

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

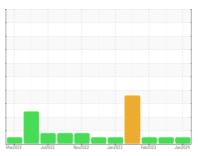


MONTGOMERY Machine Id MACK 923058

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

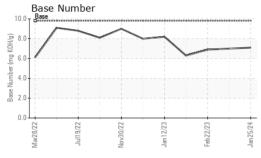
Fluid Condition

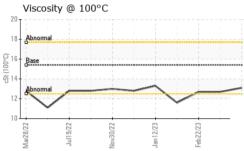
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info GFL0081849 GFL0075105 GFL0072626 Sample Date Client Info 25 Jan 2024 10 Mar 2023 22 Feb 2023 20 Info Machine Age hrs Client Info 3662 2876 2803			Mar2022	Jul2022 Nov2022	Jan2023 Feb2023	Jan2024	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 3662 2876 2803	Sample Number		Client Info		GFL0081849	GFL0075105	GFL0072620
Oil Age hrs Client Info 3662 0 2803 Oil Changed Sample Status Client Info Changed Ch	Sample Date		Client Info		25 Jan 2024	10 Mar 2023	22 Feb 2023
Client Info	Machine Age	hrs	Client Info		3662	2876	2803
Oil Changed Sample Status Client Info Changed NORMAL NORMAL NORMAL NORMAL NORMAL Changed NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <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 <td>Oil Age</td> <td>hrs</td> <td>Client Info</td> <td></td> <th>3662</th> <td>0</td> <td>2803</td>	Oil Age	hrs	Client Info		3662	0	2803
Fuel	-		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 >120 23 14 13 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium	Iron	ppm	ASTM D5185m	>120	23	14	13
Nickel	Chromium		ASTM D5185m	>20	<1	<1	0
Titanium					<1		
Silver							
Aluminum ppm ASTM D5185m >20 3 1 2 Lead ppm ASTM D5185m >40 <1	Silver				-		
Lead							
Copper ppm ASTM D5185m >330 <1 <1 0 Tin ppm ASTM D5185m >15 1 <1					-		_
Tin ppm ASTM D5185m >15 1 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
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 4 4 4 4 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 4 4 4 4 Manganese ppm ASTM D5185m 0 <1 1 <1 <1 Magnesium ppm ASTM D5185m 1010 926 828 928 Calcium ppm ASTM D5185m 1070 977 962 1101 Phosphorus ppm ASTM D5185m 1270 1213 1060 1213 Sulfur ppm ASTM D5185m 2060 2920 2571 3049 CONTAMINANTS method lim	• • • • • • • • • • • • • • • • • • • •						
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 4 4 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1				710			
ADDITIVES	Cadmium				-		
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 57 53 58 Manganese ppm ASTM D5185m 0 <1	ADDITIVES	• •	method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 57 53 58 Manganese ppm ASTM D5185m 0 <1	Boron	mag	ASTM D5185m	0	4	4	4
Molybdenum ppm ASTM D5185m 60 57 53 58 Manganese ppm ASTM D5185m 0 <1 1 <1 Magnesium ppm ASTM D5185m 1010 926 828 928 Calcium ppm ASTM D5185m 1070 977 962 1101 Phosphorus ppm ASTM D5185m 1150 997 843 932 Zinc ppm ASTM D5185m 1270 1213 1060 1213 Sulfur ppm ASTM D5185m 2060 2920 2571 3049 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624							
Manganese ppm ASTM D5185m 0 <1 1 <1 Magnesium ppm ASTM D5185m 1010 926 828 928 Calcium ppm ASTM D5185m 1070 977 962 1101 Phosphorus ppm ASTM D5185m 1150 997 843 932 Zinc ppm ASTM D5185m 1270 1213 1060 1213 Sulfur ppm ASTM D5185m 2060 2920 2571 3049 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7815	Molybdenum					53	58
Magnesium ppm ASTM D5185m 1010 926 828 928 Calcium ppm ASTM D5185m 1070 977 962 1101 Phosphorus ppm ASTM D5185m 1150 997 843 932 Zinc ppm ASTM D5185m 1270 1213 1060 1213 Sulfur ppm ASTM D5185m 2060 2920 2571 3049 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *A	•						
Calcium ppm ASTM D5185m 1070 977 962 1101 Phosphorus ppm ASTM D5185m 1150 997 843 932 Zinc ppm ASTM D5185m 1270 1213 1060 1213 Sulfur ppm ASTM D5185m 2060 2920 2571 3049 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION m	-						
Phosphorus ppm ASTM D5185m 1150 997 843 932 Zinc ppm ASTM D5185m 1270 1213 1060 1213 Sulfur ppm ASTM D5185m 2060 2920 2571 3049 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m 20 2 0 1 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method </td <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
Zinc ppm ASTM D5185m 1270 1213 1060 1213 Sulfur ppm ASTM D5185m 2060 2920 2571 3049 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m 20 2 0 1 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm							
Sulfur ppm ASTM D5185m 2060 2920 2571 3049 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m 4 6 4 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 14.5 15.0							
Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m 4 6 4 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 14.5 15.0	Sulfur						
Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m 4 6 4 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 14.5 15.0	CONTAMINAN		method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 4 6 4 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 14.5 15.0	Silicon		ASTM D5185m	>25	7	6	5
Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 14.5 15.0	Sodium		ASTM D5185m		4	6	4
Soot % % *ASTM D7844 >4 1.1 0.4 1.2 Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 14.5 15.0	Potassium		ASTM D5185m	>20	2	0	1
Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 14.5 15.0	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 9.3 9.7 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 14.5 15.0	Soot %	%	*ASTM D7844	>4	1.1	0.4	1.2
Sulfation Abs/.1mm *ASTM D7415 >30 19.9 18.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 14.5 15.0							
Oxidation Abs/.1mm *ASTM D7414 >25 14.5 15.0	Sulfation						
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.5	14.5	15.0
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.1		



OIL ANALYSIS REPORT

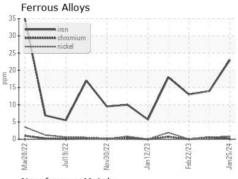


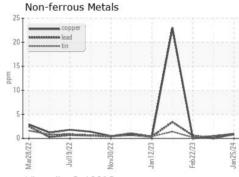


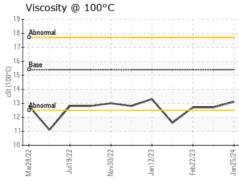
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

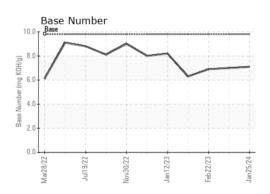
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	12.7	12.7

GRAPHS













Certificate L2367

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0081849 : 06078981

: 10861072

: 02 Feb 2024 Recieved Diagnosed : 05 Feb 2024 Diagnostician : Wes Davis

GFL Environmental - 955 - Montgomery

1121 Wilbanks St Montgomery, AL US 36108 Contact: LISA REEVES

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: