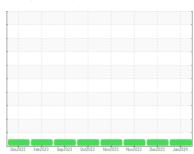


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



710037

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

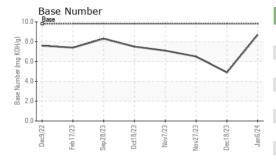
Fluid Condition

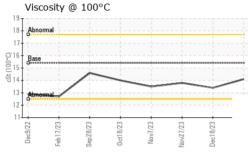
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 Sample Number Client Info GFL0103511 GFL0103501 GFL0094794 Sample Date Client Info 4096 9357 3813 Client Info 4096 MA Changed N/A Changed N/A Changed N/A Changed N/A NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method milit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <	GAL) **Docidada						
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 4096 3957 3813 Oil Age hrs Client Info N/A Changed N/A Oil Changed Client Info N/A Changed N/A Sample Status Image: Client Info N/A NORMAL NORMAL NORMAL CONTAMINATION method Imitibase current historyt historyt Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG Iron WEAR METALS method limit/base current historyt history2 Iron pam ASTM D5185m >110 <1 27 22 2 Chromium ppm ASTM D5185m >10 <1 27 22 2 Crit <1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Sample Number		Client Info		GFL0103511	GFL0103501	GFL0094794
Oil Age hrs Client Info N/A Changed N/A Changed N/A Sample Status Client Info N/A Changed N/A CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	Sample Date		Client Info		06 Jan 2024	18 Dec 2023	27 Nov 2023
Oil Changed Sample Status Client Info N/A Changed NORMAL NORMAL NORMAL N/A CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5.5 <1.0 <1.0 <1.0 Glycol WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >110 <1 27 22 Chromium ppm ASTM D5185m >4 0 <1 1 Nickel ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 <1 Lead ppm ASTM D5185m >4 0 <1 <1 Copper ppm ASTM D5185m >4 0 <1 <1	Machine Age	hrs	Client Info		4096	3957	3813
Sample Status	Oil Age	hrs	Client Info		139	713	569
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <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 >110 <1 27 22 Chromitim ppm ASTM D5185m >4 0 <1 1 Nickel ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 <1 Lead ppm ASTM D5185m >2 0 0 1 Copper ppm ASTM D5185m >85 <1 54 47 Tin ppm ASTM D5185m 0 0 0 <1 <1 Lead <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>N/A</th> <th>Changed</th> <th>N/A</th>	Oil Changed		Client Info		N/A	Changed	N/A
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method Glycol NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >110 <1 27 22 Chromium ppm ASTM D5185m >4 0 <1 1 Nickel ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >25 <1 10 10 Lead ppm ASTM D5185m >45 0 0 1 Copper ppm ASTM D5185m >4 0 <1 >1 Tin ppm ASTM D5185m 0 0 0 <1 >1 Cadmium ppm ASTM D5185m 0 0 0	CONTAMINAT	ION	method	limit/base	current	history1	history2
Second WC Method MEG NEG NEG	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >110 <1 27 22 Chromium ppm ASTM D5185m >4 0 <1 1 Nickel ppm ASTM D5185m >2 0 <1 <1 Titanium ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >2 0 0 <1 Lead ppm ASTM D5185m >45 0 0 1 Copper ppm ASTM D5185m >45 0 0 1 Copper ppm ASTM D5185m >4 0 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 <1 <1 <1 <1 <1 <1 <th>Water</th> <th></th> <th>WC Method</th> <th>>0.2</th> <th>NEG</th> <th>NEG</th> <th>NEG</th>	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >4 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>110	<1	27	22
Titanium ppm ASTM D5185m 0 0 <1	Chromium	ppm	ASTM D5185m	>4	0	<1	1
Silver	Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	Titanium	ppm	ASTM D5185m		0	0	<1
Lead ppm ASTM D5185m >45 0 0 1 Copper ppm ASTM D5185m >85 <1	Silver	ppm	ASTM D5185m	>2	0	0	<1
Copper ppm ASTM D5185m >85 <1	Aluminum	ppm	ASTM D5185m	>25	<1	10	10
Tin ppm ASTM D5185m >4 0 <1	Lead	ppm	ASTM D5185m	>45	0	0	1
Vanadium ppm ASTM D5185m 0 0 <1	Copper	ppm	ASTM D5185m	>85	<1	54	47
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 17 5 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 82 7 8 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 893 61 58 Calcium ppm ASTM D5185m 1070 1033 2203 2204 Phosphorus ppm ASTM D5185m 1170 1234 1045 1131 Sulfur ppm ASTM D5185m 2060 2942 3267 3076 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 <		ppm		>4	0	<1	
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	
Boron ppm ASTM D5185m 0 17 5 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 82 7 8 Manganese ppm ASTM D5185m 0 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 82 7 8 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 893 61 58 Calcium ppm ASTM D5185m 1070 1033 2203 2204 Phosphorus ppm ASTM D5185m 1150 921 803 883 Zinc ppm ASTM D5185m 1270 1234 1045 1131 Sulfur ppm ASTM D5185m 2060 2942 3267 3076 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 3 7 8 Sodium ppm ASTM D5185m >20 10 23 20 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	· · · · · · · · · · · · · · · · · · ·	·
Molybdenum ppm ASTM D5185m 60 82 7 8 Manganese ppm ASTM D5185m 0 0 <1	Boron	ppm					
Manganese ppm ASTM D5185m 0 0 <1	Barium	ppm	ASTM D5185m		-		
Magnesium ppm ASTM D5185m 1010 893 61 58 Calcium ppm ASTM D5185m 1070 1033 2203 2204 Phosphorus ppm ASTM D5185m 1150 921 803 883 Zinc ppm ASTM D5185m 1270 1234 1045 1131 Sulfur ppm ASTM D5185m 2060 2942 3267 3076 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 3 7 8 Sodium ppm ASTM D5185m >20 10 23 20 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.5 0.4 Nitration Abs/cm *ASTM D7415 >30 18.1 20.0 19.2 FLUID DEGRADATION *A		ppm					
Calcium ppm ASTM D5185m 1070 1033 2203 2204 Phosphorus ppm ASTM D5185m 1150 921 803 883 Zinc ppm ASTM D5185m 1270 1234 1045 1131 Sulfur ppm ASTM D5185m 2060 2942 3267 3076 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 3 7 8 Sodium ppm ASTM D5185m >20 10 23 20 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.5 8.1 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.0 19.2 FLUID DEGRADATION	-	ppm			-		
Phosphorus ppm ASTM D5185m 1150 921 803 883 Zinc ppm ASTM D5185m 1270 1234 1045 1131 Sulfur ppm ASTM D5185m 2060 2942 3267 3076 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 3 7 8 Sodium ppm ASTM D5185m >30 3 7 8 Sodium ppm ASTM D5185m >20 10 23 20 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.5 8.1 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.0 19.2 FLUID DEGRADATION limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414<	-						
Zinc ppm ASTM D5185m 1270 1234 1045 1131 Sulfur ppm ASTM D5185m 2060 2942 3267 3076 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 3 7 8 Sodium ppm ASTM D5185m >20 10 23 20 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.5 0.4 Nitration Abs/.mm *ASTM D7624 >20 5.5 8.1 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.0 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.3 12.2							
Sulfur ppm ASTM D5185m 2060 2942 3267 3076 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 3 7 8 Sodium ppm ASTM D5185m <1 2 4 Potassium ppm ASTM D5185m >20 10 23 20 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.5 8.1 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.0 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.3 12.2							
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 3 7 8 Sodium ppm ASTM D5185m <1 2 4 Potassium ppm ASTM D5185m >20 10 23 20 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.5 8.1 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.0 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.3 12.2							
Silicon ppm ASTM D5185m >30 3 7 8 Sodium ppm ASTM D5185m <1					2942		
Sodium ppm ASTM D5185m <1		ITS					
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Soot % % *ASTM D7844 >3 0.1 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.5 8.1 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.0 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.3 12.2		ppm		>20	10	23	
Nitration Abs/cm *ASTM D7624 >20 5.5 8.1 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.0 19.2 FLUID DEGRADATION method limit/base current bistory1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.3 12.2	INFRA-RED			limit/base			
Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.0 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.3 12.2							
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.3 12.2							
Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.3 12.2	Sulfation	Abs/.1mm			18.1	20.0	19.2
	FLUID DEGRAI	NOITAC	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.7 4.9 6.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.6	13.3	12.2
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.7	4.9	6.5



OIL ANALYSIS REPORT

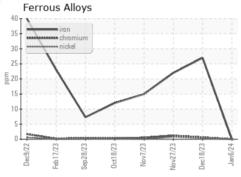


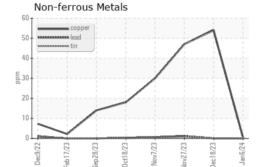


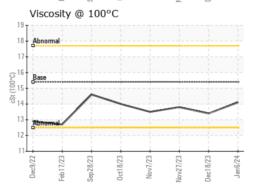
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

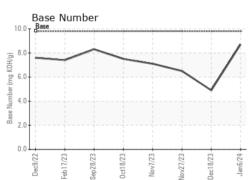
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	13.4	13.8	

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number

Unique Number Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0103511 : 06057757 : 10829139

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Recieved Diagnosed Diagnostician : Wes Davis

: 11 Jan 2024 : 12 Jan 2024 GFL environmental - 867 - Trafford (Blount Hauling) 1130 County Line Rd

Trafford, AL US 35172

Contact: Jonathan Williams jonathan.williams@gflenv.com

* - 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: