

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Area MONTGOMERY Machine Id MACK 920107



Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- LTR

Sample Number Client Info GFL 0092300 GFL 0089890 GFL 0089890 GFL 0089890 GFL 0089890 GFL 0089890 GFL 0082402 Sample Date Ns Client Info 7604 7457 7334 Oil Age hrs Client Info 7604 7457 7334 Oil Age hrs Client Info 574 427 304 Oil Changed Client Info 574 427 304 Oll Age Client Info Not Change Not Change Sample Status method limit/base current history1 history1 Grund WC Method >3.0 <1.0	N SHP 15W40 (-	LTR)	ar2022 Nov2	022 Jan2023 Mar2023	Apr2023 Jun2023 Jul2023	Sep2023	
Sample Date Client Info 13 Oct 2023 20 Sep 2023 08 Sep 202 Machine Age hrs Client Info 7604 7457 7334 Dil Age hrs Client Info 574 427 304 Dil Changed Client Info Not Changd Not Mot Matgd Not Matgd	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 7604 7457 7334 Dil Age hrs Client Info 574 427 304 Dil Changed Client Info Not Changed Not Changed Not Changed Sample Status Imit/base current history/ history/ Fuel WC Method >3.0 <1.0	Sample Number		Client Info		GFL0092380	GFL0089890	GFL0092405
Machine Age hrs Client Info 7604 7457 7334 Dil Aga hrs Client Info 574 427 304 Dil Changed Client Info Not Changed Not Changed Not Changed Sample Status Image Client Info Not MAL NorMAL NorMAL CONTAMINATION method imit/base current History History Fuel WC Method >3.0 <1.0	Sample Date		Client Info		13 Oct 2023	20 Sep 2023	08 Sep 2023
Dil Age hrs Client Info 574 427 304 Dil Changed Client Info Not Changd Not Changd Not Changd Not Change Sample Status Imit/Dase Current history1 Nistory2 Fuel WC Method >3.0 <1.0	Machine Age	hrs	Client Info		7604		7334
Dil Changed Sample Status Client Info Not Changd NORMAL Not Changd NORMAL Not Changd NORMAL CONTAMINATION method limit/base current history1 history1 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Glycol WC Method >3.0 <1.0 <1.0 <1.0 <1.0 WEAR METALS method Imit/base current history1 history1 Kinkel ppm ASTM D5185m >120 43 23 12 Chromium ppm ASTM D5185m >20 1 <1 0 Not Reg ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 0 0 Auminum ppm ASTM D5185m >20 2 0 0 Auminum ppm ASTM D5185m >30 2 1 <1 Copper ppm ASTM D5185m >30 2 1 <1 Madmium ppm ASTM D5185m 0 0 0 Copper ppm ASTM D5185m 0 0 0 Barium ppm <	•	hrs	Client Info		574	427	304
Sample Status NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history1 Fuel WC Method >3.0 <1.0	-				-		
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Chromium ppm ASTM D5185m >20 1 <1 0 Nickel ppm ASTM D5185m >5 <1	WEAR METAL	S	method	limit/base	current	history1	history2
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Titanium ppm ASTM D5185m >2 <1 0 <1 Silver ppm ASTM D5185m >2 <1	Chromium	ppm	ASTM D5185m	>20	1	<1	0
Titanium ppm ASTM D5185m >2 <1 0 <1 Silver ppm ASTM D5185m >2 <1	Nickel	ppm	ASTM D5185m	>5	<1	0	0
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Aluminum ppm ASTM D5185m >20 2 0 0 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 2 1 <1	Silver				<1	<1	0
Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 2 1 <1							
Copper ppm ASTM D5185m >330 2 1 <1 Tin ppm ASTM D5185m >15 <1							
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Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 60 62 61 60 Magnese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	0	1	0
Molybdenum ppm ASTM D5185m 60 62 61 60 Manganese ppm ASTM D5185m 0 <1	Barium		ASTM D5185m	0		0	0
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 950 1024 1041 Calcium ppm ASTM D5185m 1070 1040 1115 1162 Phosphorus ppm ASTM D5185m 1070 1040 1115 1162 Phosphorus ppm ASTM D5185m 1150 969 1040 1056 Zinc ppm ASTM D5185m 1270 1161 1294 1321 Sulfur ppm ASTM D5185m 2060 2571 3552 3756 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m<>25 9 6 5 Sodium ppm ASTM D5185m >20 0 <1							60
Magnesium ppm ASTM D5185m 1010 950 1024 1041 Calcium ppm ASTM D5185m 1070 1040 1115 1162 Phosphorus ppm ASTM D5185m 1070 1040 1115 1162 Phosphorus ppm ASTM D5185m 1150 969 1040 1056 Zinc ppm ASTM D5185m 1270 1161 1294 1321 Sulfur ppm ASTM D5185m 2060 2571 3552 3756 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 5 Sodium ppm ASTM D5185m >20 0 <1	-				-		
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Zinc ppm ASTM D5185m 1270 1161 1294 1321 Sulfur ppm ASTM D5185m 2060 2571 3552 3756 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 5 Sodium ppm ASTM D5185m >25 9 6 5 Sodium ppm ASTM D5185m >20 0 <1							
Sulfur ppm ASTM D5185m 2060 2571 3552 3756 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 6 5 Sodium ppm ASTM D5185m >25 9 6 5 Sodium ppm ASTM D5185m >20 0 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D5185m >20 0 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.1 9.0 7.2 Sulfation Abs/cm *ASTM D7624 >20 10.1 9.0 7.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25	·						
Silicon ppm ASTM D5185m >25 9 6 5 Sodium ppm ASTM D5185m 7 4 3 Potassium ppm ASTM D5185m >20 0 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.2 0.8 0.5 Nitration Abs/cm *ASTM D7624 >20 10.1 9.0 7.2 Sulfation Abs/cm *ASTM D7624 >20 20.5 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.3 17.2 14.8	-						
Silicon ppm ASTM D5185m >25 9 6 5 Sodium ppm ASTM D5185m 7 4 3 Potassium ppm ASTM D5185m >20 0 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.2 0.8 0.5 Nitration Abs/cm *ASTM D7624 >20 10.1 9.0 7.2 Sulfation Abs/cm *ASTM D7624 >20 10.1 9.0 7.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.3 17.2 14.8	CONTAMINAN	TS	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 7 4 3 Potassium ppm ASTM D5185m<>20 0 <1							
Potassium ppm ASTM D5185m >20 0 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.2 0.8 0.5 Nitration Abs/cm *ASTM D7624 >20 10.1 9.0 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.5 20.5 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.3 17.2 14.8							
Soot % % *ASTM D7844 >4 1.2 0.8 0.5 Nitration Abs/cm *ASTM D7624 >20 10.1 9.0 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.5 20.5 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.3 17.2 14.8	Potassium			>20			
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Nitration Abs/cm *ASTM D7624 >20 10.1 9.0 7.2 Sulfation Abs/.1mm *ASTM D7615 >30 22.5 20.5 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.3 17.2 14.8	Soot %	%	*ASTM D7844	>4	1.2	0.8	0.5
Sulfation Abs/.1mm *ASTM D7415 >30 22.5 20.5 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.3 17.2 14.8				>20			
Oxidation Abs/.1mm *ASTM D7414 >25 19.3 17.2 14.8							
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 5.9 7.3 8.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	19.3	17.2	14.8
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	5.9	7.3	8.3

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.



Ba

Mar15/22

10175/77

an16/23

Mar21/23

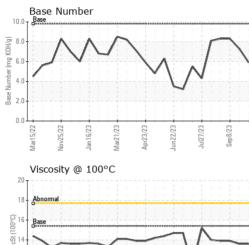
Apr23/23

un22/23

Jul27/23

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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
F	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
5	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
4 Sep 8/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
C C	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
E	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
F	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPER	RTIES	method	limit/base	current	history1	history2
	/isc @ 100°C	cSt	ASTM D445	15.4	13.6	13.6	13.9
	GRAPHS						
200	Ferrous Alloys						
50 0 250 200	22/32/2009 CE2/12/2009 CE2/32/2009 Non-ferrous Metals		Jur22/23				
100 50 19	Amart5/22 Mart5	Apr23/23	Jun22/23	crindee	Base Number		



Received : 16 Oct 2023 1121 Wilbanks St Diagnosed : 16 Oct 2023 Montgomery, AL US 36108 Diagnostician : Wes Davis 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)

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

: GFL0092380

: 05979246

Certificate L2367

Laboratory Sample No.

Lab Number

Unique Number : 10696541

Test Package : FLEET

GFL Environmental - 955 - Montgomery