

PROBLEM SUMMARY





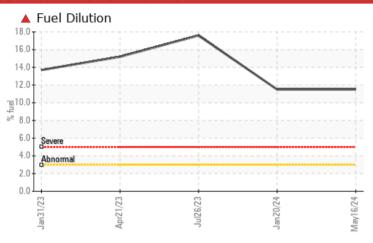


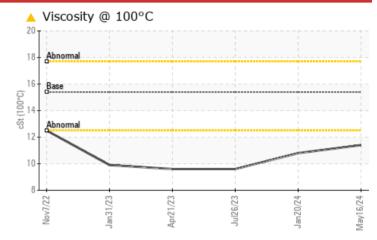
Machine Id 425042-402090

Diesel Engine

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

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

PROBLEMAT	IC TES	T RESULT	S				
Sample Status				SEVERE	SEVERE	SEVERE	
Fuel	%	ASTM D3524	>3.0	11.5	▲ 11.5	▲ 17.6	
Visc @ 100°C	cSt	ASTM D445	15.4	11.4	<u> </u>	9.6	

Customer Id: GFL152 Sample No.: GFL0106015 Lab Number: 06188703 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS					
Action	Status	Date	Done By	Description	
Change Fluid			?	We recommend that you drain the oil from the component if this has not already been done.	
Resample			?	We recommend an early resample to monitor this condition.	
Check Fuel/injector System			?	We advise that you check the fuel injection system.	

HISTORICAL DIAGNOSIS

20 Jan 2024 Diag: Wes Davis

FUEL



We advise that you check the ruel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.



26 Jul 2023 Diag: Wes Davis

FUEL



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21 Apr 2023 Diag: Wes Davis

FUEL



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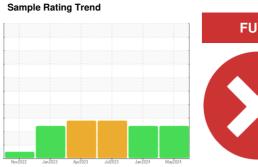
OIL ANALYSIS REPORT



Machine Id 425042-402090

Diesel Engine

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





DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

▲ Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

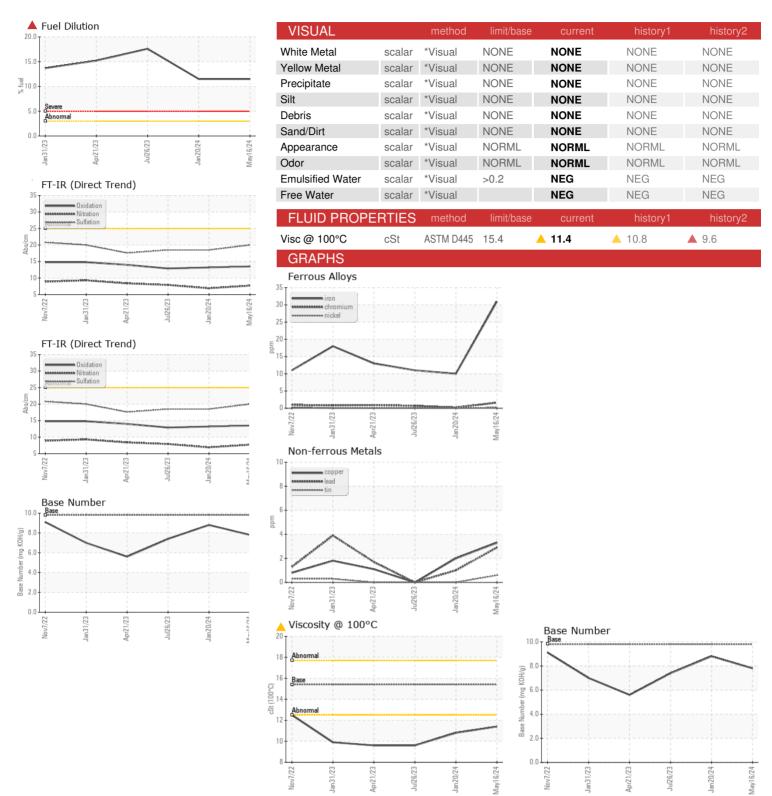
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION method limit/base current history1 history2							
Sample Date Client Info 16 May 2024 20 Jan 2024 26 Jul 2023 Machine Age hrs Client Info 36371 34902 34614 Oil Age hrs Client Info 0 600 457 Oil Changed Client Info Not Changed SEVERE SEVERE SEVERE CONTAMINATION method limit/base current history1 history2 Water WC Method NEG NEG NEG NEG Glycol WC Method Imit/base current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 2 -1 0 0	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
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WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
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Nickel	Iron	ppm	ASTM D5185m	>120	31	10	11
Titanium	Chromium	ppm	ASTM D5185m	>20	2	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	<1	0	0
Aluminum ppm ASTM D5185m >20 2 -1 -1 Lead ppm ASTM D5185m >40 3 1 0 Copper ppm ASTM D5185m >330 3 2 0 Tin ppm ASTM D5185m >15 <1	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Lead ppm ASTM D5185m >40 3 1 0 Copper ppm ASTM D5185m >330 3 2 0 Tin ppm ASTM D5185m >15 <1 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 8 11 21 Boron ppm ASTM D5185m 0 8 11 21 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 3 11 21 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 41 <1 <1 <1 Magnesium ppm ASTM D5185m 0 >1 835 827 Calcium ppm ASTM D5185m 1070 <	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper ppm ASTM D5185m >330 3 2 0 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	2	<1	<1
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Phosphorus ppm ASTM D5185m 1150 834 930 904 Zinc ppm ASTM D5185m 1270 1087 1100 1079 Sulfur ppm ASTM D5185m 2060 2719 2786 3102 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 2 Sodium ppm ASTM D5185m >20 2 <1	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 55	11 0 53	21 0 58
Zinc ppm ASTM D5185m 1270 1087 1100 1079 Sulfur ppm ASTM D5185m 2060 2719 2786 3102 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 2 Sodium ppm ASTM D5185m >20 2 <1 <1 <1 Potassium ppm ASTM D5185m >20 2 <1 0 Fuel % ASTM D3524 >3.0 11.5 11.5 11.5 17.6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.7 1.2 1.1 Nitration Abs/.mm *ASTM D7415 >30 20.0 18.5 18.5 FLUID DEGRADATION method limit/base current history1 history2 <	Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 55 <1	11 0 53 <1	21 0 58 <1
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Sodium ppm ASTM D5185m <1	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 ASTM D5185m	0 0 60 0 1010 1070 1150	8 0 55 <1 821 957 834 1087	11 0 53 <1 835 945 930 1100	21 0 58 <1 827 979 904 1079
Potassium ppm ASTM D5185m >20 2 <1 0 Fuel % ASTM D3524 >3.0 ▲ 11.5 ▲ 11.5 ▲ 17.6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.7 1.2 1.1 Nitration Abs/cm *ASTM D7624 >20 7.7 6.9 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.0 18.5 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 13.2 12.9	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 55 <1 821 957 834 1087 2719	11 0 53 <1 835 945 930 1100 2786	21 0 58 <1 827 979 904 1079 3102
Fuel % ASTM D3524 >3.0 ▲ 11.5 ▲ 11.5 ▲ 17.6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.7 1.2 1.1 Nitration Abs/cm *ASTM D7624 >20 7.7 6.9 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.0 18.5 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 13.2 12.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	8 0 55 <1 821 957 834 1087 2719	11 0 53 <1 835 945 930 1100 2786 history1	21 0 58 <1 827 979 904 1079 3102 history2
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.7 1.2 1.1 Nitration Abs/cm *ASTM D7624 >20 7.7 6.9 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.0 18.5 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 13.2 12.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	8 0 55 <1 821 957 834 1087 2719 current	11 0 53 <1 835 945 930 1100 2786 history1	21 0 58 <1 827 979 904 1079 3102 history2 2
Soot % % *ASTM D7844 >4 1.7 1.2 1.1 Nitration Abs/cm *ASTM D7624 >20 7.7 6.9 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.0 18.5 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 13.2 12.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	8 0 55 <1 821 957 834 1087 2719 current 5 <1	11 0 53 <1 835 945 930 1100 2786 history1 2 <1	21 0 58 <1 827 979 904 1079 3102 history2 2 <1
Nitration Abs/cm *ASTM D7624 >20 7.7 6.9 7.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.0 18.5 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 13.2 12.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	8 0 55 <1 821 957 834 1087 2719 current 5 <1	11 0 53 <1 835 945 930 1100 2786 history1 2 <1 <1	21 0 58 <1 827 979 904 1079 3102 history2 2 <1 0
Sulfation Abs/.1mm *ASTM D7415 >30 20.0 18.5 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 13.2 12.9	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	8 0 55 <1 821 957 834 1087 2719 current 5 <1 2	11 0 53 <1 835 945 930 1100 2786 history1 2 <1 <1	21 0 58 <1 827 979 904 1079 3102 history2 2 <1 0 ▲ 17.6
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	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 0 1010 1150 1270 2060 limit/base >25 >20 >3.0 limit/base	8 0 55 <1 821 957 834 1087 2719 current 5 <1 2 ▲ 11.5 current 1.7	11 0 53 <1 835 945 930 1100 2786 history1 2 <1 <1 <1 11.5 history1 1.2 6.9	21 0 58 <1 827 979 904 1079 3102 history2 2 <1 0 ▲ 17.6 history2 1.1
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >4 >20 >30	8 0 55 <1 821 957 834 1087 2719 current 5 <1 2 ▲ 11.5 current 1.7 7.7 20.0	11 0 53 <1 835 945 930 1100 2786 history1 2 <1 <1 <1 1.5 history1 1.2 6.9 18.5	21 0 58 <1 827 979 904 1079 3102 history2 2 <1 0 ▲ 17.6 history2 1.1 7.9 18.5
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m METHOD ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D78185m ASTM D7824 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >4 >20 >30 limit/base	8 0 55 <1 821 957 834 1087 2719	11 0 53 <1 835 945 930 1100 2786 history1 2 <1 <1 <1 1.5 history1 1.2 6.9 18.5 history1	21 0 58 <1 827 979 904 1079 3102 history2 2 <1 0 ▲ 17.6 history2 1.1 7.9 18.5 history2



OIL ANALYSIS REPORT







Certificate 12367

Report Id: GFL152 [WUSCAR] 06188703 (Generated: 05/28/2024 07:49:26) Rev: 1

Laboratory

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No.

: GFL0106015 Lab Number : 06188703 Unique Number : 11045455

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

Received **Tested**

Diagnosed Test Package : FLEET (Additional Tests: PercentFuel)

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

: 28 May 2024 - Wes Davis

: 23 May 2024

: 28 May 2024

US 32256 Contact: GRANVILLE CARROLL gcarroll@gflenv.com T: 1(904)252-6815

GFL Environmental - 152 - Jacksonville

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

Submitted By: WITH iNDIANA GFL - Chris Smith

7580 PHILIPS HWY

Jacksonville, FL