

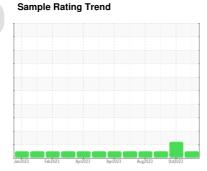
OIL ANALYSIS REPORT



TALLASSEE 927048-162501

Component **Diesel Engine**

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





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

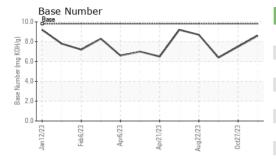
Fluid Condition

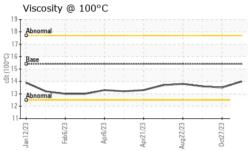
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 05 Dec 2023 27 Oct 2023 16 Oct 20 Machine Age hrs Client Info 17853 294333 293152 Oil Age hrs Client Info 17853 0 0 Oil Changed Client Info N/A N/A N/A NorMAL Sample Status NorMAL ABNORMAL NORMAL ABNORMAL NORMAL CONTAMINATION method Imilibase current history1 history1 Fuel WC Method >3.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >20 0 <1 0 WEAR METALS method limit/base current history1 history1	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 17853 294333 293152 Oil Age hrs Client Info 17853 0 0 Oil Changed Client Info N/A N/A N/A Not Chang Sample Status NoRMAL ANA NoRMAL	Sample Number		Client Info		GFL0092356	GFL0079706	GFL0092430
Oil Age hrs Client Info 17853 0 0 Oil Changed Client Info N/A N/A N/A NORMAL Sample Status Client Info N/A N/A N/A NORMAL CONTAMINATION method limit/base current history1 history1 Fuel WC Method 3-0 <1.0 <1.0 <1.0 <1.0 Water WC Method 3-0 <1.0 <1.0 <1.0 <1.0 WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >120 6 34 6 Chromium ppm ASTM D5185m >20 0 -1 1 -1 Vickel ppm ASTM D5185m >20 0 0 0 0 Chromium ppm ASTM D5185m >20 2 5 3 1 -1 -1 -1 -1 -1 <t< td=""><td>Sample Date</td><td></td><td>Client Info</td><td></td><th>05 Dec 2023</th><td>27 Oct 2023</td><td>16 Oct 2023</td></t<>	Sample Date		Client Info		05 Dec 2023	27 Oct 2023	16 Oct 2023
Oil Changed Sample Status Client Info Sample Status N/A NORMAL	Machine Age	hrs	Client Info		17853	294333	293152
Sample Status	Oil Age	hrs	Client Info		17853	0	0
Fuel	Oil Changed		Client Info		N/A	N/A	Not Changd
Fuel	Sample Status				NORMAL	ABNORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >120 6 34 6 Chromium ppm ASTM D5185m >20 0 <1 0 Nickel ppm ASTM D5185m >5 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	CONTAMINATI	ION	method	limit/base	current	history1	history2
Second WC Method NEG NEG NEG	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >120 6 34 6 Chromium ppm ASTM D5185m >20 0 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 <1	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >5 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Iron	ppm	ASTM D5185m	>120	6	34	6
Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >40 0 <1	Chromium	ppm	ASTM D5185m	>20	0	<1	0
Silver	Nickel	ppm	ASTM D5185m	>5	<1	<1	<1
Aluminum ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >40 0 <1	Titanium	ppm	ASTM D5185m	>2	0	0	0
Aluminum ppm ASTM D5185m >20 2 5 3 Lead ppm ASTM D5185m >40 0 <1	Silver		ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >40 0 <1 1 Copper ppm ASTM D5185m >330 0 39 <1 Tin ppm ASTM D5185m >15 <1 0 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 12 16 23 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 1 2 16 23 Barium ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 1010 945 881 901 Calcium ppm ASTM D5185m	Aluminum	ppm	ASTM D5185m	>20	2	5	3
Copper ppm ASTM D5185m >330 0 39 <1 Tin ppm ASTM D5185m >15 <1	Lead			>40	0	<1	1
Tin ppm ASTM D5185m >15 <1 0 <1 Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 12 16 23 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1070 1039 1134 1096 Phosphorus ppm ASTM D5185m 1070 1039 1134 1096 Zinc ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212	Copper		ASTM D5185m	>330	0	39	<1
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 12 16 23 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 945 881 901 Calcium ppm ASTM D5185m 1070 1039 1134 1096 Phosphorus ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current h					<1	0	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 12 16 23 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 59 72 62 Manganese ppm ASTM D5185m 0 <1	Vanadium	• •	ASTM D5185m		0		<1
Boron ppm ASTM D5185m 0 12 16 23 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 59 72 62 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 945 881 901 Calcium ppm ASTM D5185m 1070 1039 1134 1096 Phosphorus ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m >20 <1	Cadmium				0		0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 59 72 62 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 945 881 901 Calcium ppm ASTM D5185m 1070 1039 1134 1096 Phosphorus ppm ASTM D5185m 1150 1046 957 950 Zinc ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m >20 <1 3 1 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 59 72 62 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	12	16	23
Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 945 881 901 Calcium ppm ASTM D5185m 1070 1039 1134 1096 Phosphorus ppm ASTM D5185m 1150 1046 957 950 Zinc ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m >20 <1	Barium		ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 945 881 901 Calcium ppm ASTM D5185m 1070 1039 1134 1096 Phosphorus ppm ASTM D5185m 1150 1046 957 950 Zinc ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m	60	59	72	62
Magnesium ppm ASTM D5185m 1010 945 881 901 Calcium ppm ASTM D5185m 1070 1039 1134 1096 Phosphorus ppm ASTM D5185m 1150 1046 957 950 Zinc ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m >20 <1	Manganese		ASTM D5185m	0	<1	0	<1
Calcium ppm ASTM D5185m 1070 1039 1134 1096 Phosphorus ppm ASTM D5185m 1150 1046 957 950 Zinc ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m >20 <1	Magnesium		ASTM D5185m	1010	945	881	901
Phosphorus ppm ASTM D5185m 1150 1046 957 950 Zinc ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m >20 <1	-		ASTM D5185m	1070	1039	1134	1096
Zinc ppm ASTM D5185m 1270 1283 1203 1233 Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m 20 <1	Phosphorus		ASTM D5185m	1150	1046	957	950
Sulfur ppm ASTM D5185m 2060 3212 2985 3109 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m >20 <1			ASTM D5185m	1270	1283	1203	1233
Silicon ppm ASTM D5185m >25 4 15 7 Sodium ppm ASTM D5185m 1 ▲ 107 2 Potassium ppm ASTM D5185m >20 <1 3 1 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.3 0.9 0.5 Nitration Abs/cm *ASTM D7624 >20 5.9 9.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 20.8 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.8 16.3 14.4	Sulfur		ASTM D5185m	2060	3212	2985	3109
Sodium ppm ASTM D5185m 1 ▲ 107 2 Potassium ppm ASTM D5185m >20 <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 1 ▲ 107 2 Potassium ppm ASTM D5185m >20 <1 3 1 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.3 0.9 0.5 Nitration Abs/cm *ASTM D7624 >20 5.9 9.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 20.8 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.8 16.3 14.4	Silicon	ppm	ASTM D5185m	>25	4	15	7
Potassium ppm ASTM D5185m >20 <1 3 1 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.3 0.9 0.5 Nitration Abs/cm *ASTM D7624 >20 5.9 9.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 20.8 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.8 16.3 14.4		• •					2
Soot % % *ASTM D7844 >4 0.3 0.9 0.5 Nitration Abs/cm *ASTM D7624 >20 5.9 9.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 20.8 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.8 16.3 14.4	Potassium		ASTM D5185m	>20	<1		1
Nitration Abs/cm *ASTM D7624 >20 5.9 9.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 20.8 18.4 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 16.3 14.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.2 20.8 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.8 16.3 14.4	Soot %	%	*ASTM D7844	>4	0.3	0.9	0.5
Sulfation Abs/.1mm *ASTM D7415 >30 18.2 20.8 18.4 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 16.3 14.4	Nitration	Abs/cm	*ASTM D7624	>20	5.9	9.4	7.7
Oxidation Abs/.1mm *ASTM D7414 >25 13.8 16.3 14.4	Sulfation	Abs/.1mm	*ASTM D7415	>30		20.8	
	FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.8	16.3	14.4
DUOU I TUILIDOI (DIT) IIIQ NOTIN DECOVO O.O U.T	Base Number (BN)	mg KOH/g			8.6	7.5	6.4



OIL ANALYSIS REPORT

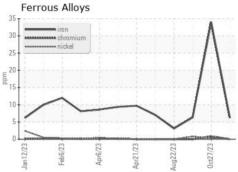


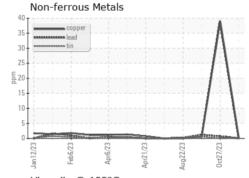


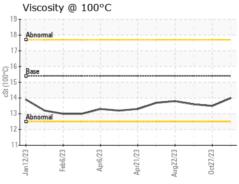
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

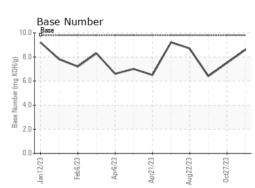
FLUID PROPI	ERIIES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.5	13.6

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number **Unique Number**

: GFL0092356 : 06034091 : 10789320 Test Package : FLEET To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 13 Dec 2023 Diagnosed : 14 Dec 2023

Diagnostician : Wes Davis

GFL Environmental - 172 - Montgomery-Alexander City-Tallahassee

Multiple Sites Montgomery, AL US 36108

Contact: RICHARD HATFIELD

rhatfield@gflenv.com T:

* - 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)

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