

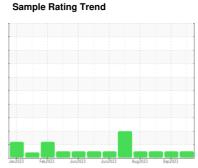
OIL ANALYSIS REPORT



ALEXANDER CITY 725028-254503

Diesel Engine

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





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

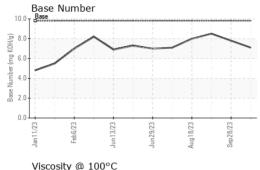
Fluid Condition

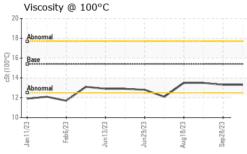
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current bistory1 history2			Jan2023	1602023 00112023	Jun2023 Aug2023 Si	pp2023	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 19068 18994 18873	Sample Number		Client Info		GFL0079756	GFL0078463	GFL0078476
Oil Age hrs Client Info 1326 1252 1131 Oil Changed Client Info N/A N/A N/A Not Changd Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 4 2 3 Chromium ppm ASTM D5185m >20 <1 0 <1 0 Nickel ppm ASTM D5185m >20 <1 0 0 Silver ppm ASTM D5185m >20 2 2 2 3 Lead ppm ASTM D5185m >40 0 <1 0 Copper ppm ASTM D5185m >330 <1	Sample Date		Client Info		10 Oct 2023	28 Sep 2023	22 Aug 2023
Oil Changed Sample Status Client Info Sample Status N/A NORMAL NORMAL NORMAL NORMAL NoRMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >12.0 4 2 3 Chromium ppm ASTM D5185m >12.0 4 2 3 Nickel ppm ASTM D5185m >2.0 4 2 3 Nickel ppm ASTM D5185m >2 <1	Machine Age	hrs	Client Info		19068	18994	18873
Sample Status	Oil Age	hrs	Client Info		1326	1252	1131
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 4 2 3 Chromium ppm ASTM D5185m >20 <1 0 <1 Nickel ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 3 Lead ppm ASTM D5185m >40 0 <1 0 Copper ppm ASTM D5185m >30 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td< th=""><th>Oil Changed</th><th></th><th>Client Info</th><th></th><th>N/A</th><th>N/A</th><th>Not Changd</th></td<>	Oil Changed		Client Info		N/A	N/A	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Silyeo WC Method NEG NEG NEG NEG	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 4 2 3 Chromium ppm ASTM D5185m >20 <1 0 <1 Nickel ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >40 0 <1 0 Copper ppm ASTM D5185m >330 <1 <1 0 Copper ppm ASTM D5185m >15 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 12 14 20 Barium ppm ASTM D5185m 0	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Iron	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	4	2	3
Titanium ppm ASTM D5185m >2 <1	Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Silver	Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Aluminum	Titanium		ASTM D5185m	>2	<1	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 <1	Aluminum	ppm	ASTM D5185m	>20	2	2	3
Tin ppm ASTM D5185m >15 <1	Lead	ppm	ASTM D5185m	>40	0	<1	0
Vanadium ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>330	<1	<1	0
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 12 14 20 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 61 60 63 Manganese ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	<1	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron ppm ASTM D5185m 0 12 14 20 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 61 60 63 Manganese ppm ASTM D5185m 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 61 60 63 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 853 887 952 Calcium ppm ASTM D5185m 1070 1038 1034 1160 Phosphorus ppm ASTM D5185m 1150 934 995 1034 Zinc ppm ASTM D5185m 1270 1090 1178 1255 Sulfur ppm ASTM D5185m 2060 2771 2957 3748 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 0 2 1 INFRA-RED method limit/base </th <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 60 63 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	12	14	20
Manganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 853 887 952 Calcium ppm ASTM D5185m 1070 1038 1034 1160 Phosphorus ppm ASTM D5185m 1150 934 995 1034 Zinc ppm ASTM D5185m 1270 1090 1178 1255 Sulfur ppm ASTM D5185m 2060 2771 2957 3748 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 0 2 1 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >4 0.1 0.1 0 Nitration Abs/:mm "ASTM D7624 >20 7.4 7.0 7.1 Sulfation Abs/:mm "ASTM D7414	Molybdenum	ppm	ASTM D5185m	60	61	60	63
Calcium ppm ASTM D5185m 1070 1038 1034 1160 Phosphorus ppm ASTM D5185m 1150 934 995 1034 Zinc ppm ASTM D5185m 1270 1090 1178 1255 Sulfur ppm ASTM D5185m 2060 2771 2957 3748 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 0 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0 Nitration Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 934 995 1034 Zinc ppm ASTM D5185m 1270 1090 1178 1255 Sulfur ppm ASTM D5185m 2060 2771 2957 3748 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 0 2 1 Potassium ppm ASTM D5185m >20 0 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0 Nitration Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *A	Magnesium	ppm	ASTM D5185m	1010	853	887	952
Zinc ppm ASTM D5185m 1270 1090 1178 1255 Sulfur ppm ASTM D5185m 2060 2771 2957 3748 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 0 2 1 Potassium ppm ASTM D5185m >20 0 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0 Nitration Abs/.1mm *ASTM D7624 >20 7.4 7.0 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Calcium	ppm	ASTM D5185m	1070			
Sulfur ppm ASTM D5185m 2060 2771 2957 3748 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 0 2 1 Potassium ppm ASTM D5185m >20 0 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.4 7.0 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5	Phosphorus	ppm	ASTM D5185m	1150		995	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 4 2 2 Potassium ppm ASTM D5185m >20 0 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.4 7.0 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5		ppm	ASTM D5185m	1270		1178	1255
Silicon ppm ASTM D5185m >25 4 4 4 2 2 2 Potassium ppm ASTM D5185m >20 0 2 1 2 2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <th></th> <th></th> <th>ASTM D5185m</th> <th>2060</th> <th>2771</th> <th>2957</th> <th>3748</th>			ASTM D5185m	2060	2771	2957	3748
Sodium ppm ASTM D5185m 4 2 2 Potassium ppm ASTM D5185m >20 0 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.4 7.0 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5		TS			current		,
Potassium ppm ASTM D5185m >20 0 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.4 7.0 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5				>25			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.4 7.0 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5							
Soot % % *ASTM D7844 >4 0.1 0.1 0 Nitration Abs/cm *ASTM D7624 >20 7.4 7.0 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5		ppm	ASTM D5185m		0	2	1
Nitration Abs/cm *ASTM D7624 >20 7.4 7.0 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5	INFRA-RED		method	limit/base		· · · · · · · · · · · · · · · · · · ·	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.6 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5							
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5							
Oxidation Abs/.1mm *ASTM D7414 >25 13.9 14.0 15.5	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.1	17.6	20.7
	FLUID DEGRA		method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.1 7.8 8.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.9	14.0	15.5
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.1	7.8	8.5



OIL ANALYSIS REPORT

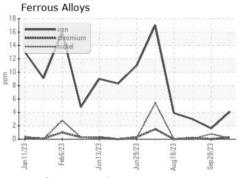




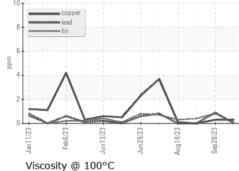
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.3	13.5

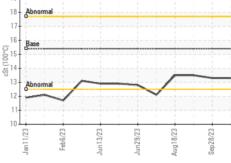
GRAPHS

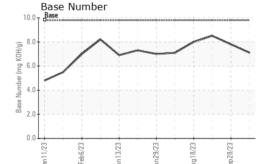
















Certificate L2367

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0079756 : 05979248 : 10696543

Received : 16 Oct 2023 Diagnosed Diagnostician : Wes Davis

: 16 Oct 2023

GFL Environmental - 172 - Montgomery-Alexander City-Tallahassee

Multiple Sites Montgomery, AL US 36108

Contact: BRANDON HURST brandonhurst@gflenv.com

T: F:

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)