

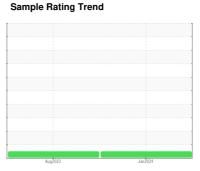
OIL ANALYSIS REPORT

NORMAL



720054 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

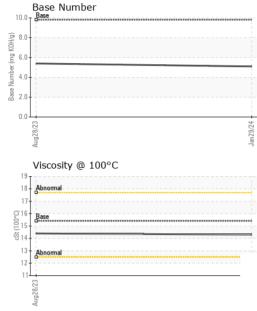
Fluid Condition

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

Client Info Client Info Cample Number Client Info Client Info Client Info Client Info Client Info Client Info Colient Info Colient Info Colient Info Colient Info Client Info Colient Info	14 3111 1344-0 (-	GAL)	1	Aug2023	Jan2024		
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 500 0	Sample Number		Client Info		GFL0103604	GFL0085291	
Machine Age hrs Client Info 500 0	Sample Date		Client Info		29 Jan 2024	28 Aug 2023	
Coli Changed Client Info N/A N/A NORMAL NOR	Machine Age	hrs	Client Info		0	_	
NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2 history2 history2 history2 history3 history2 history3 history3	Oil Age	hrs	Client Info		500	0	
CONTAMINATION	Oil Changed		Client Info		N/A	N/A	
Fuel	Sample Status				NORMAL	NORMAL	
Water WC Method >0.2 NEG NEG Glycol WC Method Imitibase Current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >80 39 66 Chromium ppm ASTM D5185m >5 1 2 Nickel ppm ASTM D5185m >2 <1 <1 < Silver ppm ASTM D5185m >2 <1 <0 Silver ppm ASTM D5185m >30 <1 0 Silver ppm ASTM D5185m >30 <1 0 Silver ppm ASTM D5185m >30 <1 0 Aluminum ppm ASTM D5185m >30 <1 0 Copper ppm ASTM D5185m >5 <1 0	CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	
Chromium	Glycol		WC Method		NEG	NEG	
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>80	39	66	
Silver	Chromium	ppm	ASTM D5185m	>5	1	2	
Silver	Nickel	ppm	ASTM D5185m	>2	<1	<1	
Silver	Titanium		ASTM D5185m		<1	0	
Aluminum	Silver		ASTM D5185m	>3	0	0	
Lead	Aluminum		ASTM D5185m	>30		3	
Copper ppm ASTM D5185m >150 5 5 Tin ppm ASTM D5185m >5 <1	Lead			>30	<1	0	
Tin	Copper		ASTM D5185m	>150	5	5	
Vanadium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 0 Barium ppm ASTM D5185m 0 <1 0 Barium ppm ASTM D5185m 0 <1 0 Molybdenum ppm ASTM D5185m 60 61 60 Manganese ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 1010 913 974 Calcium ppm ASTM D5185m 1070 1072 1114 Phosphorus ppm ASTM D5185m 1270 1206 1274 Sulfur ppm ASTM D5185m 2060 2834 3144 CONTAMINANTS method limit/base current							
Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 0 Barium ppm ASTM D5185m 0 <1 0 Molybdenum ppm ASTM D5185m 0 <1 1 Manganese ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 1010 913 974 Calcium ppm ASTM D5185m 1070 1072 1114 Phosphorus ppm ASTM D5185m 1270 1206 1274 Sulfur ppm ASTM D5185m 2060 2834 3144 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >20 8	Vanadium		ASTM D5185m		0	0	
Boron	Cadmium		ASTM D5185m		0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 60 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	<1	0	
Manganese ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 1010 913 974 Calcium ppm ASTM D5185m 1070 1072 1114 Phosphorus ppm ASTM D5185m 1150 934 999 Zinc ppm ASTM D5185m 1270 1206 1274 Sulfur ppm ASTM D5185m 2060 2834 3144 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 8 13 Sodium ppm ASTM D5185m >20 8 4 Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <td><1</td> <td>0</td> <td></td>	Barium	ppm	ASTM D5185m	0	<1	0	
Magnesium ppm ASTM D5185m 1010 913 974 Calcium ppm ASTM D5185m 1070 1072 11114 Phosphorus ppm ASTM D5185m 1150 934 999 Zinc ppm ASTM D5185m 1270 1206 1274 Sulfur ppm ASTM D5185m 2060 2834 3144 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 8 13 Sodium ppm ASTM D5185m 5 10 Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30<	Molybdenum	ppm	ASTM D5185m	60	61	60	
Calcium ppm ASTM D5185m 1070 1072 1114 Phosphorus ppm ASTM D5185m 1150 934 999 Zinc ppm ASTM D5185m 1270 1206 1274 Sulfur ppm ASTM D5185m 2060 2834 3144 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 8 13 Sodium ppm ASTM D5185m >20 8 4 Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 1.1 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION *ASTM D7414	Manganese	ppm	ASTM D5185m	0	<1	1	
Phosphorus ppm ASTM D5185m 1150 934 999 Zinc ppm ASTM D5185m 1270 1206 1274 Sulfur ppm ASTM D5185m 2060 2834 3144 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 8 13 Sodium ppm ASTM D5185m 5 10 Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 1.1 Nitration Abs/cm *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION *ASTM D7414 >25<	Magnesium	ppm	ASTM D5185m	1010	913	974	
Zinc ppm ASTM D5185m 1270 1206 1274 Sulfur ppm ASTM D5185m 2060 2834 3144 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 8 13 Sodium ppm ASTM D5185m 5 10 Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 1.1 Nitration Abs/cm *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Calcium	ppm	ASTM D5185m	1070	1072	1114	
Sulfur ppm ASTM D5185m 2060 2834 3144 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 8 13 Sodium ppm ASTM D5185m 5 10 Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 1.1 Nitration Abs/cm *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 25.6 29.4	Phosphorus	ppm	ASTM D5185m	1150	934	999	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 8 13 Sodium ppm ASTM D5185m 5 10 Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 1.1 Nitration Abs/cm *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 25.6 29.4	Zinc	ppm	ASTM D5185m	1270	1206	1274	
Silicon ppm ASTM D5185m >20 8 13 Sodium ppm ASTM D5185m 5 10 Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 1.1 Nitration Abs/cm *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 25.6 29.4	Sulfur	ppm	ASTM D5185m	2060	2834	3144	
Sodium ppm ASTM D5185m 5 10 Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 1.1 Nitration Abs/cm *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 25.6 29.4	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 8 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 1.1 Nitration Abs/cm *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 25.6 29.4	Silicon	ppm	ASTM D5185m	>20	8	13	
INFRA-RED	Sodium	ppm	ASTM D5185m		5	10	
Soot % *ASTM D7844 >3 0.8 1.1 Nitration Abs/cm *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 25.6 29.4	Potassium	ppm	ASTM D5185m	>20	8	4	
Nitration Abs/cm *ASTM D7624 >20 12.5 13.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 25.6 29.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 25.2 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 25.6 29.4	Soot %	%	*ASTM D7844	>3	0.8	1.1	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 25.6 29.4	Nitration	Abs/cm	*ASTM D7624	>20	12.5	13.2	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	25.2	27.9	
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 5.1 5.4	Oxidation	Abs/.1mm	*ASTM D7414	>25	25.6	29.4	
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	5.1	5.4	



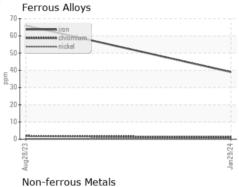
OIL ANALYSIS REPORT

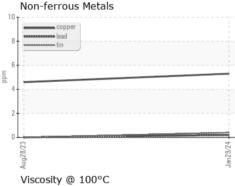


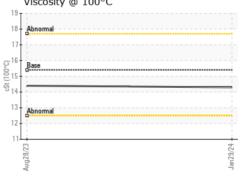
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	

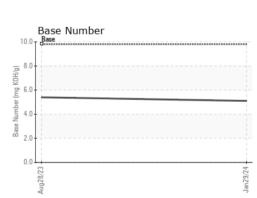
FLUID PROPE	RHES	method	limit/base		nistory1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.3	14.4	

GRAPHS











Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10859624

Test Package : FLEET

: GFL0103604 : 06077533

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved Diagnosed

: 01 Feb 2024 : 04 Feb 2024 Diagnostician : Don Baldridge GFL Environmental - 958 - Tri County HC Morton

1090 W. Jefferson St. Morton, IL US 61550

Contact: Bryan Link blink@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: