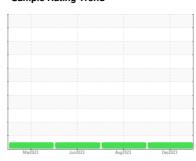


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id **710035**

Component **Diesel Engine**

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

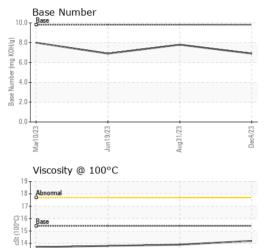
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 04 Dec 2023 31 Aug 2023 19 Jun 2023 Machine Age hrs Client Info 6113 5520 6162 Oil Age hrs Client Info 6113 0 0 Oil Changed Client Info Changed Changed Changed Changed Changed Changed Changed NORMAL	AL)		Mar202	3 Jun2023	Aug2023 D	c2023	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 6113 5520 6162 Oil Age hrs Client Info 6113 0 0 Oil Changed Client Info Changed Changed Changed Changed Sample Status Ned NoRMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	Sample Number		Client Info		GFL0098434	GFL0089506	GFL0084537
Oil Age hrs Client Info 6113 0 0 Oil Changed Client Info Changed Changed Changed Changed Changed Changed Changed Changed NORMAL NOR	Sample Date		Client Info		04 Dec 2023	31 Aug 2023	19 Jun 2023
Client Info Changed NORMAL Changed NORMAL NORMAL	Machine Age	hrs	Client Info		6113	5520	6162
NORMAL NORMAL NORMAL CONTAMINATION method minit/base current history1 history2	Oil Age	hrs	Client Info		6113	0	0
Fuel	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	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 >11.0 23 19 32 Chromium ppm ASTM D5185m >4 1 1 2 Nickel ppm ASTM D5185m >2 <1	CONTAMINATION	ON	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >110 23 19 32 Chromium ppm ASTM D5185m >4 1 1 2 Nickel ppm ASTM D5185m >2 <1	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >4 1 1 2 Nickel ppm ASTM D5185m >2 <1	WEAR METALS	5	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>110	23	19	32
Titanium	Chromium	ppm	ASTM D5185m	>4	1	1	2
Silver	Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	Titanium	ppm	ASTM D5185m		<1	0	<1
Lead	Silver	ppm	ASTM D5185m	>2	0	0	<1
Copper ppm ASTM D5185m >85 2 2 3 Tin ppm ASTM D5185m >4 <1	Aluminum	ppm	ASTM D5185m	>25	2	<1	8
Tin	Lead	ppm	ASTM D5185m	>45	<1	1	
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 2 2 Barium ppm ASTM D5185m 0 12 0 0 Molybdenum ppm ASTM D5185m 0 12 0 0 Manganese ppm ASTM D5185m 0 <1 1 2 Magnesium ppm ASTM D5185m 1010 931 1006 1005 Calcium ppm ASTM D5185m 1070 1020 1095 1099 Phosphorus ppm ASTM D5185m 1270 1213 1298 1291 Sulfur ppm ASTM D5185m 2060 3105 3647 3525 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>85	2	2	3
ADDITIVES	Tin	ppm	ASTM D5185m	>4	<1	<1	2
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 2 2 Barium ppm ASTM D5185m 0 12 0 0 Molybdenum ppm ASTM D5185m 60 60 60 62 Manganese ppm ASTM D5185m 0 <1	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron ppm ASTM D5185m 0 12 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 0 12 0 0 Molybdenum ppm ASTM D5185m 60 60 60 62 Manganese ppm ASTM D5185m 0 <1 1 2 Magnesium ppm ASTM D5185m 1010 931 1006 1005 Calcium ppm ASTM D5185m 1070 1020 1095 1099 Phosphorus ppm ASTM D5185m 1150 964 1063 1021 Zinc ppm ASTM D5185m 1270 1213 1298 1291 Sulfur ppm ASTM D5185m 2060 3105 3647 3525 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 60 60 62 Manganese ppm ASTM D5185m 0 <1 1 2 Magnesium ppm ASTM D5185m 1010 931 1006 1005 Calcium ppm ASTM D5185m 1070 1020 1095 1099 Phosphorus ppm ASTM D5185m 1150 964 1063 1021 Zinc ppm ASTM D5185m 1270 1213 1298 1291 Sulfur ppm ASTM D5185m 2060 3105 3647 3525 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >3	Boron	ppm	ASTM D5185m	0	0	2	2
Manganese ppm ASTM D5185m 0 <1 1 2 Magnesium ppm ASTM D5185m 1010 931 1006 1005 Calcium ppm ASTM D5185m 1070 1020 1095 1099 Phosphorus ppm ASTM D5185m 1150 964 1063 1021 Zinc ppm ASTM D5185m 1270 1213 1298 1291 Sulfur ppm ASTM D5185m 2060 3105 3647 3525 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.8 11.3 11.1 Sulfation Abs/:mm *AS	Barium	ppm	ASTM D5185m	0	12	0	0
Magnesium ppm ASTM D5185m 1010 931 1006 1005 Calcium ppm ASTM D5185m 1070 1020 1095 1099 Phosphorus ppm ASTM D5185m 1150 964 1063 1021 Zinc ppm ASTM D5185m 1270 1213 1298 1291 Sulfur ppm ASTM D5185m 2060 3105 3647 3525 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m 4 8 7 Potassium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7415 >	Molybdenum	ppm	ASTM D5185m	60	60	60	62
Calcium ppm ASTM D5185m 1070 1020 1095 1099 Phosphorus ppm ASTM D5185m 1150 964 1063 1021 Zinc ppm ASTM D5185m 1270 1213 1298 1291 Sulfur ppm ASTM D5185m 2060 3105 3647 3525 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m >20 7 4 4 Potassium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION <t< td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><td><1</td><td>1</td><td>2</td></t<>	Manganese	ppm	ASTM D5185m	0	<1	1	2
Phosphorus ppm ASTM D5185m 1150 964 1063 1021 Zinc ppm ASTM D5185m 1270 1213 1298 1291 Sulfur ppm ASTM D5185m 2060 3105 3647 3525 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m >30 4 8 7 Potassium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *AS	Magnesium	ppm	ASTM D5185m	1010	931	1006	1005
Zinc ppm ASTM D5185m 1270 1213 1298 1291 Sulfur ppm ASTM D5185m 2060 3105 3647 3525 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m 4 8 7 Potassium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7624 >20 10.8 11.3 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7	Calcium	ppm	ASTM D5185m	1070	1020	1095	1099
Sulfur ppm ASTM D5185m 2060 3105 3647 3525 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m 4 8 7 Potassium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7624 >20 10.8 11.3 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.1 19.2 19.8	Phosphorus	ppm	ASTM D5185m	1150	964	1063	1021
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m 4 8 7 Potassium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7624 >20 10.8 11.3 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.1 19.2 19.8	Zinc	ppm	ASTM D5185m	1270	1213	1298	1291
Silicon ppm ASTM D5185m >30 4 5 5 Sodium ppm ASTM D5185m 4 8 7 Potassium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7624 >20 10.8 11.3 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.1 19.2 19.8	Sulfur	ppm	ASTM D5185m	2060	3105	3647	3525
Sodium ppm ASTM D5185m 4 8 7 Potassium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7624 >20 10.8 11.3 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.1 19.2 19.8	CONTAMINANT	ΓS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 7 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7624 >20 10.8 11.3 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.1 19.2 19.8	Silicon	ppm	ASTM D5185m	>30	4	5	5
INFRA-RED	Sodium	ppm	ASTM D5185m		4	8	7
Soot % % *ASTM D7844 >3 0.6 0 0.7 Nitration Abs/cm *ASTM D7624 >20 10.8 11.3 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.1 19.2 19.8	Potassium	ppm	ASTM D5185m	>20	7	4	4
Nitration Abs/cm *ASTM D7624 >20 10.8 11.3 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.1 19.2 19.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.0 22.9 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.1 19.2 19.8	Soot %	%	*ASTM D7844	>3	0.6	0	0.7
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.1 19.2 19.8	Nitration	Abs/cm	*ASTM D7624	>20	10.8	11.3	11.1
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.0	22.9	21.4
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 6.9 7.8 6.9	Oxidation	Abs/.1mm	*ASTM D7414	>25	19.1	19.2	19.8
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.9	7.8	6.9



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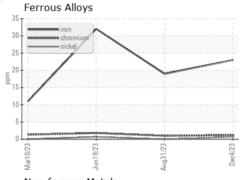
OIL ANALYSIS REPORT

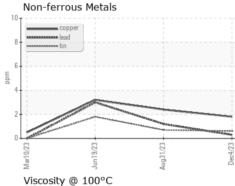


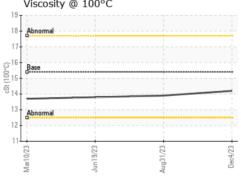
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

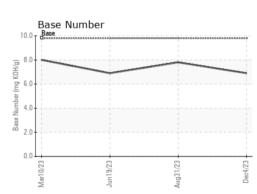
FLUID PROPI	ERITES	method	ilmivbase		nistory i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	14.2	13.9	13.8

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10790982

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0098434 : 06035753

Recieved Diagnosed

: 15 Dec 2023 : 16 Dec 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)