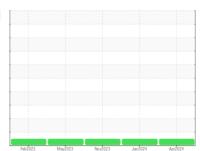


OIL ANALYSIS REPORT

O.D.T



Sample Rating Trend







Machine Id
910067
Component
Diesel Engine
Fluid

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

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

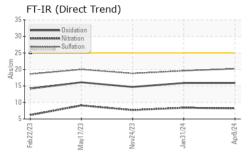
Fluid Condition

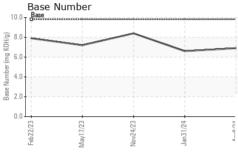
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

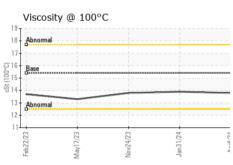
Sample Number Client Info GFL0108803 GFL0108930 GFL000890 Gample Date Client Info 08 Apr 2024 31 Jan 2024 24 Nov 20: 40 Machine Age hrs Client Info 9739 9170 8566 1200 Gil Age hrs Client Info 9170 8566 1200 Gil Changed Client Info 9170 8566 1200 Gil Changed Client Info Changed Changed Changed Changed NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history3 Machine Mac	SAMPLE INFORM	ΛΑΤ <u>ΙΟΝ</u>	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0108803	GFL0108930	GFL0089092
Machine Age hrs Client Info 9759 9170 8566 1200 Oil Age hrs Client Info 9170 8566 1200 Oil Changed Client Info Changed Changed Changed Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limitbase current history1 history1 Fuel WC Method >3.0 <1.0	·				08 Apr 2024		24 Nov 2023
Oil Age hrs Client Info 9170 8566 1200 Oil Changed Client Info Changed Chang		hrs			•		
Client Info Changed Changed NORMAL NOR							
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history history history water WC Method NEG NEG	-						
Fuel	-		0			Ü	0
Water WC Method >0.2 NEG Neg <t< td=""><td>CONTAMINATI</td><td>ON</td><td>method</td><td>limit/base</td><th>current</th><td>history1</td><td>history2</td></t<>	CONTAMINATI	ON	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 0 <1 <1 <1	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	8	10	9
Description	Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	2	4	3
Silver	Titanium	ppm	ASTM D5185m	>2	0	0	0
Aluminum	Silver	ppm			<1	<1	<1
Copper ppm ASTM D5185m >330 <1 6 1 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	3	6	13
Tin	Lead	ppm	ASTM D5185m	>40	<1	1	<1
Tin	Copper		ASTM D5185m	>330	<1	6	1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 2 0 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1	• •	ppm	ASTM D5185m	>15	<1	<1	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 0 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 53 54 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 60 53 54 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 974 954 890 Calcium ppm ASTM D5185m 1070 1048 1022 1020 Phosphorus ppm ASTM D5185m 1150 1019 1045 1096 Zinc ppm ASTM D5185m 1270 1304 1194 1231 Sulfur ppm ASTM D5185m 2060 3401 2552 3138 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 60 53 54 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 974 954 890 Calcium ppm ASTM D5185m 1070 1048 1022 1020 Phosphorus ppm ASTM D5185m 1150 1019 1045 1096 Zinc ppm ASTM D5185m 1270 1304 1194 1231 Sulfur ppm ASTM D5185m 2060 3401 2552 3138 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7624 </td <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>2</th> <td>0</td> <td>2</td>	Boron	ppm	ASTM D5185m	0	2	0	2
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 974 954 890 Calcium ppm ASTM D5185m 1070 1048 1022 1020 Phosphorus ppm ASTM D5185m 1150 1019 1045 1096 Zinc ppm ASTM D5185m 1270 1304 1194 1231 Sulfur ppm ASTM D5185m 2060 3401 2552 3138 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 974 954 890 Calcium ppm ASTM D5185m 1070 1048 1022 1020 Phosphorus ppm ASTM D5185m 1150 1019 1045 1096 Zinc ppm ASTM D5185m 1270 1304 1194 1231 Sulfur ppm ASTM D5185m 2060 3401 2552 3138 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D74	Molybdenum	ppm	ASTM D5185m	60	60	53	54
Calcium ppm ASTM D5185m 1070 1048 1022 1020 Phosphorus ppm ASTM D5185m 1150 1019 1045 1096 Zinc ppm ASTM D5185m 1270 1304 1194 1231 Sulfur ppm ASTM D5185m 2060 3401 2552 3138 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/.mm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1019 1045 1096 Zinc ppm ASTM D5185m 1270 1304 1194 1231 Sulfur ppm ASTM D5185m 2060 3401 2552 3138 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/	Magnesium	ppm	ASTM D5185m	1010	974	954	890
Zinc ppm ASTM D5185m 1270 1304 1194 1231 Sulfur ppm ASTM D5185m 2060 3401 2552 3138 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 20 2 8 32 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7	Calcium	ppm	ASTM D5185m	1070	1048	1022	1020
Sulfur ppm ASTM D5185m 2060 3401 2552 3138 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7	Phosphorus	ppm	ASTM D5185m	1150	1019	1045	1096
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7	Zinc	ppm	ASTM D5185m	1270	1304	1194	1231
Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7	Sulfur	ppm	ASTM D5185m	2060	3401	2552	3138
Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7	CONTAMINAN [®]	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 8 32 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7	Silicon	ppm	ASTM D5185m	>25	3	5	3
INFRA-RED	Sodium	ppm	ASTM D5185m		4	2	3
Soot % % *ASTM D7844 >4 0.5 0.4 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7	Potassium	ppm	ASTM D5185m	>20	2	8	32
Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7			method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7	INFRA-RED						
Sulfation Abs/.1mm *ASTM D7415 >30 20.2 19.6 18.8 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7		%	*ASTM D7844	>4	0.5	0.4	0.5
Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.9 14.7	Soot %						
	Soot % Nitration	Abs/cm	*ASTM D7624	>20	8.2	8.4	7.7
	Soot % Nitration Sulfation	Abs/cm Abs/.1mm	*ASTM D7624 *ASTM D7415	>20 >30	8.2 20.2	8.4 19.6	7.7
Base Number (BN) mg KOH/g ASTM D2896 9.8	Soot % Nitration Sulfation FLUID DEGRAD	Abs/cm Abs/.1mm	*ASTM D7624 *ASTM D7415 method	>20 >30 limit/base	8.2 20.2 current	8.4 19.6 history1	7.7 18.8 history2



OIL ANALYSIS REPORT



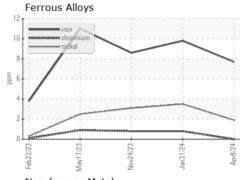




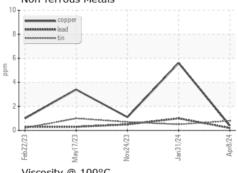
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

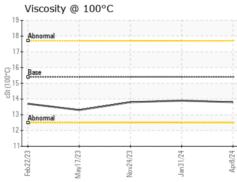
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.9	13.8

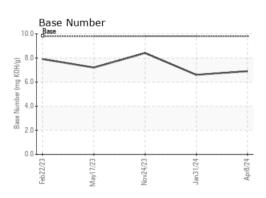
GRAPHS















Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0108803 Lab Number : 06146397

Unique Number : 10976475 Test Package : FLEET

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

Tested Diagnosed

Received : 11 Apr 2024 : 12 Apr 2024

: 12 Apr 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

* - 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)