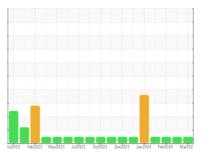


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id
912036
Component
Diesel Engine
Fluid

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

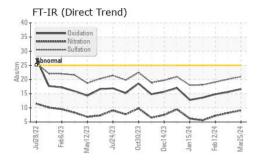
Fluid Condition

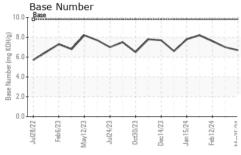
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

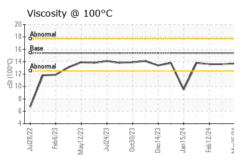
Sample Number Client Info GFL0113721 GFL0111109 GFL0111086 Sample Date Client Info 25 Mar 2024 01 Mar 2024 12 Feb 2024 Machine Age hrs Client Info 6031 5883 5766 Silver Sample Status Client Info 443 295 178 Silver Contact Client Info Changed N/A N/A	SAMPLE INFORM	1ATIO <u>N</u>	method	limit/base	current	history1	history2
Client Info					GFL0113721	GFL0111109	
Machine Age hrs Client Info 6031 5883 5766 Oil Age hrs Client Info 443 295 178 Oil Age hrs Client Info Changed N/A N/A Sample Status NORMAL NORMAL NORMAL CONTAMINATION method Imit/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 NEG WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >120 8 6 2 Chromium ppm ASTM D5185m >5 <1 <1 <1 Titanium ppm ASTM D5185m >20 <1 0 0 Aluminum ppm ASTM D5185m >20 2 1 2 Lead ppm ASTM D5185m >20 2 1 2 Lead ppm ASTM D5185m >330 <1 <1 2 Tin ppm ASTM D5185m >330 <1 <1 2 Tin ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 ASTM D5185m 0 0 0 0 0 0 0 ASTM D5185m 0 0 0 0 0 0 0 0 ASTM D5185m 0 0 0 0 0 0 0 0 0			Client Info		25 Mar 2024	01 Mar 2024	12 Feb 2024
Oil Changed		hrs			6031		
Client Info Changed N/A N/A NORMAL N	J						
NORMAL NORMAL NORMAL NORMAL	-				-		N/A
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 >120 8 6 2 Chromium ppm ASTM D5185m >20 <1 0 0 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >20 2 1 2 Lead ppm ASTM D5185m >40 <1 0 1 Copper ppm ASTM D5185m >33.0 <1 <1 2 Tin ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 13 9 15 Barium ppm ASTM D5185m 0 0	CONTAMINATION	ON	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 8 6 2 Chromium ppm ASTM D5185m >20 <1	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Part	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 0 0 Nickel ppm ASTM D5185m >5 <1	WEAR METALS	5	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	8	6	2
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	0	0
Silver	Nickel	ppm	ASTM D5185m	>5	<1	<1	<1
Aluminum ppm ASTM D5185m >20 2 1 2 Lead ppm ASTM D5185m >40 <1	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >40 <1 0 1 Copper ppm ASTM D5185m >330 <1 <1 2 Tin ppm ASTM D5185m >15 <1 1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 13 9 15 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1070 1181 1154 995 Phosphorus ppm ASTM D5185m 1270 1260 12	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 <1 <1 2 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	2	1	2
Tin	Lead	ppm	ASTM D5185m	>40	<1	0	1
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 13 9 15 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 4 81 79 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1070 1181 1154 995 Phosphorus ppm ASTM D5185m 1270 1260 1232 1169 Sulfur ppm ASTM D5185m 2060 3392 3015 2839 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3	Copper	ppm	ASTM D5185m	>330	<1	<1	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 13 9 15 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 4 81 79 Manganese ppm ASTM D5185m 0 41 0 <1	Tin	ppm	ASTM D5185m	>15	<1	1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 84 81 79 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 953 989 864 Calcium ppm ASTM D5185m 1070 1181 1154 995 Phosphorus ppm ASTM D5185m 1070 1043 1072 935 Zinc ppm ASTM D5185m 1270 1260 1232 1169 Sulfur ppm ASTM D5185m 2060 3392 3015 2839 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base <td>ADDITIVES</td> <td></td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 84 81 79 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 953 989 864 Calcium ppm ASTM D5185m 1070 1181 1154 995 Phosphorus ppm ASTM D5185m 1150 1043 1072 935 Zinc ppm ASTM D5185m 1270 1260 1232 1169 Sulfur ppm ASTM D5185m 2060 3392 3015 2839 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >4 <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>13</th> <td>9</td> <td>15</td>	Boron	ppm	ASTM D5185m	0	13	9	15
Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 953 989 864 Calcium ppm ASTM D5185m 1070 1181 1154 995 Phosphorus ppm ASTM D5185m 1150 1043 1072 935 Zinc ppm ASTM D5185m 1270 1260 1232 1169 Sulfur ppm ASTM D5185m 2060 3392 3015 2839 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D741	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 953 989 864 Calcium ppm ASTM D5185m 1070 1181 1154 995 Phosphorus ppm ASTM D5185m 1150 1043 1072 935 Zinc ppm ASTM D5185m 1270 1260 1232 1169 Sulfur ppm ASTM D5185m 2060 3392 3015 2839 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415	Molybdenum	ppm	ASTM D5185m	60	84	81	79
Calcium ppm ASTM D5185m 1070 1181 1154 995 Phosphorus ppm ASTM D5185m 1150 1043 1072 935 Zinc ppm ASTM D5185m 1270 1260 1232 1169 Sulfur ppm ASTM D5185m 2060 3392 3015 2839 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/.mm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method <	Manganese	ppm	ASTM D5185m	0	<1	0	<1
Phosphorus ppm ASTM D5185m 1150 1043 1072 935 Zinc ppm ASTM D5185m 1270 1260 1232 1169 Sulfur ppm ASTM D5185m 2060 3392 3015 2839 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/	Magnesium	ppm	ASTM D5185m	1010	953	989	864
Zinc ppm ASTM D5185m 1270 1260 1232 1169 Sulfur ppm ASTM D5185m 2060 3392 3015 2839 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m 4 3 3 Potassium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D74	Calcium	ppm	ASTM D5185m	1070	1181	1154	995
Sulfur ppm ASTM D5185m 2060 3392 3015 2839 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m 20 6 5 8 Potassium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.6 15.6 14.8	Phosphorus	ppm	ASTM D5185m	1150	1043	1072	935
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m 4 3 3 Potassium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.6 15.6 14.8	Zinc	ppm	ASTM D5185m	1270	1260	1232	1169
Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m 4 3 3 Potassium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.6 15.6 14.8	Sulfur	ppm	ASTM D5185m	2060	3392	3015	2839
Sodium ppm ASTM D5185m 4 3 3 Potassium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.6 15.6 14.8	CONTAMINANT	ΓS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 6 5 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.6 15.6 14.8	Silicon	ppm	ASTM D5185m	>25	4	3	4
INFRA-RED	Sodium	ppm	ASTM D5185m		4	3	3
Soot % % *ASTM D7844 >4 0.5 0.4 0.3 Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.6 15.6 14.8	Potassium	ppm	ASTM D5185m	>20	6	5	8
Nitration Abs/cm *ASTM D7624 >20 9.1 8.2 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.6 15.6 14.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.6 15.6 14.8	Soot %	%	*ASTM D7844	>4	0.5	0.4	0.3
Sulfation Abs/.1mm *ASTM D7415 >30 21.0 20.1 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.6 15.6 14.8	Nitration	Abs/cm	*ASTM D7624	>20		8.2	7.2
Oxidation	Sulfation						
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.6	15.6	14.8
	Base Number (BN)						



OIL ANALYSIS REPORT



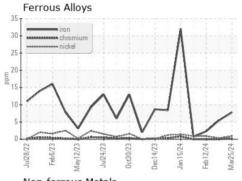


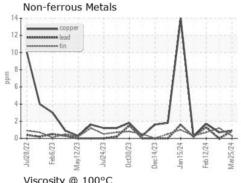


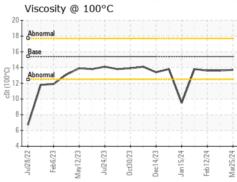
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

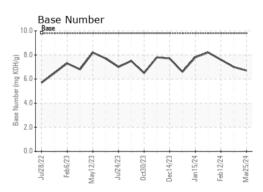
FLUIL	PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 1	00°C	cSt	ASTM D445	15.4	13.7	13.6	13.6

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0113721 Lab Number : 06140822 Unique Number : 10965630

Test Package : FLEET

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

Received : 08 Apr 2024 **Tested** : 08 Apr 2024 Diagnosed : 08 Apr 2024 - Wes Davis

1130 County Line Rd Trafford, AL US 35172

Contact: Jonathan Williams

GFL environmental - 867 - Trafford (Blount Hauling)

jonathan.williams@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: