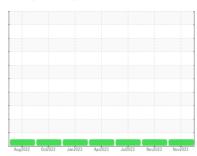


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 912045

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

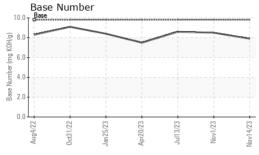
Fluid Condition

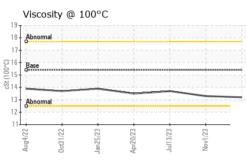
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date	iAL)		Aug2022	Oct2022 Jan 2023	Apr2023 Jul2023 Nov2023	Nov2023	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 3903 3809 3297	Sample Number		Client Info		GFL0094865	GFL0088310	GFL0077500
Oil Age hrs Client Info 606 512 657 Oil Changed Sample Status Client Info Changed Not Changed Not Changed NoRMAL NORMAL NORMAL NO	Sample Date		Client Info		14 Nov 2023	01 Nov 2023	13 Jul 2023
Client Info Changed NORMAL NORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		3903	3809	3297
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		606	512	657
CONTAMINATION	Oil Changed		Client Info		Changed	Not Changd	Changed
Fuel	Sample Status				NORMAL	NORMAL	
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 19 16 14 Chromium ppm ASTM D5185m >20 2 1 <1	CONTAMINAT	ION	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
Description Description	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 2 1 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel		ppm	ASTM D5185m	>100		16	
Description	Chromium	ppm	ASTM D5185m	>20	2	1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m		0	0	<1
Lead	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	9	9	6
Tin	Lead	ppm	ASTM D5185m	>40	<1	1	0
Vanadium ppm ASTM D5185m 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 7 1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1 <1 <1 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 927 918 1041 Calcium ppm ASTM D5185m 1070 1056 1041 1180 Phosphorus ppm ASTM D5185m 1270 1198 1263 1331 Sulfur ppm ASTM D5185m 2060 2764 2985 3666 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>330	1	0	<1
ADDITIVES	Tin	ppm	ASTM D5185m	>15	0	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	<1
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 59 60 64 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 927 918 1041 Calcium ppm ASTM D5185m 1070 1056 1041 1180 Phosphorus ppm ASTM D5185m 1150 881 953 1035 Zinc ppm ASTM D5185m 1270 1198 1263 1331 Sulfur ppm ASTM D5185m 2060 2764 2985 3666 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 2 Sodium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >3	Boron	ppm	ASTM D5185m	0	3	7	1
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 927 918 1041 Calcium ppm ASTM D5185m 1070 1056 1041 1180 Phosphorus ppm ASTM D5185m 1150 881 953 1035 Zinc ppm ASTM D5185m 1270 1198 1263 1331 Sulfur ppm ASTM D5185m 2060 2764 2985 3666 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 2 Sodium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 <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 927 918 1041 Calcium ppm ASTM D5185m 1070 1056 1041 1180 Phosphorus ppm ASTM D5185m 1150 881 953 1035 Zinc ppm ASTM D5185m 1270 1198 1263 1331 Sulfur ppm ASTM D5185m 2060 2764 2985 3666 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 2 Sodium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/.1mm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM	Molybdenum	ppm	ASTM D5185m	60	59	60	64
Calcium ppm ASTM D5185m 1070 1056 1041 1180 Phosphorus ppm ASTM D5185m 1150 881 953 1035 Zinc ppm ASTM D5185m 1270 1198 1263 1331 Sulfur ppm ASTM D5185m 2060 2764 2985 3666 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 2 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 </td <td>Manganese</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th><1</th> <td><1</td> <td><1</td>	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 881 953 1035 Zinc ppm ASTM D5185m 1270 1198 1263 1331 Sulfur ppm ASTM D5185m 2060 2764 2985 3666 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 2 Sodium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs	Magnesium	ppm	ASTM D5185m	1010	927	918	1041
Zinc ppm ASTM D5185m 1270 1198 1263 1331 Sulfur ppm ASTM D5185m 2060 2764 2985 3666 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 2 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D	Calcium	ppm	ASTM D5185m	1070	1056	1041	1180
Sulfur ppm ASTM D5185m 2060 2764 2985 3666 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 2 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	Phosphorus	ppm	ASTM D5185m	1150	881	953	1035
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 2 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	Zinc	ppm	ASTM D5185m	1270	1198	1263	1331
Silicon ppm ASTM D5185m >25 3 3 2 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	Sulfur	ppm	ASTM D5185m	2060	2764	2985	3666
Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 20 19 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	Silicon	ppm	ASTM D5185m	>25	3	3	2
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	Sodium	ppm	ASTM D5185m		4	2	3
Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	Potassium	ppm	ASTM D5185m	>20	20	19	9
Nitration Abs/cm *ASTM D7624 >20 7.9 7.8 7.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.9 18.1 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	Soot %	%	*ASTM D7844	>3	0.3	0.3	0.3
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	Nitration	Abs/cm	*ASTM D7624	>20	7.9	7.8	7.8
Oxidation Abs/.1mm *ASTM D7414 >25 14.7 13.7 15.3	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.9	18.1	19.5
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.9 8.5 8.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.7	13.7	15.3
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.9	8.5	8.6



OIL ANALYSIS REPORT

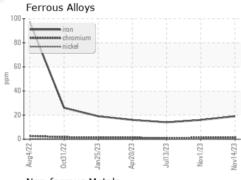


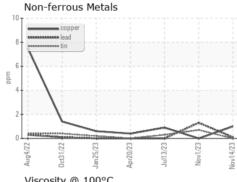


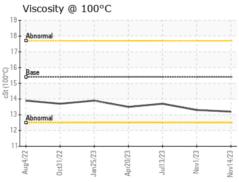
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

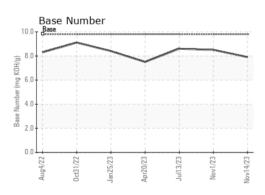
FLUID PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.2	13.3	13.7

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

Unique Number : 10753636

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0094865 : 06014492

Received Diagnosed Diagnostician : Wes Davis

: 21 Nov 2023 : 22 Nov 2023 GFL Environmental - 625 - Harrison Hauling

4102 Industrial Pkwy Harrison, MI US 48625

Contact: Glenda Standen gstanden@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)

T:

F: