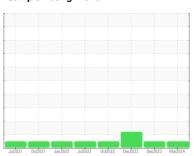


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 590M Component **Diesel Engine**

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

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

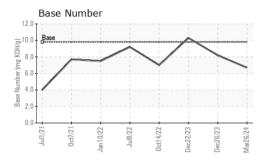
Fluid Condition

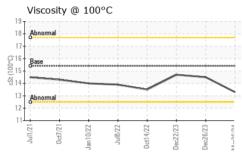
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 26 Mar 2024 26 Dec 2023 22 Dec 2023 20 Dec 21.0 21 Dec 2023 20 Dec 2023 20 Dec 2023 20 Dec 2023 20 Dec 21.0 21 Dec 2023 20 Dec 2023 20 Dec 21.0 20 Dec 2023 20 Dec 2023 20 Dec 21.0 20 Dec 2023 20 Dec 2023 20 Dec 2023 20 Dec 2023 20 Dec 21.0 20 Dec 2023			Jul2021 (Det2021 Jan2022 Jul203	22 Oct2022 Dec2023 Dec2023	Mar2024	
Sample Date Client Info 26 Mar 2024 26 Dec 2023 22 Dec 2023 20 Dec 21.0 21 Dec 2023 20 Dec 2023 20 Dec 2023 20 Dec 2023 20 Dec 21.0 21 Dec 2023 20 Dec 2023 20 Dec 21.0 20 Dec 2023 20 Dec 2023 20 Dec 21.0 20 Dec 2023 20 Dec 2023 20 Dec 2023 20 Dec 2023 20 Dec 21.0 20 Dec 2023	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 12185 12181 12185 9526	Sample Number		Client Info		GFL0117704	GFL0105684	GFL0105799
Oil Age hrs Client Info 12185 9526 9526 Oil Changed Sample Status Client Info Changed Chang	Sample Date		Client Info		26 Mar 2024	26 Dec 2023	22 Dec 2023
Oil Changed Sample Status Client Info Changed NORMAL Changed NORMAL Changed ABNORMAL Changed ABNORMAL Changed ABNORMAL ABSOR ABSOR ABSORMAL	Machine Age	hrs	Client Info		12185	12181	12185
CONTAMINATION	Oil Age	hrs	Client Info		12185	9526	9526
Fuel	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	ABNORMAL
Water WC Method >0.2 NEG AT <t< th=""><th>CONTAMINAT</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINAT	ION	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
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>90	25	5	19
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	0	1
Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 4 5 2 Lead ppm ASTM D5185m >40 0 0 <1 <1 Copper ppm ASTM D5185m >330 0 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 1 <1 8 8 Boron ppm ASTM D5185m 0 1 <1 8 8 Barium ppm ASTM D5185m 0 0 0 0 0 0 Molydenum ppm ASTM D5185m 0 0 1 <1 8 Barium ppm ASTM D5185m 0 54 60 76 <td>Nickel</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>2</td> <th><1</th> <td><1</td> <td><1</td>	Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Aluminum ppm ASTM D5185m >20 4 5 2 Lead ppm ASTM D5185m >40 0 0 <1	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >40 0 0 <1 <1 Copper ppm ASTM D5185m >330 0 <1	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 0 <1 <1 Tin ppm ASTM D5185m >15 0 <1	Aluminum	ppm	ASTM D5185m	>20	4	5	2
Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 <1 8 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 60 54 60 76 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 879 960 849 Calcium ppm ASTM D5185m 1150 984 1045 885 Zinc ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m >20 6 0 6 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >6 0.6 0.2 1 Nitration Abs/.1mm "ASTM D7415 >30 21.5 18.1 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm "ASTM D7414 >25 19.5 13.8 16.2	Lead	ppm	ASTM D5185m	>40	0	0	<1
Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 <1 8 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 0 Magnesium ppm ASTM D5185m 1010 879 960 849 Calcium ppm ASTM D5185m 1070 987 1092 981 Phosphorus ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148	Copper	ppm	ASTM D5185m	>330	0	<1	<1
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 <1 8 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 54 60 76 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 879 960 849 Calcium ppm ASTM D5185m 1070 987 1092 981 Phosphorus ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1	Tin				0	<1	0
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 <1	Vanadium	• • • • • • • • • • • • • • • • • • • •	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 1 <1 8 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 54 60 76 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 879 960 849 Calcium ppm ASTM D5185m 1070 987 1092 981 Phosphorus ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m >20 6 0 6 INFRA-RED method limit/base	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 54 60 76 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 879 960 849 Calcium ppm ASTM D5185m 1070 987 1092 981 Phosphorus ppm ASTM D5185m 1150 984 1045 885 Zinc ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m 5 <1 597 Potassium ppm ASTM D7844 >6	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 54 60 76 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 879 960 849 Calcium ppm ASTM D5185m 1070 987 1092 981 Phosphorus ppm ASTM D5185m 1150 984 1045 885 Zinc ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m 5 <1 597 Potassium ppm ASTM D5185m >20 6 0 6 INFRA-RED method limit/base <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>1</th> <td><1</td> <td>8</td>	Boron	ppm	ASTM D5185m	0	1	<1	8
Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 879 960 849 Calcium ppm ASTM D5185m 1070 987 1092 981 Phosphorus ppm ASTM D5185m 1150 984 1045 885 Zinc ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m >20 6 0 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.2 1 Nitration Abs/cm *ASTM D7845 </td <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td>0</td> <td>0</td>	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 879 960 849 Calcium ppm ASTM D5185m 1070 987 1092 981 Phosphorus ppm ASTM D5185m 1150 984 1045 885 Zinc ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m >20 6 0 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.2 1 Nitration Abs/cm *ASTM D7624 >20 11.1 5.1 8.7 Sulfation Abs/.1mm	Molybdenum	ppm	ASTM D5185m	60	54	60	76
Calcium ppm ASTM D5185m 1070 987 1092 981 Phosphorus ppm ASTM D5185m 1150 984 1045 885 Zinc ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m >20 6 0 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.2 1 Nitration Abs/cm *ASTM D7624 >20 11.1 5.1 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 18.1 20.5 FLUID DEGRADATION method <td< td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th><1</th><td>0</td><td>0</td></td<>	Manganese	ppm	ASTM D5185m	0	<1	0	0
Phosphorus ppm ASTM D5185m 1150 984 1045 885 Zinc ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m 5 <1	Magnesium	ppm	ASTM D5185m	1010	879	960	849
Zinc ppm ASTM D5185m 1270 1193 1200 1095 Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m 5 <1	Calcium	ppm	ASTM D5185m	1070	987	1092	981
Sulfur ppm ASTM D5185m 2060 3148 3106 3138 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m 5 <1	Phosphorus	ppm	ASTM D5185m	1150	984	1045	885
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m 5 <1	Zinc	ppm	ASTM D5185m	1270	1193	1200	1095
Silicon ppm ASTM D5185m >25 5 3 13 Sodium ppm ASTM D5185m 5 <1 597 Potassium ppm ASTM D5185m >20 6 0 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.2 1 Nitration Abs/cm *ASTM D7624 >20 11.1 5.1 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 18.1 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.5 13.8 16.2	Sulfur	ppm	ASTM D5185m	2060	3148	3106	3138
Sodium ppm ASTM D5185m 5 <1 ▲ 597 Potassium ppm ASTM D5185m >20 6 0 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.2 1 Nitration Abs/cm *ASTM D7624 >20 11.1 5.1 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 18.1 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.5 13.8 16.2	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 6 0 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.2 1 Nitration Abs/cm *ASTM D7624 >20 11.1 5.1 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 18.1 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.5 13.8 16.2	Silicon	ppm	ASTM D5185m	>25	5	3	13
INFRA-RED	Sodium	ppm	ASTM D5185m		5	<1	▲ 597
Soot % % *ASTM D7844 >6 0.6 0.2 1 Nitration Abs/cm *ASTM D7624 >20 11.1 5.1 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 18.1 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.5 13.8 16.2	Potassium	ppm	ASTM D5185m	>20	6	0	6
Nitration Abs/cm *ASTM D7624 >20 11.1 5.1 8.7 Sulfation Abs/.1mm *ASTM D7415 >30 21.5 18.1 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.5 13.8 16.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.5 18.1 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.5 13.8 16.2	Soot %	%	*ASTM D7844	>6	0.6	0.2	1
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.5 13.8 16.2	Nitration	Abs/cm	*ASTM D7624	>20	11.1	5.1	8.7
Oxidation Abs/.1mm *ASTM D7414 >25 19.5 13.8 16.2	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.5	18.1	20.5
	FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 6.7 8.2 10.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	19.5	13.8	16.2
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.7	8.2	10.3



OIL ANALYSIS REPORT

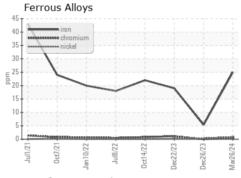


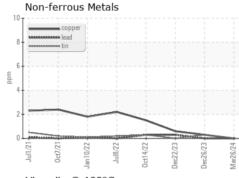


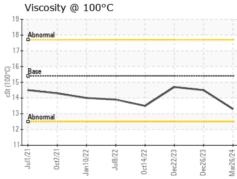
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

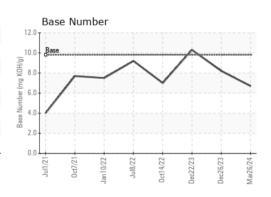
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	14.5	14.7	

GRAPHS













Certificate L2367

Laboratory Sample No.

: GFL0117704 Lab Number : 06132999 Unique Number : 10952464 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 29 Mar 2024 **Tested** : 31 Mar 2024

Diagnosed : 31 Mar 2024 - Wes Davis

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313

Contact: Frank Wolak

fwolak@gflenv.com T: (586)825-9514

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)