

OIL ANALYSIS REPORT

Sample Rating Trend





(GCL865) 413017 Component

Diesel Engine

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

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

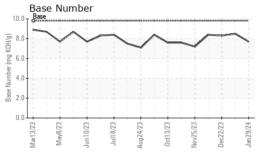
Fluid Condition

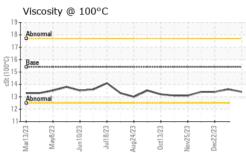
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date			flar2023 May2	023 Jun2023 Jul2023	Aug2023 Oct2023 Nov2023 Dec.	2023 Jan 2024	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 2362 2225 2095	Sample Number		Client Info		GFL0097167	GFL0068866	GFL0097156
Oil Age hrs Client Info 267 130 155 Oil Changed Sample Status Client Info Not Changd Not Changd NoRMAL NoRMAL NORMAL NORMAL NORMAL CONTAMINATION method limit base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0	Sample Date		Client Info		29 Jan 2024	13 Jan 2024	22 Dec 2023
Cilient Info	Machine Age	hrs	Client Info		2362	2225	2095
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2	Oil Age	hrs	Client Info		267	130	155
Fuel	Oil Changed		Client Info		Not Changd	Not Changd	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method Imitibase current history1 history2 WEAR METALS method limitibase current history1 history2 Iron ppm ASTM D5185m >120 5 3 7 Chromium ppm ASTM D5185m >5 3 1 3 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 <1 4 Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >33 <1 1 1 Tin ppm ASTM D5185m >40 <1 0 <1 Vanadium ppm ASTM D5185m 0 <1 0	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	>120	5	3	7
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Silver	Nickel	ppm	ASTM D5185m	>5	3	1	3
Aluminum ppm ASTM D5185m >20 2 <1 4 Lead ppm ASTM D5185m >40 <1	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >330 <1 <1 1 Tin ppm ASTM D5185m >15 <1 0 <1 Vanadium ppm ASTM D5185m 0 <1 0 <1 Cadmium ppm ASTM D5185m 0 <1 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 4 5 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 4 5 4 Barium ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 0 <1 <1 0 Calcium ppm ASTM D5185m 100 100 <t< td=""><td>Silver</td><td>ppm</td><td>ASTM D5185m</td><td>>2</td><th>0</th><td>0</td><td>0</td></t<>	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 <1 <1 1 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	2	<1	4
Tin	Lead	ppm	ASTM D5185m	>40	<1	0	0
Tin	Copper	ppm	ASTM D5185m	>330	<1	<1	1
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 4 5 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 57 58 59 Manganese ppm ASTM D5185m 0 <1 1 0 Magnesium ppm ASTM D5185m 1010 956 992 907 Calcium ppm ASTM D5185m 1070 993 994 1087 Phosphorus ppm ASTM D5185m 1270 1247 1250 1147 Sulfur ppm ASTM D5185m 2060 3177 3190 2994 CONTAMINANTS method limit/base current history1 <	Tin				<1	0	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 4 5 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 57 58 59 Manganese ppm ASTM D5185m 0 <1	Vanadium		ASTM D5185m		0	<1	0
Boron	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 57 58 59 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 956 992 907 Calcium ppm ASTM D5185m 1070 993 994 1087 Phosphorus ppm ASTM D5185m 1150 1021 1072 990 Zinc ppm ASTM D5185m 1270 1247 1250 1147 Sulfur ppm ASTM D5185m 2060 3177 3190 2994 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 2 2 2 <1 Potassium ppm ASTM D7844	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 57 58 59 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 956 992 907 Calcium ppm ASTM D5185m 1070 993 994 1087 Phosphorus ppm ASTM D5185m 1150 1021 1072 990 Zinc ppm ASTM D5185m 1270 1247 1250 1147 Sulfur ppm ASTM D5185m 2060 3177 3190 2994 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 25 4 4 3 Sodium ppm ASTM D5185m 20 6 2 8 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7624 >20 <th< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>4</th><td>5</td><td>4</td></th<>	Boron	ppm	ASTM D5185m	0	4	5	4
Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 956 992 907 Calcium ppm ASTM D5185m 1070 993 994 1087 Phosphorus ppm ASTM D5185m 1150 1021 1072 990 Zinc ppm ASTM D5185m 1270 1247 1250 1147 Sulfur ppm ASTM D5185m 2060 3177 3190 2994 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 6 2 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.2 Soot % % *ASTM D7845 >2	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 956 992 907 Calcium ppm ASTM D5185m 1070 993 994 1087 Phosphorus ppm ASTM D5185m 1150 1021 1072 990 Zinc ppm ASTM D5185m 1270 1247 1250 1147 Sulfur ppm ASTM D5185m 2060 3177 3190 2994 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 2 2 <1	Molybdenum	ppm	ASTM D5185m	60	57	58	59
Calcium ppm ASTM D5185m 1070 993 994 1087 Phosphorus ppm ASTM D5185m 1150 1021 1072 990 Zinc ppm ASTM D5185m 1270 1247 1250 1147 Sulfur ppm ASTM D5185m 2060 3177 3190 2994 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 25 4 4 3 Sodium ppm ASTM D5185m 22 2 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	0
Phosphorus ppm ASTM D5185m 1150 1021 1072 990 Zinc ppm ASTM D5185m 1270 1247 1250 1147 Sulfur ppm ASTM D5185m 2060 3177 3190 2994 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 2 2 <1	Magnesium	ppm	ASTM D5185m	1010	956	992	907
Zinc ppm ASTM D5185m 1270 1247 1250 1147 Sulfur ppm ASTM D5185m 2060 3177 3190 2994 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 2 2 <1	Calcium	ppm	ASTM D5185m	1070	993	994	1087
Sulfur ppm ASTM D5185m 2060 3177 3190 2994 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 2 2 <1	Phosphorus	ppm	ASTM D5185m	1150	1021	1072	990
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 2 2 <1	Zinc	ppm	ASTM D5185m	1270	1247	1250	1147
Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 2 2 <1 Potassium ppm ASTM D5185m >20 6 2 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 5.2 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 17.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.5 13.8	Sulfur	ppm	ASTM D5185m	2060	3177	3190	2994
Sodium ppm ASTM D5185m 2 2 <1 Potassium ppm ASTM D5185m >20 6 2 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 5.2 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 17.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.5 13.8	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 6 2 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 5.2 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 17.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.5 13.8	Silicon	ppm	ASTM D5185m	>25	4	4	3
INFRA-RED	Sodium	ppm	ASTM D5185m		2	2	<1
Soot % % *ASTM D7844 >4 0.2 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 5.2 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 17.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.5 13.8	Potassium	ppm	ASTM D5185m	>20	6	2	8
Nitration Abs/cm *ASTM D7624 >20 6.5 5.2 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 17.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.5 13.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.0 17.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.5 13.8	Soot %	%	*ASTM D7844	>4	0.2	0.1	0.2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.5 13.8	Nitration	Abs/cm	*ASTM D7624	>20	6.5	5.2	5.9
Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.5 13.8	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.0	17.3	17.7
	FLUID DEGRAE	OATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.2	13.5	13.8
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.7	8.5	8.3



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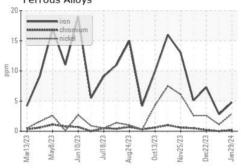


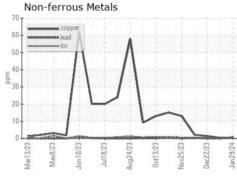
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

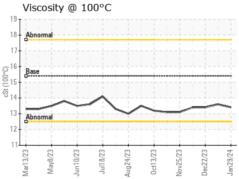
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.6	13.4

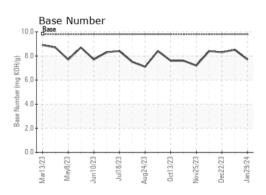
GRAPHS

Ferrous Alloys













Certificate L2367

Laboratory Sample No. Lab Number

Unique Number Test Package : FLEET

: GFL0097167 : 06079006 : 10861097

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 02 Feb 2024 Recieved : 05 Feb 2024 Diagnosed Diagnostician : Wes Davis

GFL Environmental - 073 - Warner Robins - Transwaste

155 Story Road Warner Robins, GA US 31093

Contact: JOSH MALONEY

jmaloney@gflenv.com T:

* - 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)

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