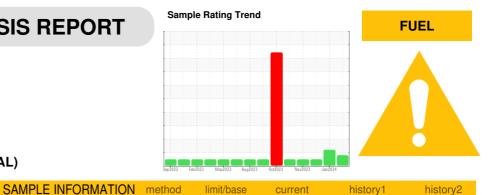


OIL ANALYSIS REPORT



727100-361676

Component **Diesel Engine**

Fluic 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

Light fuel dilution occurring. No other contaminants were detected in the oil.

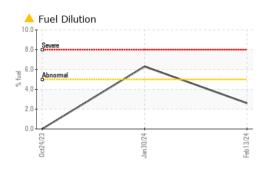
Fluid Condition

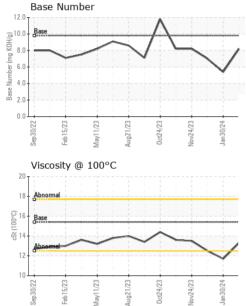
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 13 Feb 2024 30 Jan 2024 80 Jan 2024	Sample Number		Client Info		GFL0104962	GFL0104955	GFL0088139
Oil Age mis Client Info Not Changed Not Changed Not Changed Sample Status I I I I Not Changed Not Changed CONTAMINATION method limit/base current History1 Nietory2 Water WC Method >0.2 NEG NEG NEG Wetar WC Method >0.2 NEG NEG NEG Wetar WC Method >0.2 NEG NEG NEG Vetar META DS185m >100 4 16 10 Chromium ppm ASTM DS185m >20 0 0 0 Silver ppm ASTM DS185m >20 0 0 0 0 Silver ppm ASTM DS185m >20 <<1 1 1 1 1 Lead ppm ASTM DS185m >20 <1 1 1 1 Lead ppm ASTM DS185m >30 0	Sample Date		Client Info		13 Feb 2024	30 Jan 2024	08 Jan 2024
Oli Changed Sample Status Client Info Not Changed MARGINAL Changed ABNORMAL Not Changed ABNO	Ũ						
Sample Status Image Status Marce	•	mls			•	•	÷
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 <1 1 Nickel ppm ASTM D5185m >20 0 0 0 Silver ppm ASTM D5185m >20 <1 1 1 Lead ppm ASTM D5185m >20 <1 1 1 Lead ppm ASTM D5185m >30 0 0 0 Cadmium ppm ASTM D5185m >40 0 0 0 Cadmium ppm ASTM D5185m >60 0 0 0 Astm D5185m 0 0 0 <1 1 Maganese	0		Client Info		-	0	
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >100 4 16 10 Chromium ppm ASTM D5185m >20 0 <11	Sample Status				MARGINAL	ABNORMAL	NORMAL
Giycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 <1 10 Chromium ppm ASTM D5185m >20 0 <1 <1 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >20 <1 1 1 Lead ppm ASTM D5185m >40 0 0 0 1 Vanadium ppm ASTM D5185m 0 0 <1 1 1 Vanadium ppm ASTM D5185m 0 0 0	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5165 >100 4 16 10 Chromium ppm ASTM D5165 >20 0 <1 <1 Nickel ppm ASTM D5165 >4 0 0 0 Silver ppm ASTM D5165 >3 0 0 0 Aluminum ppm ASTM D5165 >30 0 0 0 Copper ppm ASTM D5165 >30 0 0 0 Cadmium ppm ASTM D5165 >30 0 0 0 Cadmium ppm ASTM D5165 0 0 0 0 Boron ppm ASTM D5165 0 0 0 0 Barium ppm ASTM D5165 0 0 0 0 Barium ppm ASTM D5165 0 0 0 0	Water		WC Method	>0.2	-		
Iron ppm ASTM D5185m >100 4 16 10 Chromium ppm ASTM D5185m >20 0 <1	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >20 <1	Iron	ppm	ASTM D5185m	>100	4	16	10
Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 <1	Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 <1 1 1 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 0 <1 <1 Tin ppm ASTM D5185m >15 0 0 <10 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 Malybdenum ppm ASTM D5185m 0 0 0 <11 <11 Magnesium ppm ASTM D5185m 00 0 <11 <11 Loaduifur ppm ASTM D5185m	Nickel	ppm	ASTM D5185m	>4	0	0	0
Atuminum ppm ASTM D5185m >20 <1 1 1 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 0 <1	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 0 <1	Silver	ppm		>3	0		
Copper ppm ASTM D5185m >330 0 <1	Aluminum	ppm	ASTM D5185m	>20	<1	1	1
Tin ppm ASTM D5185m >15 0 0 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Magnese ppm ASTM D5185m 0 0 <1	Lead	ppm	ASTM D5185m	>40	0	0	0
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Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 0 Magnesiam ppm ASTM D5185m 0 0 1010 894 854 944 Calcium ppm ASTM D5185m 1010 894 854 944 Calcium ppm ASTM D5185m 1010 894 854 944 Calcium ppm ASTM D5185m 1070 940 987 1004 Phosphorus ppm ASTM D5185m 1270 1153 1183 1241 Sulfur ppm ASTM D5185m 2660 2847 2706 2943	Tin	ppm		>15	0		
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 60 55 55 56 Magnesium ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 894 854 944 Calcium ppm ASTM D5185m 1070 940 987 1004 Phosphorus ppm ASTM D5185m 1150 985 912 993 Zinc ppm ASTM D5185m 1270 1153 1183 1241 Sulfur ppm ASTM D5185m 2060 2847 2706 2943 Solfur ppm ASTM D5185m >25 3 6 6 Solfur ppm AS	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 60 55 55 56 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 894 854 944 Calcium ppm ASTM D5185m 1010 894 854 944 Calcium ppm ASTM D5185m 1070 940 987 1004 Phosphorus ppm ASTM D5185m 1270 1153 1183 1241 Sulfur ppm ASTM D5185m 2060 2847 2706 2943 CONTAMINANTS method Imit/base current history1 history2 Silicon ppm ASTM D5185m >20 0 0 0 Fuel %	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185n 0 0 0 0 0 Molybdenum ppm ASTM D5185n 60 55 55 56 Manganese ppm ASTM D5185n 0 0 <1 <1 Magnesium ppm ASTM D5185n 1010 894 854 944 Calcium ppm ASTM D5185n 1070 940 987 1004 Phosphorus ppm ASTM D5185n 1270 1153 1183 1241 Sulfur ppm ASTM D5185n 1270 1153 1183 1241 Sulfur ppm ASTM D5185n 2060 2847 2706 2943 CONTAMINAINAINAINAINAINAINAIN method imit/base current history1 history2 Silicon ppm ASTM D5185n >20 0 0 0 Fuel ppm ASTM D5185n >20 0 0 0 Fuel ppm <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 55 55 56 Manganese ppm ASTM D5185m 0 0 <1	Boron	ppm	ASTM D5185m	0	0	0	0
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 894 854 944 Calcium ppm ASTM D5185m 1070 940 987 1004 Phosphorus ppm ASTM D5185m 1150 985 912 993 Zinc ppm ASTM D5185m 1270 1153 1183 1241 Sulfur ppm ASTM D5185m 2060 2847 2706 2943 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 6 6 Sodium ppm ASTM D5185m >20 0 0 0 Fuel % ASTM D5185m >20 0 0.4 6.3 <1.0	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 894 854 944 Calcium ppm ASTM D5185m 1070 940 987 1004 Phosphorus ppm ASTM D5185m 1150 985 912 993 Zinc ppm ASTM D5185m 1270 1153 1183 1241 Sulfur ppm ASTM D5185m 2060 2847 2706 2943 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 6 6 Sodium ppm ASTM D5185m >25 3 5 5 Potassium ppm ASTM D5185m >20 0 0 0 Fuel % ASTM D5185m >20 0 0 0 0 Fuel % ASTM D5185m >20 0 0 0 0 Notassium ppm ASTM	Molybdenum	ppm	ASTM D5185m	60		55	56
Calcium ppm ASTM D5185m 1070 940 987 1004 Phosphorus ppm ASTM D5185m 1150 985 912 993 Zinc ppm ASTM D5185m 1270 1153 1183 1241 Sulfur ppm ASTM D5185m 2060 2847 2706 2943 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 6 6 Sodium ppm ASTM D5185m >20 0 0 0 Fuel % ASTM D5185m >20 0 0 0 Soot % % ASTM D584 >3 0.2	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus ppm ASTM D5185m 1150 985 912 993 Zinc ppm ASTM D5185m 1270 1153 1183 1241 Sulfur ppm ASTM D5185m 2060 2847 2706 2943 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 6 6 Sodium ppm ASTM D5185m >25 3 6.3 5 Potassium ppm ASTM D5185m >20 0 0 0 Fuel % ASTM D5185m >20 0 0 0 Fuel % ASTM D5185m >20 0 0 0 Soot % % ASTM D5185m >20 0.5 0.4 0.2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 0.5 Nitration Abs/.mm *ASTM D7624 <t< th=""><th>-</th><th>ppm</th><th></th><th></th><th>894</th><th></th><th></th></t<>	-	ppm			894		
Zinc ppm ASTM D5185m 1270 1153 1183 1241 Sulfur ppm ASTM D5185m 2060 2847 2706 2943 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 6 6 Sodium ppm ASTM D5185m >25 3 5 5 Potassium ppm ASTM D5185m >20 0 0 0 Fuel % ASTM D5185m >20 0 0 0 Fuel % ASTM D5185m >20 0 0 0 Soot % % ASTM D5185m >20 0 0 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 6.1 10.1 8.7 Sulfation Abs/.mm *ASTM D7415 >30 18.5	Calcium	ppm	ASTM D5185m	1070	940	987	1004
SulfurppmASTM D5185m2060284727062943CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25366SodiumppmASTM D5185m>20355PotassiumppmASTM D5185m>20000Fuel%ASTM D5185m>20000INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.20.50.4NitrationAbs/cm*ASTM D7624>206.110.18.7SulfationAbs/lmm*ASTM D7415>3018.522.420.5FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/lmm*ASTM D744>2514.822.318.4	Phosphorus	ppm			985	912	993
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25366SodiumppmASTM D5185m355PotassiumppmASTM D5185m>20000Fuel%ASTM D3524>5▲ 2.6▲ 6.3<1.0	Zinc	ppm	ASTM D5185m	1270	1153	1183	1241
Silicon ppm ASTM D5185m >25 3 6 6 Sodium ppm ASTM D5185m <20			ASTM D5185m	2060	2847	2706	2943
Sodium ppm ASTM D5185m 3 5 5 Potassium ppm ASTM D5185m >20 0 0 0 Fuel % ASTM D5185m >20 0 0 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.1 10.1 8.7 Sulfation Abs/.tmm *ASTM D7415 >30 18.5 22.4 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.tmm *ASTM D7414 >25 14.8 22.3 18.4	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 0 0 Fuel % ASTM D3524 >5 ▲ 2.6 ▲ 6.3 <1.0	Silicon	ppm	ASTM D5185m	>25	-		
Fuel % ASTM D3524 >5 2.6 6.3 <1.0	Sodium	ppm			3	5	5
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.1 10.1 8.7 Sulfation Abs/.tmm *ASTM D7415 >30 18.5 22.4 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.tmm *ASTM D7414 >25 14.8 22.3 18.4	Potassium	ppm	ASTM D5185m	>20			0
Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.1 10.1 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 22.4 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 22.3 18.4	Fuel	%	ASTM D3524	>5	<u> </u>	6 .3	<1.0
Nitration Abs/cm *ASTM D7624 >20 6.1 10.1 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 22.4 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 22.3 18.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.5 22.4 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 22.3 18.4	Soot %	%	*ASTM D7844	>3	0.2	0.5	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 22.3 18.4	Nitration	Abs/cm	*ASTM D7624	>20	6.1	10.1	8.7
Oxidation Abs/.1mm *ASTM D7414 >25 14.8 22.3 18.4	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.5	22.4	20.5
	FLUID DEGRA		method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.2 5.4 7.0	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.8	22.3	18.4
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.2	5.4	7.0

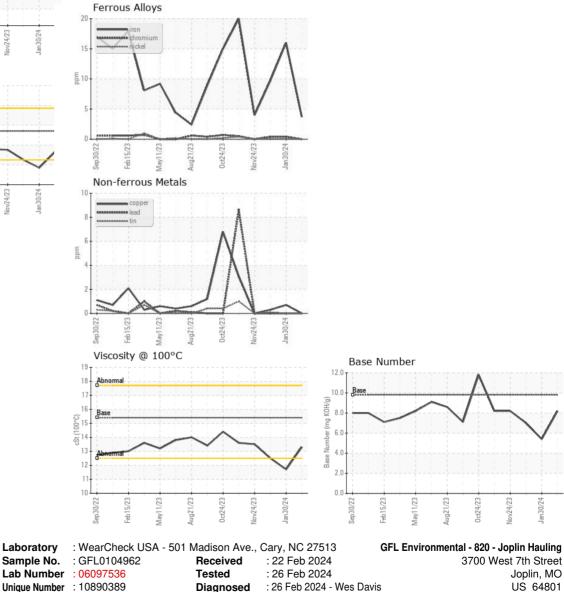


OIL ANALYSIS REPORT





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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	▲ 11.7	12.5
GRAPHS						





Test Package : FLEET (Additional Tests: PercentFuel) Contact: James Jarrett Certificate L2367 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)

jjarrett@gflenv.com

T: (417)310-2802

F:

an30/24