

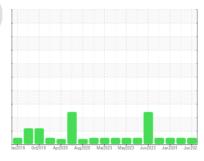
OIL ANALYSIS REPORT

(TPF1873) 726040-361629

Diesel Engine

Fluid

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



Sample Rating Trend



DIAGNOSIS

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.

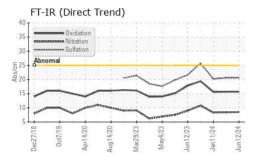
Fluid Condition

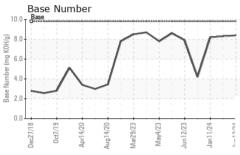
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

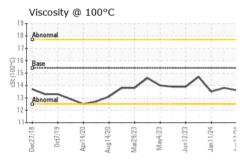
Sample Number Client Info GFL0121815 GFL0106754 GFL0092079 Gample Date Client Info 12 Jun 2024 04 Apr 2024 11 Jan 2024 11 Jan 2024 12 Jun 2024 1	SAMPLE INFORMA	ATI <u>ON</u>	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0121815	GFL0106754	GFL0092079
Machine Age mls Client Info 218210 19787 19229 Oil Age mls Client Info 600 600 0 Oil Changed Client Info Changed Changed Changed Changed Changed Changed Changed Changed NORMAL NORMAL NORMAL NORMAL NORMAL Euel WC Method >3.0 <1.0			Client Info		12 Jun 2024	04 Apr 2024	11 Jan 2024
Oil Age mls Client Info 600 600 0 Oil Changed Client Info Changed Changed Changed Changed Changed Changed NORMAL 1.0 NORMAL NORMAL NORMAL<		mls					
Contained Client Info Changed Normal N	J	mls	Client Info		600	600	0
CONTAMINATION	_		Client Info		Changed	Changed	Changed
Fuel	-					Ü	_
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >165 10 12 3 Chromium ppm ASTM D5185m >4 0 <1	CONTAMINATIO	NC	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Pron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >5 <1 1 <1 Nickel ppm ASTM D5185m >4 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	lron p	ppm	ASTM D5185m	>165	10	12	3
Description	Chromium	ppm	ASTM D5185m	>5	<1	1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	<1	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >90 1 1 1 1 Tin ppm ASTM D5185m >5 0 1 0 Vanadium ppm ASTM D5185m 0 <1	Aluminum	ppm	ASTM D5185m	>20	4	4	1
Tin	Lead	ppm	ASTM D5185m	>150	<1	2	<1
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 0 0 Barium ppm ASTM D5185m 0 0 <1 0 Molybdenum ppm ASTM D5185m 0 0 <1 <1 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 988 980 893 Calcium ppm ASTM D5185m 1070 1109 1117 978 Phosphorus ppm ASTM D5185m 1270 1331 1295 1175 Sulfur ppm ASTM D5185m 2060 3694 3463 2779 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>90	1	1	1
Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 0 0 Barium ppm ASTM D5185m 0 0 <1	Tin p	ppm	ASTM D5185m	>5	0	1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m 0 0 <1 0 Molybdenum ppm ASTM D5185m 60 61 59 56 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 59 56 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 988 980 893 Calcium ppm ASTM D5185m 1070 1109 1117 978 Phosphorus ppm ASTM D5185m 1150 1136 1135 1022 Zinc ppm ASTM D5185m 1270 1331 1295 1175 Sulfur ppm ASTM D5185m 2060 3694 3463 2779 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 8 6 4 Sodium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >7.5	Boron	ppm	ASTM D5185m	0	3	0	
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 988 980 893 Calcium ppm ASTM D5185m 1070 1109 1117 978 Phosphorus ppm ASTM D5185m 1150 1136 1135 1022 Zinc ppm ASTM D5185m 1270 1331 1295 1175 Sulfur ppm ASTM D5185m 2060 3694 3463 2779 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 8 6 4 Sodium ppm ASTM D5185m >7 5 2 Potassium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % %	Barium	ppm	ASTM D5185m	0	0	<1	0
Magnesium ppm ASTM D5185m 1010 988 980 893 Calcium ppm ASTM D5185m 1070 1109 1117 978 Phosphorus ppm ASTM D5185m 1150 1136 1135 1022 Zinc ppm ASTM D5185m 1270 1331 1295 1175 Sulfur ppm ASTM D5185m 2060 3694 3463 2779 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 8 6 4 Sodium ppm ASTM D5185m 7 5 2 Potassium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7415 <td< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td>60</td><th></th><td>59</td><td>56</td></td<>	Molybdenum	ppm	ASTM D5185m	60		59	56
Calcium ppm ASTM D5185m 1070 1109 1117 978 Phosphorus ppm ASTM D5185m 1150 1136 1135 1022 Zinc ppm ASTM D5185m 1270 1331 1295 1175 Sulfur ppm ASTM D5185m 2060 3694 3463 2779 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 8 6 4 Sodium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/.1mm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATIO	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1136 1135 1022 Zinc ppm ASTM D5185m 1270 1331 1295 1175 Sulfur ppm ASTM D5185m 2060 3694 3463 2779 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 8 6 4 Sodium ppm ASTM D5185m 7 5 2 Potassium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method <td< td=""><td>Magnesium</td><td>ppm</td><td>ASTM D5185m</td><td>1010</td><th>988</th><td>980</td><td>893</td></td<>	Magnesium	ppm	ASTM D5185m	1010	988	980	893
Zinc ppm ASTM D5185m 1270 1331 1295 1175 Sulfur ppm ASTM D5185m 2060 3694 3463 2779 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 8 6 4 Sodium ppm ASTM D5185m 7 5 2 Potassium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D	Calcium	ppm	ASTM D5185m	1070	1109	1117	978
Sulfur ppm ASTM D5185m 2060 3694 3463 2779 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 8 6 4 Sodium ppm ASTM D5185m 7 5 2 Potassium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.6	Phosphorus	ppm	ASTM D5185m	1150	1136	1135	1022
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 8 6 4 Sodium ppm ASTM D5185m 7 5 2 Potassium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.6	Zinc	ppm	ASTM D5185m	1270	1331	1295	1175
Silicon ppm ASTM D5185m >35 8 6 4 Sodium ppm ASTM D5185m 7 5 2 Potassium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.6	Sulfur	ppm	ASTM D5185m	2060	3694	3463	2779
Sodium ppm ASTM D5185m 7 5 2 Potassium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.7 15.6	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 5 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.7 15.6				>35			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.7 15.6	Sodium	ppm	ASTM D5185m				2
Soot % % *ASTM D7844 > 7.5 0.6 0.7 0.6 Nitration Abs/cm *ASTM D7624 > 20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 > 30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 15.7 15.6	Potassium	ppm	ASTM D5185m	>20	5	4	0
Nitration Abs/cm *ASTM D7624 >20 8.5 8.4 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.7 15.6	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.7 15.6	Soot %	%	*ASTM D7844	>7.5	0.6	0.7	0.6
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.7 15.6	Nitration	Abs/cm	*ASTM D7624	>20	8.5	8.4	8.3
Oxidation Abs/.1mm *ASTM D7414 >25 15.7 15.7 15.6	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.6	20.6	20.2
	FLUID DEGRADA	NOITA	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.4 8.3 8.2	Oxidation /	Abs/.1mm	*ASTM D7414	>25	15.7	15.7	15.6
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.4	8.3	8.2



OIL ANALYSIS REPORT



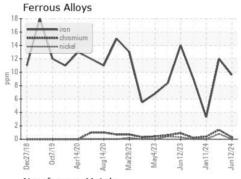


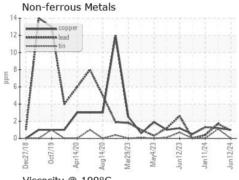


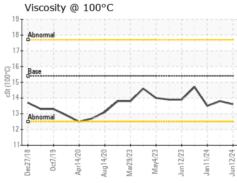
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

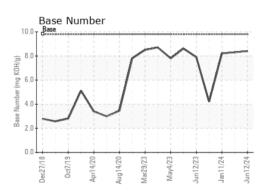
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.8	13.5

GRAPHS













Laboratory Sample No. Unique Number : 11084251

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0121815 Lab Number : 06211387

Received **Tested** Diagnosed

: 17 Jun 2024 : 19 Jun 2024

: 19 Jun 2024 - Wes Davis

GFL Environmental - 856 - Houston South

8515 Highway 6 South Houston, TX US 77083

Contact: Jose Gonzalez jgonzalez2@gflenv.com T:

Test Package : FLEET Certificate 12367 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)

Report Id: GFL856 [WUSCAR] 06211387 (Generated: 06/22/2024 02:08:39) Rev: 1

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