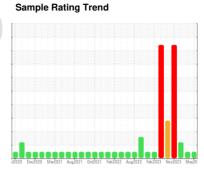


OIL ANALYSIS REPORT

(71652P) 810016

Diesel Engine

PETRO CANADA DURON SHP 15W40 (10 GAL)





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

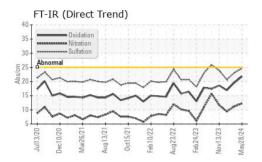
Fluid Condition

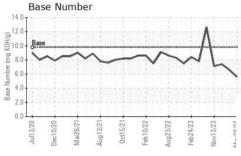
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

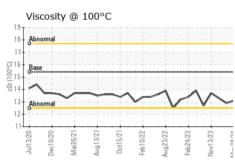
Sample Number Sample Date Client Info GFL0113920 GFL0113936 GFL0093749 Sample Date Client Info 28 May 2024 16 May 2024 06 Feb 2024 Machine Age hrs Client Info 13156 0 0 Oil Age hrs Client Info Changed Not Changed Changed Oil Changed Client Info Changed Not Changed Changed CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Weater WC Method NEG NEG NEG NEG NEG Weater WC Method so 0.1 2.0 NEG NEG Weater WC Method so 0.9 59 49 41 Chromium ppm ASTM D5185m >20 1 2 2	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Client Info 28 May 2024 16 May 2024 06 Feb 2024 Machine Age hrs Client Info 9244 9178 2973 00 10 13156 0 0 0 0 0 0 0 0 0		7111011				•	
Machine Age hrs Client Info 9244 9178 2973							
Oil Age hrs Client Info 13156 0 0 Oil Changed Sample Status Client Info Changed Changed Not Changed ATTENTION Not Changed Changed Changed Changed ATTENTION CONTAMINATION method limit/base current current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Water 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		hre			•	,	
Client Info Changed Normal Norm					-		
NORMAL NORMAL NORMAL ATTENTION	-	1110					-
Fuel	-		Olichi iilio			Ŭ	_
Fuel	·	DN	method	limit/base			
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 59 49 41 Chromium ppm ASTM D5185m >20 1 2 2 Nickel ppm ASTM D5185m >2 0 <1							
WEAR METALS							
WEAR METALS				70.2	-		
Tron				li.ee:t/le = = =			
Chromium							
Nickel	- 1						
Titanium							
Silver							
Aluminum ppm ASTM D5185m >20 7 6 4 Lead ppm ASTM D5185m >40 0 <1		ppm			-		
Lead ppm ASTM D5185m >40 0 <1 <1 Copper ppm ASTM D5185m >330 2 2 3 Tin ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m 0 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 6 5 Barium ppm ASTM D5185m 0 10 6 5 Barium ppm ASTM D5185m 0 1 <1 1 Molybdenum ppm ASTM D5185m 0 1 <1 1 Manganese ppm ASTM D5185m 0 1 <1 1 Magnesium ppm ASTM D5185m 1070 1058 1095							
Copper ppm ASTM D5185m >330 2 2 3 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20			
Tin	Lead	ppm					
Vanadium ppm ASTM D5185m 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 6 5 Barium ppm ASTM D5185m 0 0 0 13 Molybdenum ppm ASTM D5185m 0 60 60 60 85 Manganese ppm ASTM D5185m 0 1 <1 1 Magnesium ppm ASTM D5185m 1010 925 929 1233 Calcium ppm ASTM D5185m 1070 1058 1095 1433 Phosphorus ppm ASTM D5185m 1270 1268 1271 1699 Sulfur ppm ASTM D5185m 2060 2962 2943 4572 CONTAMINANTS method limit/base current <	• • • • • • • • • • • • • • • • • • • •	ppm			_		
Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 6 5 Barium ppm ASTM D5185m 0 0 0 13 Molybdenum ppm ASTM D5185m 0 1 <1		ppm		>15			
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 6 5 Barium ppm ASTM D5185m 0 0 0 13 Molybdenum ppm ASTM D5185m 60 60 60 85 Manganese ppm ASTM D5185m 0 1 <1	Vanadium	ppm	ASTM D5185m				
Boron ppm ASTM D5185m 0 10 6 5	Cadmium	ppm	ASTM D5185m		0	0	<1
Barium ppm ASTM D5185m 0 0 0 13 Molybdenum ppm ASTM D5185m 60 60 60 85 Manganese ppm ASTM D5185m 0 1 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 60 60 85 Manganese ppm ASTM D5185m 0 1 <1 1 Magnesium ppm ASTM D5185m 1010 925 929 1233 Calcium ppm ASTM D5185m 1070 1058 1095 1433 Phosphorus ppm ASTM D5185m 1150 1044 988 1369 Zinc ppm ASTM D5185m 1270 1268 1271 1699 Sulfur ppm ASTM D5185m 2060 2962 2943 4572 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 9 10 Sodium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7824 >20	Boron	ppm	ASTM D5185m	0	10	6	5
Manganese ppm ASTM D5185m 0 1 <1 1 Magnesium ppm ASTM D5185m 1010 925 929 1233 Calcium ppm ASTM D5185m 1070 1058 1095 1433 Phosphorus ppm ASTM D5185m 1150 1044 988 1369 Zinc ppm ASTM D5185m 1270 1268 1271 1699 Sulfur ppm ASTM D5185m 2060 2962 2943 4572 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 9 10 Sodium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cmm *ASTM D7415	Barium	ppm	ASTM D5185m	0	0	0	13
Magnesium ppm ASTM D5185m 1010 925 929 1233 Calcium ppm ASTM D5185m 1070 1058 1095 1433 Phosphorus ppm ASTM D5185m 1150 1044 988 1369 Zinc ppm ASTM D5185m 1270 1268 1271 1699 Sulfur ppm ASTM D5185m 2060 2962 2943 4572 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 9 10 Sodium ppm ASTM D5185m 51 54 106 Potassium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7415 >30 2	Molybdenum	ppm	ASTM D5185m	60	60	60	85
Calcium ppm ASTM D5185m 1070 1058 1095 1433 Phosphorus ppm ASTM D5185m 1150 1044 988 1369 Zinc ppm ASTM D5185m 1270 1268 1271 1699 Sulfur ppm ASTM D5185m 2060 2962 2943 4572 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 9 10 Sodium ppm ASTM D5185m 51 54 106 Potassium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION <td>Manganese</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>1</th> <td><1</td> <td>1</td>	Manganese	ppm	ASTM D5185m	0	1	<1	1
Phosphorus ppm ASTM D5185m 1150 1044 988 1369 Zinc ppm ASTM D5185m 1270 1268 1271 1699 Sulfur ppm ASTM D5185m 2060 2962 2943 4572 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 9 10 Sodium ppm ASTM D5185m >20 12 11 4 Potassium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7624 >20 12.3 11.2 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION <	Magnesium	ppm	ASTM D5185m	1010	925	929	1233
Zinc ppm ASTM D5185m 1270 1268 1271 1699 Sulfur ppm ASTM D5185m 2060 2962 2943 4572 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 9 10 Sodium ppm ASTM D5185m 51 54 106 Potassium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7624 >20 12.3 11.2 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Calcium	ppm	ASTM D5185m	1070	1058	1095	1433
Sulfur ppm ASTM D5185m 2060 2962 2943 4572 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 9 10 Sodium ppm ASTM D5185m 51 54 106 Potassium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7624 >20 12.3 11.2 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.8 19.6 16.9	Phosphorus	ppm	ASTM D5185m	1150	1044	988	1369
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 9 9 10 Sodium ppm ASTM D5185m 51 54 106 Potassium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7624 >20 12.3 11.2 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.8 19.6 16.9	Zinc	ppm	ASTM D5185m	1270	1268	1271	1699
Silicon ppm ASTM D5185m >25 9 9 10 Sodium ppm ASTM D5185m 51 54 106 Potassium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7624 >20 12.3 11.2 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.8 19.6 16.9	Sulfur	ppm	ASTM D5185m	2060	2962	2943	4572
Sodium ppm ASTM D5185m 51 54 106 Potassium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7624 >20 12.3 11.2 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.8 19.6 16.9	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 12 11 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7624 >20 12.3 11.2 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.8 19.6 16.9	Silicon	ppm		>25	9		
INFRA-RED	Sodium	ppm	ASTM D5185m		51	54	
Soot % % *ASTM D7844 >6 1.4 1.1 0.9 Nitration Abs/cm *ASTM D7624 >20 12.3 11.2 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.8 19.6 16.9	Potassium	ppm	ASTM D5185m	>20	12	11	4
Nitration Abs/cm *ASTM D7624 >20 12.3 11.2 9.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.8 19.6 16.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 24.6 23.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.8 19.6 16.9	Soot %	%	*ASTM D7844	>6	1.4	1.1	0.9
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 21.8 19.6 16.9	Nitration	Abs/cm	*ASTM D7624	>20	12.3	11.2	9.4
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	24.6	23.1	20.7
	FLUID DEGRADA	NOITA	method	limit/base	current	history1	history2
	Oxidation /	Abs/.1mm	*ASTM D7414	>25	21.8	19.6	16.9
					5.6		



OIL ANALYSIS REPORT



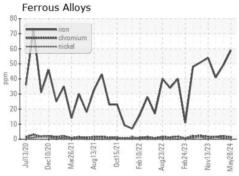


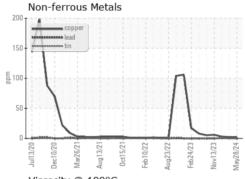


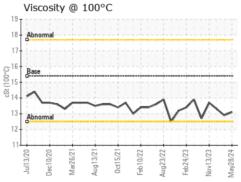
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

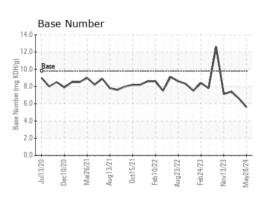
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	12.9	13.3

GRAPHS













Certificate 12367

Laboratory Sample No. Unique Number : 11058585

Lab Number : 06196462

: GFL0113920

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 31 May 2024

Tested : 03 Jun 2024 Diagnosed

: 03 Jun 2024 - Wes Davis

GFL Environmental - 029 - Wytheville 2390 North 4th Street Wytheville, VA

> US 24382 Contact: CHARLES CORVIN

charles.corvin@gflenv.com;canastasio@wearcheckusa.com T: (276)223-4476

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)

F: (276)223-1283