

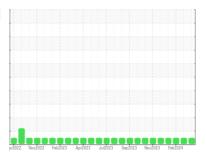
OIL ANALYSIS REPORT



MONTGOMERY MACK 420044

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- LTR)



Sample Rating Trend



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

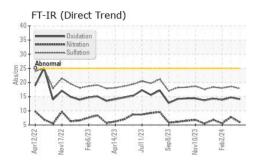
Fluid Condition

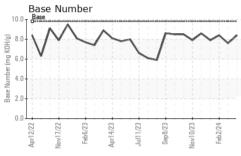
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

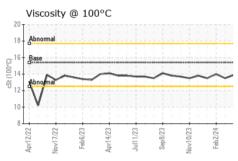
Sample Date	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 9192 9005 8498 Oil Age hrs Client Info 187 507 20 Oil Changed Client Info Not Changed Changed Changed Sample Status method Imilibase current history1 history2 Fuel WC Method >3.0 <1.0	Sample Number		Client Info		GFL0083551	GFL0088656	GFL0088668
Oil Changed	Sample Date		Client Info		03 Apr 2024	22 Feb 2024	02 Feb 2024
Client Info Not Changed Changed NORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		9192	9005	8498
Oil Changed Sample Status Client Info Not Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL	Oil Age	hrs	Client Info		187	507	20
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2	-		Client Info		Not Changd	Changed	Changed
Fuel	Sample Status				NORMAL		
Water Glycol WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 3 9 <1 Chromium ppm ASTM D5185m >20 0 <1 <1 Nickel ppm ASTM D5185m >2 0 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 0 Silver ppm ASTM D5185m >20 <1 2 2 2 0 0 0 0 <1 <1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 4 4 0 0 0 0 0 0 0	CONTAMINATIO	NC	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 ppm ASTM D5185m >20 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	3	9	<1
Description Description	Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 <1 2 2 Lead ppm ASTM D5185m >40 0 0 <1 Copper ppm ASTM D5185m >330 0 1 1 Tin ppm ASTM D5185m >15 0 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 <td>Nickel</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>5</td> <th>0</th> <td><1</td> <td><1</td>	Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Aluminum ppm ASTM D5185m >20 <1 2 2 Lead ppm ASTM D5185m >40 0 0 <1			ASTM D5185m	>2	0	0	0
Aluminum			ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 0 1 1 Tin ppm ASTM D5185m >15 0 <1	Aluminum	ppm	ASTM D5185m	>20	<1	2	2
Copper ppm ASTM D5185m >330 0 1 1 Tin ppm ASTM D5185m >15 0 <1	Lead	ppm	ASTM D5185m	>40	0	0	<1
Tin			ASTM D5185m	>330	0	1	1
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 1 3 4 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 1010 1078 982 912 Calcium ppm ASTM D5185m 1070 1187 1090 987 Phosphorus ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988				>15		<1	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 3 4 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 1010 1078 982 912 Calcium ppm ASTM D5185m 1070 1187 1090 987 Phosphorus ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 <1			ASTM D5185m		0	0	0
Boron			ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 61 67 59 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 1078 982 912 Calcium ppm ASTM D5185m 1070 1187 1090 987 Phosphorus ppm ASTM D5185m 1150 1151 979 1040 Zinc ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m >20 <1 3 4 INFRA-RED method limit/base<	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 67 59 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 1078 982 912 Calcium ppm ASTM D5185m 1070 1187 1090 987 Phosphorus ppm ASTM D5185m 1150 1151 979 1040 Zinc ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m >20 <1 3 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624	Boron	ppm	ASTM D5185m	0	1	3	4
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 1078 982 912 Calcium ppm ASTM D5185m 1070 1187 1090 987 Phosphorus ppm ASTM D5185m 1150 1151 979 1040 Zinc ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m >20 <1 3 2 Potassium ppm ASTM D5185m >20 <1 3 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td>0</td> <td>0</td>	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 1078 982 912 Calcium ppm ASTM D5185m 1070 1187 1090 987 Phosphorus ppm ASTM D5185m 1150 1151 979 1040 Zinc ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m >20 <1 3 2 Potassium ppm ASTM D5185m >20 <1 3 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.9 7.8 5.6 Sulfation Abs/.1mm *ASTM D7415	Molybdenum	ppm	ASTM D5185m	60	61	67	59
Calcium ppm ASTM D5185m 1070 1187 1090 987 Phosphorus ppm ASTM D5185m 1150 1151 979 1040 Zinc ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus ppm ASTM D5185m 1150 1151 979 1040 Zinc ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	1010	1078	982	912
Zinc ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m	1070	1187	1090	987
Zinc ppm ASTM D5185m 1270 1404 1250 1224 Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m >20 <1	Phosphorus	ppm	ASTM D5185m	1150	1151	979	1040
Sulfur ppm ASTM D5185m 2060 4277 2988 3075 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m 1 3 2 Potassium ppm ASTM D5185m >20 <1			ASTM D5185m	1270	1404	1250	1224
Silicon ppm ASTM D5185m >25 3 7 3 Sodium ppm ASTM D5185m 1 3 2 Potassium ppm ASTM D5185m >20 <1 3 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.8 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.6 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.7 13.9			ASTM D5185m	2060	4277	2988	3075
Sodium ppm ASTM D5185m 1 3 2 Potassium ppm ASTM D5185m >20 <1	CONTAMINANTS method limit/base current history1 history2						
Potassium ppm ASTM D5185m >20 <1 3 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.8 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.6 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.7 13.9	Silicon	ppm	ASTM D5185m	>25	3	7	3
Potassium ppm ASTM D5185m >20 <1 3 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.8 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.6 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.7 13.9			ASTM D5185m		1	3	2
Soot % % *ASTM D7844 >4 0.1 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.8 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.6 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.7 13.9	Potassium	ppm	ASTM D5185m	>20	<1	3	4
Nitration Abs/cm *ASTM D7624 >20 5.9 7.8 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.6 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.7 13.9	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 5.9 7.8 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.6 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.7 13.9	Soot %	%	*ASTM D7844	>4	0.1	0.2	0.1
Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.6 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.7 13.9		Abs/cm	*ASTM D7624	>20			
Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.7 13.9							
	FLUID DEGRADATION method limit/base current history1 history2						
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.1	14.7	13.9
					8.4	7.6	8.4



OIL ANALYSIS REPORT



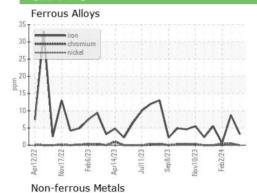




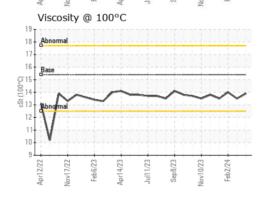
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

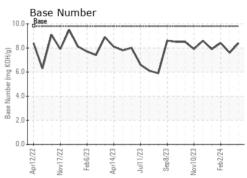
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.5	14.0

GRAPHS













Certificate 12367

Laboratory Sample No.

Lab Number : 06139729 Unique Number : 10964537

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0083551

Received **Tested** Diagnosed

: 05 Apr 2024 : 06 Apr 2024 : 06 Apr 2024 - Wes Davis

1121 Wilbanks St Montgomery, AL US 36108

Contact: LISA REEVES

GFL Environmental - 955 - Montgomery

Test Package : FLEET 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)

Report Id: GFL955 [WUSCAR] 06139729 (Generated: 04/06/2024 04:33:30) Rev: 1

Submitted By: Lisa Reeves

T:

F: