

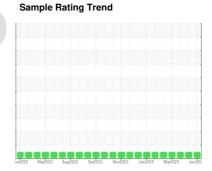
OIL ANALYSIS REPORT



MONTGOMERY MACK 420049

Diesel Engine

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





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

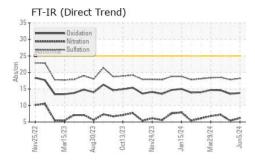
Fluid Condition

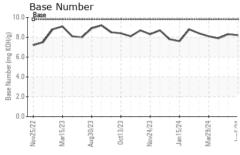
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

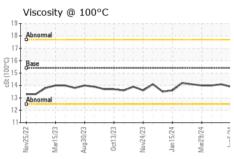
Sample Number	SAMPLE INFORMA	ATION	method	limit/base	current	history1	history2
Sample Date		ATTION.				•	•
Machine Age hrs Client Info 9267 91081 8982 Oil Age hrs Client Info 9267 82099 601 Oil Changed Client Info Not Changd Not Changed Changed Sample Status Client Info Not Changed Not Changed							
Oil Age hrs Client Info 9267 82099 601 Oil Changed Sample Status Client Info Not Changd Not Changd Changed Changed NoRMAL 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 Water WC Method So.2 NEG NEG NEG Used R METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 6 5 6 Chromium ppm ASTM D5185m >120 6 5 6 Chromium ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >2 <1 <1 0 Silver ppm ASTM D5185m >20 3 2 <1 Capper ppm ASTM D5185m >40 <1 <th< td=""><td></td><td>hrs</td><td></td><td></td><th></th><td>,</td><td></td></th<>		hrs				,	
Client Info Not Changd NORMAL NORMAL NORMAL	-						
NORMAL NORMAL NORMAL NORMAL							
Fuel	-					Ŭ	
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 6 5 6 Chromium ppm ASTM D5185m >20 <1		N	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
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185n >20 <1 <1 0 Nickel ppm ASTM D5185n >5 0 <1 0 Titanium ppm ASTM D5185n >2 <1 <1 0 Silver ppm ASTM D5185n >2 <1 <1 0 Aluminum ppm ASTM D5185n >20 3 2 <1 Lead ppm ASTM D5185n >20 3 2 <1 Lead ppm ASTM D5185n >40 <1 0 0 Copper ppm ASTM D5185n >15 <1 <1 <1 <1 <1 0 Vanadium ppm ASTM D5185n 0 <1 <1 0 Cadmium ppm ASTM D5185n 0 0 <1 0 <1 0 ADDITIVES method limit/base current history1 history1 history2	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron p	ppm	ASTM D5185m	>120	6	5	6
Titanium ppm ASTM D5185m >2 <1 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 3 2 <1 Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >330 1 <1 <1 <1 Vanadium ppm ASTM D5185m >15 <1 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 <t< td=""><td>Chromium</td><td>ppm</td><td>ASTM D5185m</td><td>>20</td><th><1</th><td><1</td><td>0</td></t<>	Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Stiver	Nickel	ppm	ASTM D5185m	>5	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 0 <1 <1 <1 0 <1 0 <1 0 <1 <1 0 <1 0 <1 0 <1 0 <1 0 <td>Aluminum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>20</td> <th>3</th> <td>2</td> <td><1</td>	Aluminum	ppm	ASTM D5185m	>20	3	2	<1
Tin ppm ASTM D5185m >15 <1 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 1010 941 862 1027 Calcium ppm ASTM D5185m 1070 1075 972 1123 Phosphorus ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060	Lead	ppm	ASTM D5185m	>40	<1	0	0
Tin	Copper	ppm	ASTM D5185m	>330	1	<1	<1
Cadmium ppm ASTM D5185m 0 <1 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 60 64 56 60 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 1010 941 862 1027 Calcium ppm ASTM D5185m 1070 1075 972 1123 Phosphorus ppm ASTM D5185m 1150 1137 1008 1050 Zinc ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current			ASTM D5185m	>15	<1	<1	0
Cadmium ppm ASTM D5185m 0 <1 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 60 64 56 60 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 1010 941 862 1027 Calcium ppm ASTM D5185m 1070 1075 972 1123 Phosphorus ppm ASTM D5185m 1150 1137 1008 1050 Zinc ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current<			ASTM D5185m		0	<1	0
Boron			ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 64 56 60 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 1010 941 862 1027 Calcium ppm ASTM D5185m 1070 1075 972 1123 Phosphorus ppm ASTM D5185m 1150 1137 1008 1050 Zinc ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m >20 3 2 <1 INFRA-RED method limit/base </td <td>ADDITIVES</td> <td></td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 64 56 60 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 1010 941 862 1027 Calcium ppm ASTM D5185m 1070 1075 972 1123 Phosphorus ppm ASTM D5185m 1150 1137 1008 1050 Zinc ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m >20 3 2 <1 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7414 >4 </td <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td>0</td> <td>0</td>	Boron	ppm	ASTM D5185m	0	0	0	0
Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 1010 941 862 1027 Calcium ppm ASTM D5185m 1070 1075 972 1123 Phosphorus ppm ASTM D5185m 1150 1137 1008 1050 Zinc ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m >20 3 2 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 941 862 1027 Calcium ppm ASTM D5185m 1070 1075 972 1123 Phosphorus ppm ASTM D5185m 1150 1137 1008 1050 Zinc ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m >20 3 2 <1	Molybdenum	ppm	ASTM D5185m	60	64	56	60
Calcium ppm ASTM D5185m 1070 1075 972 1123 Phosphorus ppm ASTM D5185m 1150 1137 1008 1050 Zinc ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m >20 3 2 <1	Manganese p	ppm	ASTM D5185m	0	0	0	0
Phosphorus ppm ASTM D5185m 1150 1137 1008 1050 Zinc ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m >20 3 2 <1	Magnesium p	ppm	ASTM D5185m	1010	941	862	1027
Zinc ppm ASTM D5185m 1270 1254 1187 1307 Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m >20 3 2 <1	Calcium	ppm	ASTM D5185m	1070	1075	972	1123
Sulfur ppm ASTM D5185m 2060 3284 3158 3643 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m >20 3 2 <1	Phosphorus p	ppm	ASTM D5185m	1150	1137	1008	1050
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m <1	Zinc	ppm	ASTM D5185m	1270	1254	1187	1307
Silicon ppm ASTM D5185m >25 6 5 4 Sodium ppm ASTM D5185m <1 3 3 Potassium ppm ASTM D5185m >20 3 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 5.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 17.8 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.5 14.6	Sulfur	ppm	ASTM D5185m	2060	3284	3158	3643
Sodium ppm ASTM D5185m <1 3 3 Potassium ppm ASTM D5185m >20 3 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 5.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 17.8 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.5 14.6	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 5.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 17.8 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.5 14.6	Silicon	ppm	ASTM D5185m	>25	6	5	4
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 5.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 17.8 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.5 14.6	Sodium	ppm	ASTM D5185m		<1	3	3
Soot % % *ASTM D7844 >4 0.2 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 5.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 17.8 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.5 14.6	Potassium	ppm	ASTM D5185m	>20	3	2	<1
Nitration Abs/cm *ASTM D7624 >20 6.2 5.4 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 17.8 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.5 14.6	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.2 17.8 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.5 14.6	Soot %	%	*ASTM D7844	>4	0.2	0.1	0.3
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.5 14.6	Nitration /	Abs/cm	*ASTM D7624	>20	6.2	5.4	7.2
Oxidation	Sulfation /	Abs/.1mm	*ASTM D7415	>30	18.2	17.8	18.5
	FLUID DEGRADA	NOITA	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.2 8.3 7.9	Oxidation /	Abs/.1mm	*ASTM D7414	>25	13.8	13.5	14.6
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.2	8.3	7.9



OIL ANALYSIS REPORT



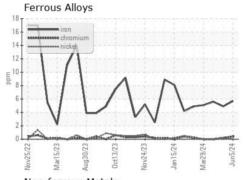


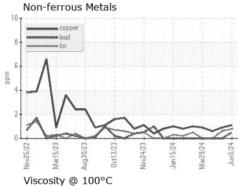


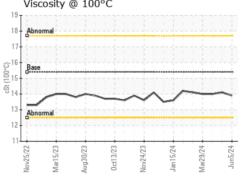
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

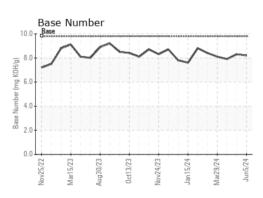
FLUID PROPI	ERITES	method	ilmit/base		nistory i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	14.1	14.0

GRAPHS













Certificate 12367

Laboratory Sample No. Lab Number : 06202287 Unique Number : 11069748

: GFL0088028 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 06 Jun 2024

Tested : 10 Jun 2024 Diagnosed : 10 Jun 2024 - 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)

Report Id: GFL955 [WUSCAR] 06202287 (Generated: 06/10/2024 16:52:38) Rev: 1

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