

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 921015 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

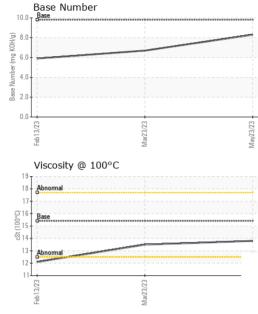
Fluid Condition

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

SAMPLE INFORMATION method Imilibase current history 1 history 2	N 30P 13W40 (- GAL)	Fel	2023	Mar2023 May20	123	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history 1	history 2
Client Info 23 May 2023 23 Mar 2023 13 Feb 2023 Machine Age mls Client Info 0 0 0 0 0 0 0 0 0	Sample Number		Client Info		GFL0084556	GFL0078789	GFL0068072
Machine Age mls			Client Info		23 May 2023	23 Mar 2023	13 Feb 2023
Oil Age	Machine Age	mls	Client Info		-	26213	313932
Contained Client Info Changed NORMAL NORMAL ATTENTION		mls	Client Info		0	0	0
NORMAL NORMAL NORMAL ATTENTION	-						Changed
Fuel	-						Ü
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history 1	history 2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	1.6
Description Description	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history 1	history 2
Nickel	Iron	ppm	ASTM D5185m	>120	14	16	12
Description	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Description	Nickel	ppm	ASTM D5185m	>5	<1	0	0
Silver	Titanium		ASTM D5185m	>2	0	0	5
Aluminum	Silver				0		
Lead	Aluminum		ASTM D5185m	>20	7	2	13
Copper	Lead		ASTM D5185m	>40	4	0	<1
Tin	Copper		ASTM D5185m	>330	3	1	
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history 1 history 2 Boron ppm ASTM D5185m 0 3 <1 14 Barium ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 0 2 <1 <1 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1070 1116 993 1111 Phosphorus ppm ASTM D5185m 1270 1305 1183 1154 Sulfur ppm ASTM D5185m 2060 3604 3079 2914 CONTAMINANTS method limit/base current history 1 <t< td=""><td></td><td></td><td>ASTM D5185m</td><td>>15</td><th></th><td>0</td><td></td></t<>			ASTM D5185m	>15		0	
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history 1 history 2 Boron ppm ASTM D5185m 0 3 <1							
Boron ppm ASTM D5185m 0 0 0 1 0 0 0 0 1 0 0	Cadmium						0
Barium ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 60 63 59 57 Manganese ppm ASTM D5185m 0 2 <1	ADDITIVES		method	limit/base	current	history 1	history 2
Molybdenum ppm ASTM D5185m 60 63 59 57 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 1030 910 798 Calcium ppm ASTM D5185m 1070 1116 993 1111 Phosphorus ppm ASTM D5185m 1150 1035 954 939 Zinc ppm ASTM D5185m 1270 1305 1183 1154 Sulfur ppm ASTM D5185m 2060 3604 3079 2914 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 4 4 5 Sodium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % *ASTM D7844 >	Boron	ppm	ASTM D5185m	0	3	<1	14
Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 1030 910 798 Calcium ppm ASTM D5185m 1070 1116 993 1111 Phosphorus ppm ASTM D5185m 1150 1035 954 939 Zinc ppm ASTM D5185m 1270 1305 1183 1154 Sulfur ppm ASTM D5185m 2060 3604 3079 2914 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 4 4 5 Sodium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/:mm *AST	Barium	ppm	ASTM D5185m	0	0	1	0
Magnesium ppm ASTM D5185m 1010 1030 910 798 Calcium ppm ASTM D5185m 1070 1116 993 1111 Phosphorus ppm ASTM D5185m 1150 1035 954 939 Zinc ppm ASTM D5185m 1270 1305 1183 1154 Sulfur ppm ASTM D5185m 2060 3604 3079 2914 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 4 4 5 Sodium ppm ASTM D5185m 3 2 10 Potassium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7415 <	Molybdenum	ppm	ASTM D5185m	60	63	59	57
Magnesium ppm ASTM D5185m 1010 1030 910 798 Calcium ppm ASTM D5185m 1070 1116 993 1111 Phosphorus ppm ASTM D5185m 1150 1035 954 939 Zinc ppm ASTM D5185m 1270 1305 1183 1154 Sulfur ppm ASTM D5185m 2060 3604 3079 2914 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 4 4 5 Sodium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm	Manganese	ppm	ASTM D5185m	0	2	<1	<1
Phosphorus ppm ASTM D5185m 1150 1035 954 939 Zinc ppm ASTM D5185m 1270 1305 1183 1154 Sulfur ppm ASTM D5185m 2060 3604 3079 2914 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 4 4 5 Sodium ppm ASTM D5185m >20 2 0 6 Potassium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION me	-	ppm	ASTM D5185m	1010	1030	910	798
Phosphorus ppm ASTM D5185m 1150 1035 954 939 Zinc ppm ASTM D5185m 1270 1305 1183 1154 Sulfur ppm ASTM D5185m 2060 3604 3079 2914 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 4 4 5 Sodium ppm ASTM D5185m 3 2 10 Potassium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base	Calcium	ppm	ASTM D5185m	1070	1116	993	1111
Zinc ppm ASTM D5185m 1270 1305 1183 1154 Sulfur ppm ASTM D5185m 2060 3604 3079 2914 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 4 4 5 Sodium ppm ASTM D5185m 3 2 10 Potassium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/	Phosphorus		ASTM D5185m	1150		954	939
Sulfur ppm ASTM D5185m 2060 3604 3079 2914 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 4 4 5 Sodium ppm ASTM D5185m 3 2 10 Potassium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.4 18.2	•						1154
Silicon ppm ASTM D5185m >25 4 4 5 Sodium ppm ASTM D5185m 3 2 10 Potassium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.4 18.2	Sulfur						2914
Sodium ppm ASTM D5185m 3 2 10 Potassium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.4 18.2	CONTAMINAN	ITS	method	limit/base	current	history 1	history 2
Potassium ppm ASTM D5185m >20 2 0 6 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.4 18.2	Silicon	ppm	ASTM D5185m	>25	4	4	5
INFRA-RED	Sodium	ppm	ASTM D5185m		3	2	10
Soot % % *ASTM D7844 >4 0.5 0.6 0.3 Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.4 18.2	Potassium	ppm	ASTM D5185m	>20	2	0	6
Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.4 18.2	INFRA-RED		method	limit/base	current	history 1	history 2
Nitration Abs/cm *ASTM D7624 >20 8.2 8.3 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.4 18.2	Soot %	%	*ASTM D7844	>4	0.5	0.6	0.3
Sulfation Abs/.1mm *ASTM D7415 >30 19.5 17.3 20.0 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.4 18.2	Nitration	Abs/cm	*ASTM D7624	>20	8.2	8.3	9.2
Oxidation							
	FLUID DEGRA	DATION	method	limit/base	current	history 1	history 2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.5	14.4	18.2
		mg KOH/g			8.3	6.7	5.9



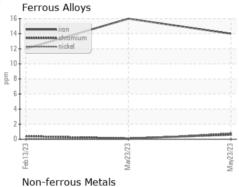
OIL ANALYSIS REPORT

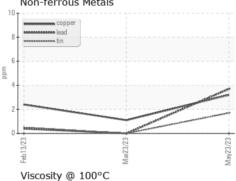


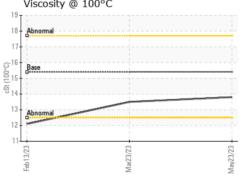
VISUAL		method	limit/base	current	history 1	history 2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	limit/base	current	history 1	history 2

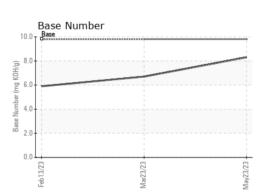
Visc @ 100°C cSt	ASTM D445	15.4	13.8	13.5	▲ 12.1

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10535929 Test Package : FLEET

: GFL0084556 : 05885446

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

: 28 Jun 2023 : 30 Jun 2023 Diagnostician : Wes Davis

GFL Environmental - 918 - Hartland HC

630 E Industrial Drive Hartland, WI US 53029

Contact: David McCall david.mccall@gflenv.com T: (262)369-3069

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)

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Contact/Location: David McCall - GFL918