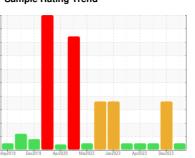


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id **225054-632108**

Component

Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Engine oil sample)

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

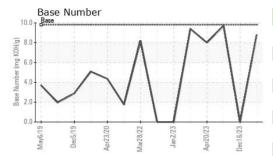
Fluid Condition

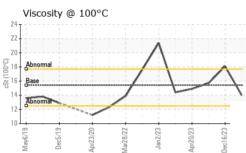
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date	GAL)		vlay2019 D	ec2019 Apr2020 Mai	2022 Jan2023 Apr2023	Dec2023	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 20213 20145 19572 Oil Age hrs Client Info 20213 20145 19572 Oil Changed Client Info Not Changed Changed Changed Changed Changed NORMAL CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >5 <1.0	Sample Number		Client Info		GFL0103957	GFL0103955	GFL0093284
Dil Age	Sample Date		Client Info		28 Dec 2023	16 Dec 2023	04 Oct 2023
Oil Changed Sample Status Client Info Not Changed NORMAL Changed SeVERE Changed NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >5 <1.0 <1.0 <1.0 Glycol WC Method >5 <1.0 <1.0 <1.0 <1.0 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 14 64 20 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 14 64 20 Chromium ppm ASTM D5185m >20 <1 9 3 Ilimit/base ppm ASTM D5185m >20 1 9 3 Ilviarium ppm ASTM D5185m >20 1 <t< td=""><td>Machine Age</td><td>hrs</td><td>Client Info</td><td></td><th>20213</th><td>20145</td><td>19572</td></t<>	Machine Age	hrs	Client Info		20213	20145	19572
CONTAMINATION	Oil Age	hrs	Client Info		20213	20145	19572
Fuel	Oil Changed		Client Info		Not Changd	Changed	Changed
Fuel	Sample Status				NORMAL	SEVERE	NORMAL
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >10.0 14 64 20 Chromium ppm ASTM D5185m >20 <1	CONTAMINATI	ON	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<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 2 0 Nickel ppm ASTM D5185m >4 0 <1	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	14	64	20
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	2	0
Silver	Nickel	ppm	ASTM D5185m	>4	0		0
Aluminum ppm ASTM D5185m >20 1 9 3 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 1 1 <1	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 1 1 <1 Tin ppm ASTM D5185m >15 0 1 0 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 2 <1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 0 0 Calcium ppm ASTM D5185m 1010 1025 1008 969 Calcium ppm ASTM D5185m 1070 1122 1105	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 1 1 <1 Tin ppm ASTM D5185m >15 0 1 0 Vanadium ppm ASTM D5185m 0 <1	Aluminum	ppm	ASTM D5185m	>20	1	9	3
Tin	Lead	ppm	ASTM D5185m	>40	0	0	0
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 2 <1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 1025 1008 969 Calcium ppm ASTM D5185m 1070 1122 1105 1068 988 Zinc ppm ASTM D5185m 1270 1319 1327 1225 Sulfur ppm ASTM D5185m >2060 3238 3239 2955 CONTAMINANTS method limit/base current hist	Copper	ppm	ASTM D5185m	>330	1	1	<1
Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 2 <1	Tin	ppm	ASTM D5185m	>15	0	1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0		0
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 61 61 60 Manganese ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 61 60 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 1025 1008 969 Calcium ppm ASTM D5185m 1070 1122 1105 1068 Phosphorus ppm ASTM D5185m 1150 1062 1086 988 Zinc ppm ASTM D5185m 1270 1319 1327 1225 Sulfur ppm ASTM D5185m 2060 3238 3239 2955 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m 6 2 <1 Potassium ppm ASTM D5185m >20 6 14 6 INFRA-RED method limit/base current<	Boron	ppm	ASTM D5185m	0	3	2	<1
Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 1025 1008 969 Calcium ppm ASTM D5185m 1070 1122 1105 1068 Phosphorus ppm ASTM D5185m 1150 1062 1086 988 Zinc ppm ASTM D5185m 1270 1319 1327 1225 Sulfur ppm ASTM D5185m 2060 3238 3239 2955 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m >20 6 2 <1 Potassium ppm ASTM D5185m >20 6 14 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 </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 1025 1008 969 Calcium ppm ASTM D5185m 1070 1122 1105 1068 Phosphorus ppm ASTM D5185m 1150 1062 1086 988 Zinc ppm ASTM D5185m 1270 1319 1327 1225 Sulfur ppm ASTM D5185m 2060 3238 3239 2955 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m >20 6 2 <1 Potassium ppm ASTM D5185m >20 6 14 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 8.3 33.5 7.8 Sulfation Abs/.1mm *ASTM D7415<	Molybdenum	ppm	ASTM D5185m	60	61	61	60
Calcium ppm ASTM D5185m 1070 1122 1105 1068 Phosphorus ppm ASTM D5185m 1150 1062 1086 988 Zinc ppm ASTM D5185m 1270 1319 1327 1225 Sulfur ppm ASTM D5185m 2060 3238 3239 2955 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m >20 6 14 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 7.5 2 Nitration Abs/cm *ASTM D7415 >30 20.6 30.4 21.7 FLUID DEGRADATION *ASTM D7414 >25 <td>Manganese</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td><1</td> <td>0</td>	Manganese	ppm	ASTM D5185m	0	0	<1	0
Phosphorus ppm ASTM D5185m 1150 1062 1086 988 Zinc ppm ASTM D5185m 1270 1319 1327 1225 Sulfur ppm ASTM D5185m 2060 3238 3239 2955 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m >20 6 14 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 7.5 2 Nitration Abs/cm *ASTM D7415 >30 20.6 30.4 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *AST	Magnesium	ppm	ASTM D5185m	1010	1025	1008	969
Zinc ppm ASTM D5185m 1270 1319 1327 1225 Sulfur ppm ASTM D5185m 2060 3238 3239 2955 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m 6 2 <1	Calcium	ppm	ASTM D5185m	1070	1122	1105	1068
Sulfur ppm ASTM D5185m 2060 3238 3239 2955 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m >20 6 2 <1	Phosphorus	ppm	ASTM D5185m	1150	1062	1086	988
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m 6 2 <1	Zinc	ppm	ASTM D5185m	1270	1319	1327	1225
Silicon ppm ASTM D5185m >25 7 7 3 Sodium ppm ASTM D5185m 6 2 <1 Potassium ppm ASTM D5185m >20 6 14 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 7.5 2 Nitration Abs/cm *ASTM D7624 >20 8.3 33.5 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 30.4 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 95.8 13.7	Sulfur	ppm	ASTM D5185m	2060	3238	3239	2955
Sodium ppm ASTM D5185m 6 2 <1 Potassium ppm ASTM D5185m >20 6 14 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 ↑7.5 2 Nitration Abs/cm *ASTM D7624 >20 8.3 33.5 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 30.4 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 95.8 13.7	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 6 14 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 ▼7.5 2 Nitration Abs/cm *ASTM D7624 >20 8.3 33.5 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 30.4 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 95.8 13.7	Silicon	ppm	ASTM D5185m	>25	7	7	3
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.7 ▼ 7.5 2 Nitration Abs/cm *ASTM D7624 >20 8.3 33.5 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 30.4 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 95.8 13.7	Sodium	ppm	ASTM D5185m		6	2	<1
Soot % % *ASTM D7844 >3 0.7 ● 7.5 2 Nitration Abs/cm *ASTM D7624 >20 8.3 33.5 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 30.4 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 95.8 13.7	Potassium	ppm	ASTM D5185m	>20	6	14	6
Nitration Abs/cm *ASTM D7624 >20 8.3 33.5 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 30.4 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 95.8 13.7	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 30.4 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 95.8 13.7	Soot %	%	*ASTM D7844	>3	0.7	7.5	2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 95.8 13.7	Nitration	Abs/cm	*ASTM D7624	>20	8.3	33.5	7.8
Oxidation Abs/.1mm *ASTM D7414 >25 15.6 95.8 13.7	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.6	30.4	21.7
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 ▲ 0.0 9.7	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.6	95.8	13.7
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.8	▲ 0.0	9.7



OIL ANALYSIS REPORT

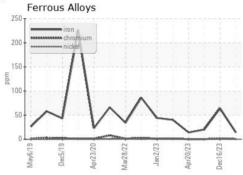


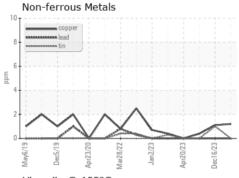


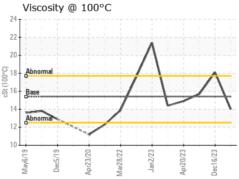
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

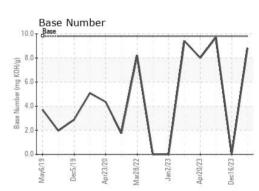
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	<u></u> 18.1	15.7

GRAPHS













Certificate L2367

Laboratory

Sample No. Lab Number **Unique Number** Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0103957 : 06051735

Recieved Diagnosed : 10817684

: 05 Jan 2024 : 08 Jan 2024 Diagnostician : Jonathan Hester GFL Environmental - 865 - East Mount Hauling 7213 East Mount Houston Road

Houston, TX US 77050 Contact: Saul Castillo

saul.castillo@gflenv.com T:

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: