

OIL ANALYSIS REPORT

(BC80767) 412042

Diesel Engine

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

Sample Rating Trend



DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. (Customer Sample Comment: Serviced

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

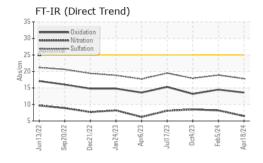
Fluid Condition

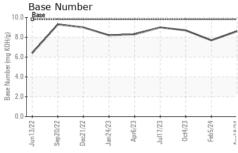
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

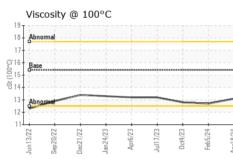
SAMPLE INFORMATION method limit base current bistory1 bistory2							
Sample Date	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 5612 5235 4651 Oil Age hrs Client Info 377 586 473 Oil Changed Client Info Changed	Sample Number		Client Info		GFL0116278	GFL0094883	GFL0088290
Oil Age hrs Client Info 377 586 473 Oil Changed Sample Status Client Info Changed Changed Changed Changed Changed NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method Method Solve Norman Norma	Sample Date		Client Info		18 Apr 2024	05 Feb 2024	04 Oct 2023
Client Info Changed Changed NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		5612	5235	4651
NORMAL NORMAL NORMAL NORMAL	Oil Age	hrs	Client Info		377	586	473
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 7 12 12 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1 0 <1 <1 0 Silver ppm ASTM D5185m >2 <1 0 <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	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imili/base current history1 history2 WEAR METALS method limil/base current history1 history2 Iron ppm ASTM D5185m >90 7 12 12 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1 0 <1 Silver ppm ASTM D5185m >2 <1 0 <1 Silver ppm ASTM D5185m >20 3 2 3 Silver ppm ASTM D5185m >40 <1 <1 <1 <1 Silver ppm ASTM D5185m >40 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <th>CONTAMINATIO</th> <th>NC</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINATIO	NC	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
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1	WEAR METALS	;	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>90	7	12	12
Titanium ppm ASTM D5185m >2 <1 <1 0 Silver ppm ASTM D5185m >2 <1 0 <1 Aluminum ppm ASTM D5185m >20 3 2 3 Lead ppm ASTM D5185m >40 <1 <1 <1 <1 Copper ppm ASTM D5185m >15 1 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <0 Vanadium ppm ASTM D5185m >15 1 1 <1 <1 <0 <0 Cadmium ppm ASTM D5185m <1 0 0 <0 <1 0 0 <1 0 <0 <1 0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Stiver	Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum ppm ASTM D5185m >20 3 2 3 Lead ppm ASTM D5185m >40 <1	Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Lead	Silver	ppm	ASTM D5185m	>2	<1	0	<1
Copper ppm ASTM D5185m >330 <1 3 <1 Tin ppm ASTM D5185m >15 1 1 <1	Aluminum	ppm	ASTM D5185m	>20	3	2	3
Tin	Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Vanadium ppm ASTM D5185m <1 <1 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 2 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 60 60 60 57 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 871 937 924 Calcium ppm ASTM D5185m 1070 1059 1041 1030 Phosphorus ppm ASTM D5185m 1270 1175 1242 1214 Sulfur ppm ASTM D5185m 2060 3313 3065 2815 CONTAMINANTS method limit/base current <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><th><1</th><td>3</td><td><1</td></t<>	Copper	ppm	ASTM D5185m	>330	<1	3	<1
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 2 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 60 57 Manganese ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	1	1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 2 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 60 57 Manganese ppm ASTM D5185m 0 <1	Vanadium	ppm	ASTM D5185m		<1	<1	0
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 60 57 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 871 937 924 Calcium ppm ASTM D5185m 1070 1059 1041 1030 Phosphorus ppm ASTM D5185m 1150 1079 1020 967 Zinc ppm ASTM D5185m 1270 1175 1242 1214 Sulfur ppm ASTM D5185m 2060 3313 3065 2815 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m <1 3 6 INFRA-RED method limit/base cur	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 60 60 57 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	5	2	4
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 871 937 924 Calcium ppm ASTM D5185m 1070 1059 1041 1030 Phosphorus ppm ASTM D5185m 1150 1079 1020 967 Zinc ppm ASTM D5185m 1270 1175 1242 1214 Sulfur ppm ASTM D5185m 2060 3313 3065 2815 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m >20 4 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 871 937 924 Calcium ppm ASTM D5185m 1070 1059 1041 1030 Phosphorus ppm ASTM D5185m 1150 1079 1020 967 Zinc ppm ASTM D5185m 1270 1175 1242 1214 Sulfur ppm ASTM D5185m 2060 3313 3065 2815 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m >20 4 3 6 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844 >6 0.3 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415	Molybdenum	ppm	ASTM D5185m	60	60	60	57
Calcium ppm ASTM D5185m 1070 1059 1041 1030 Phosphorus ppm ASTM D5185m 1150 1079 1020 967 Zinc ppm ASTM D5185m 1270 1175 1242 1214 Sulfur ppm ASTM D5185m 2060 3313 3065 2815 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m >20 4 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION <	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1079 1020 967 Zinc ppm ASTM D5185m 1270 1175 1242 1214 Sulfur ppm ASTM D5185m 2060 3313 3065 2815 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m >20 4 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Magnesium	ppm	ASTM D5185m	1010	871	937	924
Zinc ppm ASTM D5185m 1270 1175 1242 1214 Sulfur ppm ASTM D5185m 2060 3313 3065 2815 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m >20 4 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2	Calcium	ppm	ASTM D5185m	1070	1059	1041	1030
Sulfur ppm ASTM D5185m 2060 3313 3065 2815 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m >20 4 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2	Phosphorus	ppm	ASTM D5185m	1150	1079	1020	967
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m <1	Zinc	ppm	ASTM D5185m	1270	1175	1242	1214
Silicon ppm ASTM D5185m >25 3 2 3 Sodium ppm ASTM D5185m <1 3 3 Potassium ppm ASTM D5185m >20 4 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2	Sulfur	ppm	ASTM D5185m	2060	3313	3065	2815
Sodium ppm ASTM D5185m <1	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2	Silicon	ppm	ASTM D5185m	>25	3	2	3
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.3 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2	Sodium	ppm	ASTM D5185m		<1	3	3
Soot % % *ASTM D7844 >6 0.3 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2	Potassium	ppm	ASTM D5185m	>20	4	3	6
Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2	Soot %	%	*ASTM D7844	>6	0.3	0.5	0.4
Sulfation Abs/.1mm *ASTM D7415 >30 17.8 18.9 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2	Nitration	Abs/cm	*ASTM D7624	>20		8.2	8.5
Oxidation Abs/.1mm *ASTM D7414 >25 13.6 14.5 13.2							
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.6	14.5	13.2
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.6	7.7	8.7



OIL ANALYSIS REPORT



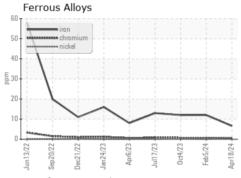


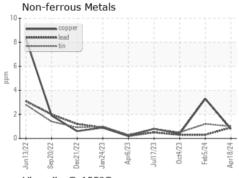


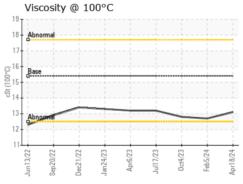
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

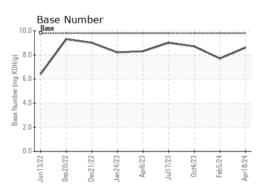
FLUID PROPI	ERHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	12.7	12.8

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0116278 Lab Number : 06156744 Unique Number : 10992167

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received **Tested**

: 22 Apr 2024 : 23 Apr 2024 Diagnosed : 24 Apr 2024 - Sean Felton

4102 Industrial Pkwy Harrison, MI US 48625

GFL Environmental - 625 - Harrison Hauling

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)

Report Id: GFL625 [WUSCAR] 06156744 (Generated: 04/24/2024 15:19:45) Rev: 1

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