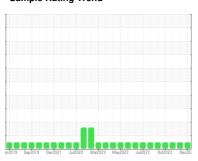


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id **929077-205274**

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

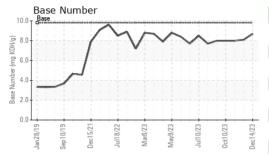
Fluid Condition

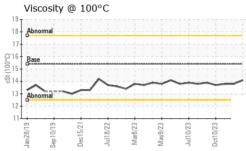
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 history2	GAL)		m2019 Sep20	19 Dec2021 Jul2022	Mar2023 May2023 Jul2023 Oct	2023 Dec202	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 132 83 356 3754 37671 Oil Age hrs Client Info 132 83 356 Oil Changed Changed	Sample Number		Client Info		GFL0102996	GFL0098853	GFL0098832
Oil Age	Sample Date		Client Info		14 Dec 2023	07 Nov 2023	30 Oct 2023
Oil Changed Changed Changed NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		37886	37754	37671
Sample Status	Oil Age	hrs	Client Info		132	83	356
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
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 >100 2 5 5 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
Copper Dept. Dep	Fuel		WC Method	>5	<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 >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >20 2 4 4 Lead ppm ASTM D5185m >40 1 0 0 Copper ppm ASTM D5185m >40 1 0 0 Tin ppm ASTM D5185m >330 <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	2	5	5
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >40 1 0 0 Copper ppm ASTM D5185m >330 <1 <1 0 Tin ppm ASTM D5185m >15 0 0 0 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 6 9 Barium ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 0 0 <1 <1 Quidation ppm ASTM D5185m 1010 951 901 946 Calcium ppm ASTM D5185m 1070 998 985 1075	Silver	ppm	ASTM D5185m	>3			
Copper ppm ASTM D5185m >330 <1 <1 0 Tin ppm ASTM D5185m >15 0 0 0 Vanadium ppm ASTM D5185m <1	Aluminum	ppm	ASTM D5185m	>20	2	4	4
Tin ppm ASTM D5185m >15 0 0 0 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1070 951 901 946 Calcium ppm ASTM D5185m 1070 998 985 1075 Phosphorus ppm ASTM D5185m 1270 1264 1208 1298 Sulfur ppm ASTM D5185m 2060 3206 2852 3088 </td <td></td> <td>ppm</td> <td></td> <td></td> <th></th> <td>0</td> <td></td>		ppm				0	
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 6 9 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1070 998 985 1075 Phosphorus ppm ASTM D5185m 1150 978 944 1093 Zinc ppm ASTM D5185m 1270 1264 1208 1298 Sulfur ppm ASTM D5185m 2060 3206 2852 3088 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>330	<1	<1	0
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 6 9 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 -1 -1 Manganese ppm ASTM D5185m 0 0 -1 -1 Magnesium ppm ASTM D5185m 1010 951 901 946 Calcium ppm ASTM D5185m 1070 998 985 1075 Phosphorus ppm ASTM D5185m 1270 1264 1208 1298 Sulfur ppm ASTM D5185m 2060 3206 2852 3088 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2		ppm		>15		0	
ADDITIVES	Vanadium	ppm	ASTM D5185m				
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 57 61 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 951 901 946 Calcium ppm ASTM D5185m 1070 998 985 1075 Phosphorus ppm ASTM D5185m 1150 978 944 1093 Zinc ppm ASTM D5185m 1270 1264 1208 1298 Sulfur ppm ASTM D5185m 2060 3206 2852 3088 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m >20 2 <1 0 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7415 >30 <td>Boron</td> <td>ppm</td> <td></td> <td></td> <th></th> <td></td> <td></td>	Boron	ppm					
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 951 901 946 Calcium ppm ASTM D5185m 1070 998 985 1075 Phosphorus ppm ASTM D5185m 1150 978 944 1093 Zinc ppm ASTM D5185m 1270 1264 1208 1298 Sulfur ppm ASTM D5185m 2060 3206 2852 3088 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m >20 2 <1		ppm	ASTM D5185m		-		
Magnesium ppm ASTM D5185m 1010 951 901 946 Calcium ppm ASTM D5185m 1070 998 985 1075 Phosphorus ppm ASTM D5185m 1150 978 944 1093 Zinc ppm ASTM D5185m 1270 1264 1208 1298 Sulfur ppm ASTM D5185m 2060 3206 2852 3088 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m >20 2 <1							
Calcium ppm ASTM D5185m 1070 998 985 1075 Phosphorus ppm ASTM D5185m 1150 978 944 1093 Zinc ppm ASTM D5185m 1270 1264 1208 1298 Sulfur ppm ASTM D5185m 2060 3206 2852 3088 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m >20 2 <1	-				-		
Phosphorus ppm ASTM D5185m 1150 978 944 1093 Zinc ppm ASTM D5185m 1270 1264 1208 1298 Sulfur ppm ASTM D5185m 2060 3206 2852 3088 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m >20 2 <1	-						
Zinc ppm ASTM D5185m 1270 1264 1208 1298 Sulfur ppm ASTM D5185m 2060 3206 2852 3088 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m >20 2 <1							
Sulfur ppm ASTM D5185m 2060 3206 2852 3088 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m >25 4 8 9 Potassium ppm ASTM D5185m >20 2 <1							
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m 1 2 2 Potassium ppm ASTM D5185m >20 2 <1							
Silicon ppm ASTM D5185m >25 4 8 9 Sodium ppm ASTM D5185m 1 2 2 Potassium ppm ASTM D5185m >20 2 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 5.6 7.2 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.4 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 15.4 14.8			ASTM D5185m	2060	3206	2852	3088
Sodium ppm ASTM D5185m 1 2 2 Potassium ppm ASTM D5185m >20 2 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 5.6 7.2 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.4 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 15.4 14.8		ITS				•	
Potassium ppm ASTM D5185m >20 2 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 5.6 7.2 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.4 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 15.4 14.8				>25			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 5.6 7.2 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.4 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 15.4 14.8		ppm					
Soot % % *ASTM D7844 >3 0.1 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 5.6 7.2 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.4 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 15.4 14.8	Potassium	ppm	ASTM D5185m	>20	2	<1	0
Nitration Abs/cm *ASTM D7624 >20 5.6 7.2 7.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.4 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 15.4 14.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.0 19.4 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 15.4 14.8	Soot %						
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.7 15.4 14.8	Nitration	Abs/cm	*ASTM D7624	>20		7.2	7.0
Oxidation Abs/.1mm *ASTM D7414 >25 13.7 15.4 14.8	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.0	19.4	19.0
	FLUID DEGRAI	NOITAC	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.7 8.1 8.0	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.7	15.4	14.8
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.7	8.1	8.0



OIL ANALYSIS REPORT

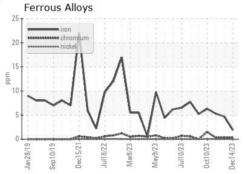


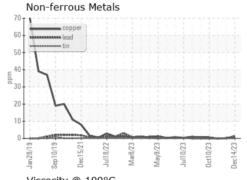


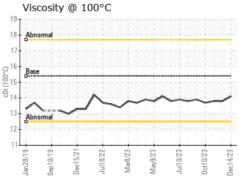
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

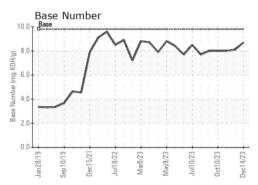
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	13.8	13.8	

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

Unique Number : 10795150

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0102996 : 06039921

Recieved Diagnosed

: 19 Dec 2023 : 20 Dec 2023 Diagnostician : Wes Davis

GFL Environmental - 814 - Little Rock Hauling

4005 Hwy 161 N. Little Rock, AR US 72117

Contact: Brad Manager

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: