

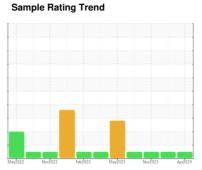
OIL ANALYSIS REPORT



(62A1N7N) MONTGOMERY **MACK 428088**

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

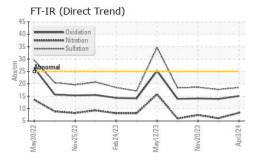
Fluid Condition

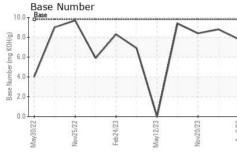
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

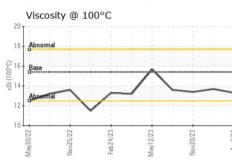
Sample Number Client Info GFL0080693 GFL0081858 GFL0092360 Sample Date Client Info 03 Apr 2024 25 Jan 2024 20 Nov 2023 10	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 11570 243989 11050 Oil Age hrs Client Info 906 233325 386 Oil Changed Client Info Not Changd N/A N/A Sample Status NoRMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0	Sample Number		Client Info		GFL0080693	GFL0081858	GFL0092360
Oil Age hrs Client Info 906 233325 386 Oil Changed Client Info Not Changd N/A N/A Sample Status Client Info NoRMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method 3-3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method 3-3.0 <1.0 <1.0 <1.0 <1.0 Wear Method WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 9 4 11 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Gliver ppm ASTM D5185m >20 2 2 4	Sample Date		Client Info		03 Apr 2024	25 Jan 2024	20 Nov 2023
Oil Age hrs Client Info 906 233325 386 Oil Changed Client Info Not Changd N/A N/A Sample Status Client Info NoRMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method 3-3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method 3-3.0 <1.0 <1.0 <1.0 <1.0 Wear Method WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 9 4 11 Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 0 0 Gliver ppm ASTM D5185m >20 2 2 4	Machine Age	hrs	Client Info		11570	243989	11050
Cilient Info Not Change N/A NORMAL NORMAL		hrs	Client Info		906	233325	386
NORMAL NORMAL NORMAL	-		Client Info		Not Changd	N/A	N/A
Fuel	-					NORMAL	NORMAL
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 9 4 11 Chromium ppm ASTM D5185m >20 0 0 0 Nikel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 4 Lead ppm ASTM D5185m >40 0 <1 -1 Copper ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 5 10 21 <th>CONTAMINATIO</th> <th>N</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINATIO	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
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >5 0 0 0 Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 4 Lead ppm ASTM D5185m >20 2 2 4 Lead ppm ASTM D5185m >330 2 1 5 Tin ppm ASTM D5185m 0 <1 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 0 Barium ppm ASTM D5185m 0 5 10 21 0 0 0 0 0 0	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	9	4	11
Description	Chromium	ppm	ASTM D5185m	>20	0	0	0
Description	Nickel	ppm	ASTM D5185m	>5	0	0	0
Silver			ASTM D5185m	>2	0	0	0
Aluminum			ASTM D5185m	>2	0	0	0
Lead			ASTM D5185m	>20	2	2	4
Copper ppm ASTM D5185m >330 2 1 5 Tin ppm ASTM D5185m >15 0 <1					0	<1	<1
Tin							
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 5 10 21 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 62 58 65 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1070 1164 1021 1250 Phosphorus ppm ASTM D5185m 1270 1328 1266 1447 Sulfur ppm ASTM D5185m 2060 4081 3289 3695 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 4							
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 10 21 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 -1 0 Magnesium ppm ASTM D5185m 0 0 -1 0 Magnesium ppm ASTM D5185m 1070 1164 1021 1250 Phosphorus ppm ASTM D5185m 1070 1164 1021 1250 Phosphorus ppm ASTM D5185m 1270 1328 1266 1447 Sulfur ppm ASTM D5185m 2060 4081 3289 3695 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 20 4 </td <td></td> <td></td> <td></td> <td>710</td> <th></th> <td></td> <td></td>				710			
ADDITIVES							
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Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 62 58 65 Manganese ppm ASTM D5185m 0 0 <1	_	nnm					
Molybdenum ppm ASTM D5185m 60 62 58 65 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 1021 942 1020 Calcium ppm ASTM D5185m 1070 1164 1021 1250 Phosphorus ppm ASTM D5185m 1150 1109 1062 1164 Zinc ppm ASTM D5185m 1270 1328 1266 1447 Sulfur ppm ASTM D5185m 2060 4081 3289 3695 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 4 7 Sodium ppm ASTM D5185m 20 4 3 8 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4							
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Magnesium ppm ASTM D5185m 1010 1021 942 1020 Calcium ppm ASTM D5185m 1070 1164 1021 1250 Phosphorus ppm ASTM D5185m 1150 1109 1062 1164 Zinc ppm ASTM D5185m 1270 1328 1266 1447 Sulfur ppm ASTM D5185m 2060 4081 3289 3695 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 4 7 Sodium ppm ASTM D5185m 20 4 3 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.3 6.1 7.4 Sulfation Abs/.1mm *ASTM D7							
Calcium ppm ASTM D5185m 1070 1164 1021 1250 Phosphorus ppm ASTM D5185m 1150 1109 1062 1164 Zinc ppm ASTM D5185m 1270 1328 1266 1447 Sulfur ppm ASTM D5185m 2060 4081 3289 3695 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 4 7 Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 4 3 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7415 >30 18.5 17.7 18.6 FLUID DEGRADATION							
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Sulfur ppm ASTM D5185m 2060 4081 3289 3695 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 4 7 Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 4 3 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.3 6.1 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.7 18.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1							
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 4 7 Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 4 3 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.3 6.1 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.7 18.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1							
Silicon ppm ASTM D5185m >25 5 4 7 Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 4 3 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.3 6.1 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.7 18.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1		-					
Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 4 3 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.3 6.1 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.7 18.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1						•	•
Potassium ppm ASTM D5185m >20 4 3 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.3 6.1 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.7 18.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1				>2U			
INFRA-RED				. 20			
Soot % % *ASTM D7844 >4 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.3 6.1 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.7 18.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1		ppm	ASTM DST85M	>20	4	3	8
Nitration Abs/cm *ASTM D7624 >20 8.3 6.1 7.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.7 18.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1	INFRA-RED		method	limit/base	current	•	•
Sulfation Abs/.1mm *ASTM D7415 >30 18.5 17.7 18.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1	Soot %	%	*ASTM D7844	>4	0.4	0.2	0.4
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1	Nitration	Abs/cm	*ASTM D7624	>20	8.3	6.1	7.4
Oxidation Abs/.1mm *ASTM D7414 >25 15.1 13.9 14.1	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.5	17.7	18.6
	FLUID DEGRADATION method limit/base current history1 history2						
	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.1	13.9	14.1
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.8	8.8	



OIL ANALYSIS REPORT



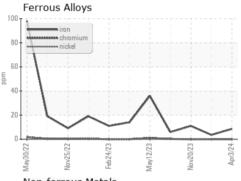


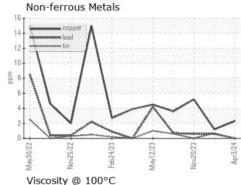


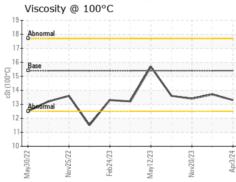
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

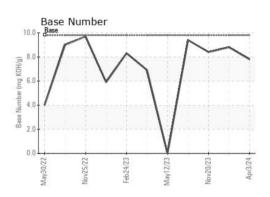
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.7	13.4

GRAPHS













Certificate 12367

Laboratory Sample No.

Lab Number : 06139737 Unique Number : 10964545 Test Package : FLEET

: GFL0080693

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 05 Apr 2024 **Tested** : 06 Apr 2024

Diagnosed : 06 Apr 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)

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F: