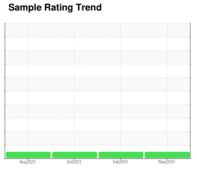


OIL ANALYSIS REPORT

Guil









Machine Id
213001
Component
Diesel Engine
Fluid

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

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

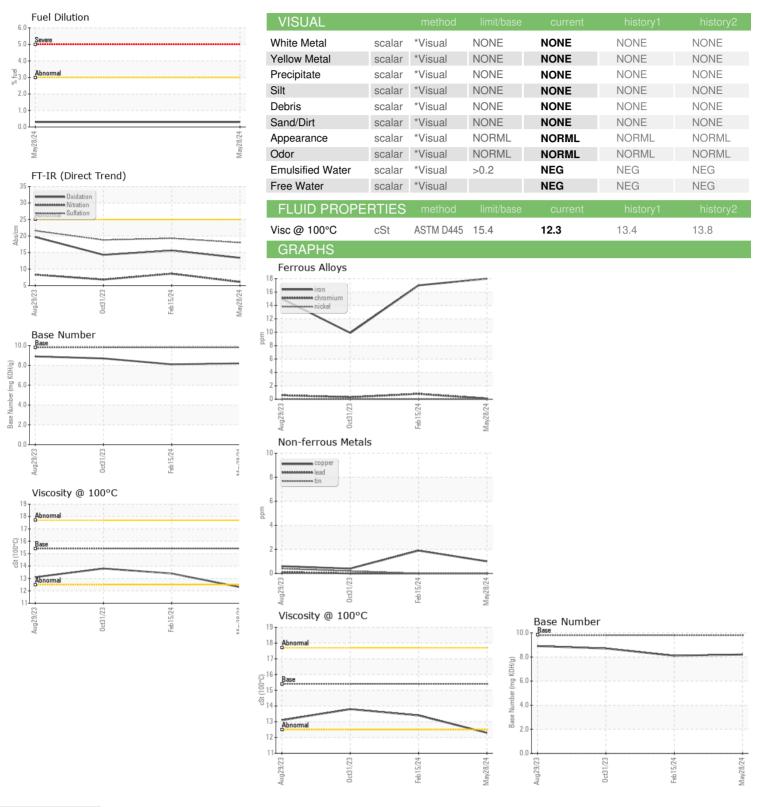
Fluid Condition

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

Sample Number Client Info CFL0101009 GFL0101053 GFL0092757 Sample Date Client Info 28 May 2024 15 Feb 2024 31 Oct 2023 Machine Age hrs Client Info 0	SAMPLE INFORM	1AT <u>ION</u>	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0101009	GFL0101053	GFL0092757
Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info 0 0 0 Oil Changed Client Info Not Changd N/A N/A Sample Status NoRMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method No.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 <1 <1 <1 Ohromium ppm ASTM D5185m >20 <1 <1 <1 Ohromium ppm ASTM D5185m >20 <1 <1 <1 Ohromium ppm ASTM D5185m >20 <1 <1 <1 Iron ppm ASTM D5185m >20 0 <1 <2 <1	·						
Oil Age hrs Client Info Not Changd N/A N/A Sample Status Client Info Not Changd N/A N/A N/A CONTAMINATION method limit/base current history1 history2 Water WC Method NEG NEG NEG NEG Wear WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 18 17 10 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 <1 Silver ppm ASTM D5185m >20 2 3 2 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m 330 1 2 <1		hrs			-		
Client Info Not Changd NORMAL NORMAL NORMAL							
NORMAL NORMAL NORMAL NORMAL	-				· ·		N/A
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 18 17 10 Chromium ppm ASTM D5185m >20 <1							
WEAR METALS	·	ON	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 18 17 10 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method			NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 <1 Nickel ppm ASTM D5185m >5 0 0 0 0 0 1 Time Nitretain Page 1 ASTM D5185m >2 0 <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	WEAR METALS	6	method	limit/base	current	history1	history2
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >5 0 0 0 Titanium ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 3 2 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 1 2 <1 Tin ppm ASTM D5185m 0 0 0 <1 V Vanadium ppm ASTM D5185m 0 0 0 <1 2 Cadmium ppm ASTM D5185m 0 0 <1 2 <1 Barium ppm ASTM D5185m 0 0 <1 2 <1 <1 <1 Magnesium	Iron	mag	ASTM D5185m	>120	18	17	10
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Titanium	Nickel						
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Copper ppm ASTM D5185m >330 1 2 Tin ppm ASTM D5185m >15 0 0 <1							
Tin							
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ADDITIVES					-		
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Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 993 875 1003 Calcium ppm ASTM D5185m 1070 1150 997 1142 Phosphorus ppm ASTM D5185m 1070 1150 997 1142 Phosphorus ppm ASTM D5185m 1270 1263 1115 1370 Sulfur ppm ASTM D5185m 2060 3667 2651 3074 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1					_		
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Phosphorus ppm ASTM D5185m 1150 1096 948 1134 Zinc ppm ASTM D5185m 1270 1263 1115 1370 Sulfur ppm ASTM D5185m 2060 3667 2651 3074 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m	60	64 <1	59 <1	64 <1
Zinc ppm ASTM D5185m 1270 1263 1115 1370 Sulfur ppm ASTM D5185m 2060 3667 2651 3074 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	64 <1 993	59 <1 875	64 <1 1003
Sulfur ppm ASTM D5185m 2060 3667 2651 3074 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Molybdenum Manganese Magnesium Calcium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	64 <1 993 1150	59 <1 875 997	64 <1 1003 1142
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	64 <1 993 1150 1096	59 <1 875 997 948	64 <1 1003 1142 1134
Silicon ppm ASTM D5185m >25 <1 3 3 Sodium ppm ASTM D5185m 2 7 1 Potassium ppm ASTM D5185m >20 0 3 2 Fuel % ASTM D3524 >3.0 0.3 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 6.1 8.6 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.3 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 15.6 14.3	Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	64 <1 993 1150 1096	59 <1 875 997 948 1115	64 <1 1003 1142 1134 1370
Sodium ppm ASTM D5185m 2 7 1 Potassium ppm ASTM D5185m >20 0 3 2 Fuel % ASTM D3524 >3.0 0.3 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 6.1 8.6 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.3 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 15.6 14.3	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	60 0 1010 1070 1150 1270	64 <1 993 1150 1096 1263	59 <1 875 997 948 1115	64 <1 1003 1142 1134 1370
Potassium ppm ASTM D5185m >20 0 3 2 Fuel % ASTM D3524 >3.0 0.3 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 6.1 8.6 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.3 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 15.6 14.3	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	60 0 1010 1070 1150 1270 2060	64 <1 993 1150 1096 1263 3667	59 <1 875 997 948 1115 2651	64 <1 1003 1142 1134 1370 3074
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INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 6.1 8.6 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.3 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 15.6 14.3	Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m MEthod ASTM D5185m	60 0 1010 1070 1150 1270 2060	64 <1 993 1150 1096 1263 3667 current <1	59 <1 875 997 948 1115 2651 history1 3	64 <1 1003 1142 1134 1370 3074 history2
Soot % % *ASTM D7844 >4 0.3 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 6.1 8.6 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.3 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 15.6 14.3	Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base	64 <1 993 1150 1096 1263 3667 current <1	59 <1 875 997 948 1115 2651 history1 3 7	64 <1 1003 1142 1134 1370 3074 history2 3 1
Nitration Abs/cm *ASTM D7624 >20 6.1 8.6 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.3 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 15.6 14.3	Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	64 <1 993 1150 1096 1263 3667 current <1 2 0	59 <1 875 997 948 1115 2651 history1 3 7	64 <1 1003 1142 1134 1370 3074 history2 3 1
Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.3 18.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 15.6 14.3	Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	64 <1 993 1150 1096 1263 3667 current <1 2 0 0.3	59 <1 875 997 948 1115 2651 history1 3 7 3 <1.0	64 <1 1003 1142 1134 1370 3074 history2 3 1 2 <1.0
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Oxidation Abs/.1mm *ASTM D7414 >25 13.4 15.6 14.3	Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m ASTM D7844	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base	64 <1 993 1150 1096 1263 3667 current <1 2 0 0.3 current 0.3	59 <1 875 997 948 1115 2651 history1 3 7 3 <1.0 history1 0.5	64 <1 1003 1142 1134 1370 3074 history2 3 1 2 <1.0 history2 0.3
	Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >4 >20	64 <1 993 1150 1096 1263 3667 current <1 2 0 0.3 current 0.3 6.1	59 <1 875 997 948 1115 2651 history1 3 7 3 <1.0 history1 0.5 8.6	64 <1 1003 1142 1134 1370 3074 history2 3 1 2 <1.0 history2 0.3 6.8
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.2 8.1 8.7	Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 method *ASTM D7844 *ASTM D7624 *ASTM D76145	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >4 >20 >30	64 <1 993 1150 1096 1263 3667 current <1 2 0 0.3 current 0.3 6.1 18.0	59 <1 875 997 948 1115 2651 history1 3 7 3 <1.0 history1 0.5 8.6 19.3	64 <1 1003 1142 1134 1370 3074 history2 3 1 2 <1.0 history2 0.3 6.8 18.8
	Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 method *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415 method	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >4 >20 >30 limit/base	64 <1 993 1150 1096 1263 3667 current <1 2 0 0.3 current 0.3 6.1 18.0 current	59 <1 875 997 948 1115 2651 history1 3 7 3 <1.0 history1 0.5 8.6 19.3 history1	64 <1 1003 1142 1134 1370 3074 history2 3 1 2 <1.0 history2 0.3 6.8 18.8 history2



OIL ANALYSIS REPORT







Certificate 12367

Report Id: GFL455 [WUSCAR] 06197246 (Generated: 06/05/2024 10:01:12) Rev: 1

Laboratory Sample No.

Lab Number : 06197246

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0101009 Unique Number : 11059369

Received **Tested**

: 05 Jun 2024 Diagnosed : 05 Jun 2024 - Wes Davis

: 03 Jun 2024

Test Package: FLEET (Additional Tests: FuelDilution, PercentFuel) To discuss this sample report, contact Customer Service at 1-800-237-1369.

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

mwomble@gflenv.com

T: (586)825-9514

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

GFL Environmental - 455 - Flint

2051 W. Bristol Rd

Flint Township, MI

Contact: MARK WOMBLE

US 48507