

OIL ANALYSIS REPORT

Area **(P642630)** Machine Id 10780

Diesel Engine

PETRO CANADA DURON SHP 15W40 (11 GAL)

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 oil.

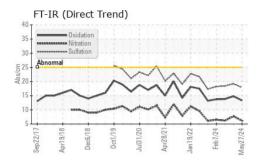
Fluid Condition

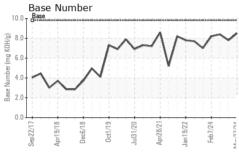
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

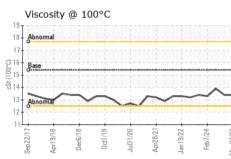
Sample Number	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 13053 12673 Oil Age hrs Client Info 0 938 558 Oil Changed Client Info N/A Not Changd Not Changd Sample Status Normal NORMAL NORMAL NORMAL NORMAL CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method Imitibase current history1 history2 Iron Ppm ASTM D5185m >165 3 13 6 Chromium ppm ASTM D5185m >4 0 <1 0 Mickel ppm ASTM D5185m >20 0 <1 0 Silver ppm ASTM D5185m >20 2 2 1 <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>GFL0109642</th> <th>GFL0109652</th> <th>GFL0087483</th>	Sample Number		Client Info		GFL0109642	GFL0109652	GFL0087483
Machine Age hrs Client Info 0 13053 12673	Sample Date		Client Info		27 May 2024	07 May 2024	06 Mar 2024
Oil Changed Sample Status	Machine Age	hrs	Client Info		0	13053	12673
Contamper Client Info N/A Not Changed Normal Normal	Oil Age	hrs	Client Info		0	938	558
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 Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >165 3 13 6 Chromium ppm ASTM D5185m >5 0 <1 0 Nickel ppm ASTM D5185m >4 0 <1 0 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >20 2 2 1 0 Silver ppm ASTM D5185m >90 0 2 <1 0 Copper ppm ASTM D5185m 90 0 2 <1 </th <th>-</th> <th></th> <th>Client Info</th> <th></th> <th>N/A</th> <th>Not Changd</th> <th>Not Changd</th>	-		Client Info		N/A	Not Changd	Not Changd
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 Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >165 3 13 6 Chromium ppm ASTM D5185m >5 0 <1 0 Nickel ppm ASTM D5185m >4 0 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >20 2 2 1 Copper ppm ASTM D5185m >90 0 2 <1 Tin ppm ASTM D5185m 0 0 0 <1 Cadmium </th <th>Sample Status</th> <th></th> <th></th> <th></th> <th>NORMAL</th> <th>NORMAL</th> <th>NORMAL</th>	Sample Status				NORMAL	NORMAL	NORMAL
Fuel	•	ION	method	limit/base	current	history1	history2
WEAR METALS							
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >165 3 13 6 Chromium ppm ASTM D5185m >5 0 <1 0 Nickel ppm ASTM D5185m >2 0 <1 0 Titanium ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >150 <1 1 0 Copper ppm ASTM D5185m >90 0 2 <1 Lead ppm ASTM D5185m 0 0 0 <1 Codadium ppm ASTM D5185m 0 0 0 <1 Cadium ppm ASTM D5185m 0 0 0 <	Glycol				NEG		
Iron		S	method	limit/base	current	historv1	historv2
Chromium ppm ASTM D5185m >5 0 <1							
Nickel		• •					
Titanium ppm ASTM D5185m >2 0 <1							
Silver							
Aluminum ppm ASTM D5185m >20 2 2 1 Lead ppm ASTM D5185m >150 <1 1 0 Copper ppm ASTM D5185m >90 0 2 <1 Tin ppm ASTM D5185m 0 0 0 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 16 8 5 Boron ppm ASTM D5185m 0 16 8 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 894 889 934 Calcium ppm ASTM D5185m 1070 1110 1122					-		
Lead		• •					
Copper ppm ASTM D5185m >90 0 2 <1					_	_	
Tin ppm ASTM D5185m >5 <1							
Vanadium ppm ASTM D5185m 0 0 <1					-	_	
Cadmium ppm ASTM D5185m 0 <1				>5			_
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 16 8 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 66 67 64 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 894 889 934 Calcium ppm ASTM D5185m 1070 1110 1122 1134 Phosphorus ppm ASTM D5185m 1270 1198 1170 1205 Zinc ppm ASTM D5185m 2060 3423 2849 3092 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 4 5 4 Sodium ppm ASTM D5185m >20 <th></th> <th>ppm</th> <th></th> <th></th> <th></th> <th></th> <th></th>		ppm					
Boron		ppm					
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 66 67 64 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 66 67 64 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	16	8	5
Manganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 894 889 934 Calcium ppm ASTM D5185m 1070 1110 1122 1134 Phosphorus ppm ASTM D5185m 1150 1015 902 959 Zinc ppm ASTM D5185m 1270 1198 1170 1205 Sulfur ppm ASTM D5185m 2060 3423 2849 3092 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 4 5 4 Sodium ppm ASTM D5185m 3 2 3 Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844 >7.5 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7415 >30 <	Molybdenum	ppm	ASTM D5185m	60	66	67	64
Calcium ppm ASTM D5185m 1070 1110 1122 1134 Phosphorus ppm ASTM D5185m 1150 1015 902 959 Zinc ppm ASTM D5185m 1270 1198 1170 1205 Sulfur ppm ASTM D5185m 2060 3423 2849 3092 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 4 5 4 Sodium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/:nm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/:nm <t< th=""><th>•</th><th>ppm</th><th>ASTM D5185m</th><th>0</th><th><1</th><th><1</th><th><1</th></t<>	•	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1015 902 959 Zinc ppm ASTM D5185m 1270 1198 1170 1205 Sulfur ppm ASTM D5185m 2060 3423 2849 3092 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 4 5 4 Sodium ppm ASTM D5185m >30 2 3 Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method <td< th=""><th>Magnesium</th><th>ppm</th><th>ASTM D5185m</th><th>1010</th><th>894</th><th>889</th><th>934</th></td<>	Magnesium	ppm	ASTM D5185m	1010	894	889	934
Zinc ppm ASTM D5185m 1270 1198 1170 1205 Sulfur ppm ASTM D5185m 2060 3423 2849 3092 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 4 5 4 Sodium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % "ASTM D7844 >7.5 0.2 0.3 0.3 Nitration Abs/cm "ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/.1mm "ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm "ASTM D7414 >25 13.3 14.8 13.8	Calcium	ppm	ASTM D5185m	1070	1110	1122	1134
Sulfur ppm ASTM D5185m 2060 3423 2849 3092 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 4 5 4 Sodium ppm ASTM D5185m 3 2 3 Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8	Phosphorus	ppm	ASTM D5185m	1150	1015	902	959
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 4 5 4 Sodium ppm ASTM D5185m 3 2 3 Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8	Zinc	ppm	ASTM D5185m	1270	1198	1170	1205
Silicon ppm ASTM D5185m >35 4 5 4 Sodium ppm ASTM D5185m 3 2 3 Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8			ASTM D5185m	2060	3423	2849	3092
Sodium ppm ASTM D5185m 3 2 3 Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8	Silicon	ppm	ASTM D5185m	>35	4	5	4
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8	Sodium	ppm	ASTM D5185m		3	2	3
Soot % % *ASTM D7844 > 7.5 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 > 20 6.2 7.7 6.2 Sulfation Abs/.1mm *ASTM D7415 > 30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 13.3 14.8 13.8	Potassium	ppm	ASTM D5185m	>20	2	2	0
Nitration Abs/cm *ASTM D7624 >20 6.2 7.7 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.9 19.2 18.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8	Soot %	%	*ASTM D7844	>7.5	0.2	0.3	0.3
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8	Nitration	Abs/cm	*ASTM D7624	>20	6.2	7.7	6.2
Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.8 13.8	Sulfation		*ASTM D7415	>30	17.9	19.2	18.4
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.3	14.8	13.8



OIL ANALYSIS REPORT



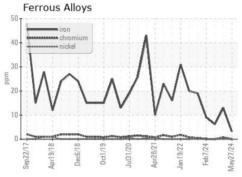


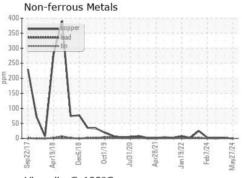


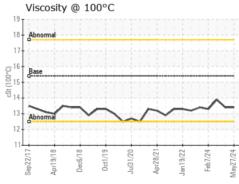
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

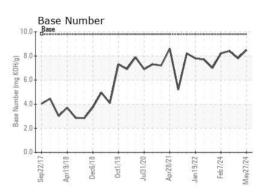
FLUID PROP	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.4	13.9

GRAPHS













Certificate 12367

Laboratory Sample No. Lab Number : 06193410 Unique Number : 11050162

: GFL0109642

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 28 May 2024 **Tested** : 30 May 2024

Diagnosed : 30 May 2024 - Wes Davis

GFL Environmental - 031 - Greenville/Spartanburg

1635 Antioch Church Rd Piedmont, SC US 29673

Contact: TECHNICIAN ACCOUNT catherine.anastasio@wearcheck.com

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: