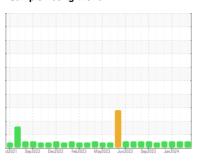


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id **810043**

Component
Diesel Engine

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

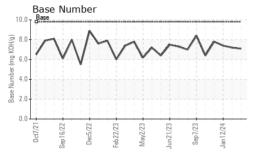
Fluid Condition

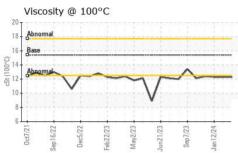
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date	5AL) cd2021 Sup2022 Duc2022 Feb2023 Mup2023 Jun2023 Sup2023 Jun2024						
Client Info	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 9677 9646 9500 Oil Age hrs Client Info 584 584 417 Oil Changed Client Info Changed Changed Not Changed Sample Status Imitity NoRMAL NORMAL NORMAL CONTAMINATION method Imitity 1.0 <1.0	Sample Number		Client Info		GFL0109945	GFL0107163	GFL0109895
Oil Age hrs Client Info 594 584 417 Oil Changed Sample Status Client Info Changed Changed Changed Not Changed Not Changed NorMAL NoRMAL NORMAL 1.10 1.10 1.10 NORMAL	Sample Date		Client Info		05 Feb 2024	05 Feb 2024	12 Jan 2024
Client Info Changed NORMAL NORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		9677	9646	9500
NORMAL NORMAL NORMAL CONTAMINATION method mill/base current history1 history2	Oil Age	hrs	Client Info		594	584	417
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 15 16 12 Chromium ppm ASTM D5185m >5 <1	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
Part	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >5 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>75	15	16	12
Titanium ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >15 2 3 2 Lead ppm ASTM D5185m >100 1 2 1 0 Copper ppm ASTM D5185m >100 1 2 1 0 0 Vanadium ppm ASTM D5185m >4 <1 0 0 0 Vanadium ppm ASTM D5185m 0 <1 <1 <1 0 0 Cadmium ppm ASTM D5185m 0 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4 4 3 4	Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Description	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >100 1 2 1 Tin ppm ASTM D5185m >4 <1	Aluminum	ppm	ASTM D5185m	>15	2	3	2
Tin	Lead	ppm	ASTM D5185m	>25	<1	<1	0
Vanadium ppm ASTM D5185m <1 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 4 3 4 Barium ppm ASTM D5185m 0 0 0 3 Molybdenum ppm ASTM D5185m 0 60 60 60 59 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 901 853 892 Calcium ppm ASTM D5185m 1070 1050 1017 1037 Phosphorus ppm ASTM D5185m 1270 1207 1169 1152 Sulfur ppm ASTM D5185m 2060 2916 2813 3205 CONTAMINANTS method limit/base current	Copper	ppm	ASTM D5185m	>100	1	2	1
ADDITIVES	Tin	ppm	ASTM D5185m	>4	<1	0	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	<1	0
Boron ppm ASTM D5185m 0 0 0 0 0 0 3	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 3 Molybdenum ppm ASTM D5185m 60 60 60 59 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 60 60 59 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 901 853 892 Calcium ppm ASTM D5185m 1070 1050 1017 1037 Phosphorus ppm ASTM D5185m 1150 981 958 953 Zinc ppm ASTM D5185m 1270 1207 1169 1152 Sulfur ppm ASTM D5185m 2060 2916 2813 3205 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >6 <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>4</th> <td>3</td> <td>4</td>	Boron	ppm	ASTM D5185m	0	4	3	4
Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 901 853 892 Calcium ppm ASTM D5185m 1070 1050 1017 1037 Phosphorus ppm ASTM D5185m 1150 981 958 953 Zinc ppm ASTM D5185m 1270 1207 1169 1152 Sulfur ppm ASTM D5185m 2060 2916 2813 3205 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >25 4 4 3 Potassium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot %	Barium	ppm	ASTM D5185m	0	0	0	3
Magnesium ppm ASTM D5185m 1010 901 853 892 Calcium ppm ASTM D5185m 1070 1050 1017 1037 Phosphorus ppm ASTM D5185m 1150 981 958 953 Zinc ppm ASTM D5185m 1270 1207 1169 1152 Sulfur ppm ASTM D5185m 2060 2916 2813 3205 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm <td< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td>60</td><th>60</th><td>60</td><td>59</td></td<>	Molybdenum	ppm	ASTM D5185m	60	60	60	59
Calcium ppm ASTM D5185m 1070 1050 1017 1037 Phosphorus ppm ASTM D5185m 1150 981 958 953 Zinc ppm ASTM D5185m 1270 1207 1169 1152 Sulfur ppm ASTM D5185m 2060 2916 2813 3205 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEG	Manganese	ppm	ASTM D5185m	0	<1	<1	0
Phosphorus ppm ASTM D5185m 1150 981 958 953 Zinc ppm ASTM D5185m 1270 1207 1169 1152 Sulfur ppm ASTM D5185m 2060 2916 2813 3205 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.	Magnesium	ppm	ASTM D5185m	1010	901	853	892
Zinc ppm ASTM D5185m 1270 1207 1169 1152 Sulfur ppm ASTM D5185m 2060 2916 2813 3205 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 4 5 0 Potassium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7	Calcium	ppm	ASTM D5185m	1070	1050	1017	1037
Sulfur ppm ASTM D5185m 2060 2916 2813 3205 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	Phosphorus	ppm	ASTM D5185m	1150	981	958	953
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 4 5 0 Potassium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	Zinc	ppm	ASTM D5185m	1270	1207	1169	1152
Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 4 5 0 Potassium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	Sulfur	ppm	ASTM D5185m	2060	2916	2813	3205
Sodium ppm ASTM D5185m 4 5 0 Potassium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 7 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	Silicon	ppm	ASTM D5185m	>25	4	4	3
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	Sodium	ppm	ASTM D5185m		4	5	0
Soot % % *ASTM D7844 >6 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	Potassium	ppm	ASTM D5185m	>20	7	10	8
Nitration Abs/cm *ASTM D7624 >20 7.6 7.6 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	Soot %	%	*ASTM D7844	>6	0.5	0.5	0.3
Sulfation Abs/.1mm *ASTM D7415 >30 18.6 18.4 17.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.6 12.8	Nitration	Abs/cm	*ASTM D7624	>20	7.6	7.6	6.6
Oxidation		Abs/.1mm		>30			
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.6	13.6	12.8
	Base Number (BN)	mg KOH/g			7.1	7.2	7.4



OIL ANALYSIS REPORT

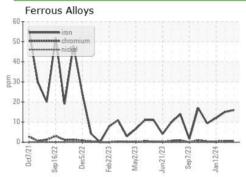


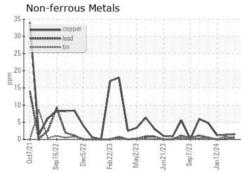


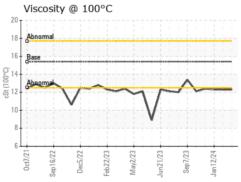
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

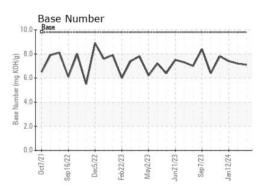
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.3	12.3	12.3

GRAPHS













Certificate L2367

Laboratory Sample No.

: GFL0109945 Lab Number : 06084226 Unique Number : 10871671 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Feb 2024 **Tested** : 09 Feb 2024

Diagnosed : 09 Feb 2024 - Wes Davis

GFL Environmental - 010 - Stockbridge

1280 Rum Creek Parkway Stockbridge, GA

US 30281

Contact: JOSHUA TINKER joshuatinker@gflenv.com

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) F:

Submitted By: JOSHUA TINKER

T: