 <1 1060 1157 1151 1312 3671 current 6	<1 0 58 <1 976 1063 1069 1312 3032 history1 6	5 0 66 2 1089 1345 1114 1423 3504 history2 ▲ 21
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	0 0 60 1010 1070 1150 1270 2060 limit/base	8 0 67 <1 1060 1157 1151 1312 3671 current 6 0 1	<1 0 58 <1 976 1063 1069 1312 3032 history1 6 3	5 0 66 2 1089 1345 1114 1423 3504 history2 ▲ 21 8
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 >20	8 0 67 <1 1060 1157 1151 1312 3671 current 6 0 1 1 current 0.4	<1 0 58 <1 976 1063 1069 1312 3032 history1 6 3 2 history1 0.8	5 0 66 2 1089 1345 1114 1423 3504 history2 21 8 4 4 history2 2.5
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20	8 0 67 <1 1060 1157 1151 1312 3671 current 6 0 1 1	<1 0 58 <1 976 1063 1069 1312 3032 history1 6 3 2 history1 0.8 9.3	5 0 66 2 1089 1345 1114 1423 3504 ▲ 21 8 21 8 4 4 ► 21 8 4 21 8 4 21 8 16.6
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 >20 limit/base >20	8 0 67 <1 1060 1157 1151 1312 3671 current 6 0 1 1 current 0.4	<1 0 58 <1 976 1063 1069 1312 3032 history1 6 3 2 history1 0.8	5 0 66 2 1089 1345 1114 1423 3504 history2 ▲ 21 8 4 4 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 limit/base >20 limit/base >20	8 0 67 <1 1060 1157 1151 1312 3671 current 6 0 1 current 0.4 9.1	<1 0 58 <1 976 1063 1069 1312 3032 history1 6 3 2 history1 0.8 9.3	5 0 66 2 1089 1345 1114 1423 3504 ▲ 21 8 21 8 4 4 ► 21 8 4 21 8 4 21 8 16.6
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 imit/base >20 imit/base >3 >20	8 0 67 <1 1060 1157 1151 1312 3671 <u>current</u> 6 0 1 1 <u>current</u> 0.4 9.1 21.6	<1 0 58 <1 976 1063 1069 1312 3032 history1 6 3 2 history1 0.8 9.3 22.5	5 0 66 2 1089 1345 1114 1423 3504 ▲ 21 8 21 8 4 4 ► history2 2.5 16.6 33.1



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> 13 Abnormal 12 11 Sep15/23

OIL ANALYSIS REPORT



****	******	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
0ct19/23	Feb12/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Oct	Feb	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	15.4	14.6	1 7.0
		GRAPHS						
		Ferrous Alloys						
m	~	160						
0ct19/23	0, 01 443	140 - chromium 120 - nickel						
ō	5	100						
		E 80						
		60						
		40						
		20 -						
		0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		st-			
		Sep 15/23	0ct19/23		Feb12/24			
					La			
		Non-ferrous Meta	ls					
		copper						
		8 - Internet in						
		6						
		u d						
		2						
				Contraction of the local division of the loc	and the second distance			
		0		Addition of the owner	57			
		p 15/23	0ct19/23		eb12/2			
		∞ Viscosity @ 100°0			E			
		¹⁹	-		10.	Base Number		
		18 - Abnormal	1		8.			
		17			(B/HO			
		Co ¹⁶ Base 015 314			y Be	.0 -		
		E 15	-		Jangur 4	0		
		12			Base Number (mg KOH/g) 6 9 9			
		13 Abnormal	1		2.	0 -		
		11				0		
		5/23	9/23 -			5/23	9/23 -	
		Sep 15/23	0ct19/23		Feb 12/24	Sep 15/23	0ct19/23	
	Laboratory Sample No. Lab Number	: WearCheck USA - 50 : GFL0097803 : 06090739	Recei Teste	ived : 18 ed : 19	5 Feb 2024 9 Feb 2024			Fri County HC Mor W. Jefferson Morton,
	Unique Number	: 10883592	Diagr	10sed : 19) Feb 2024 - V	ves Davis	Co	US 615 ntact: Bryan Li
	Unique Number Test Package s sample report	: 10883592	vice at 1-8	300-237-136	9.	ves davis		ntact: Bryan L link@gflenv.co



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Submitted By: Also GFL958,958A, 958B - Bryan Link