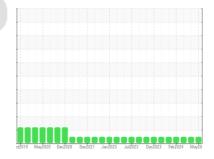


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id **421029-402323** Component

Component
Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

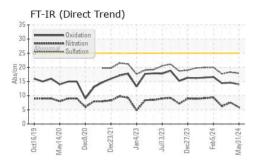
Fluid Condition

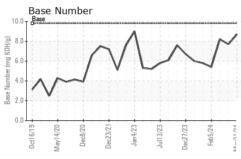
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

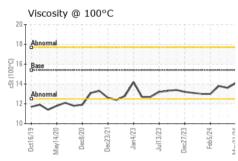
Sample Number Client Info GFL0093442 GFL0109408 GFL0093580 Sample Date Client Info 31 May 2024 09 Apr 2024 07 Mar 2024 Machine Age hrs Client Info 147 354 187 Oil Changed hrs Client Info 147 354 187 Oil Changed Client Info Not Changd NORMAL NORMA	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Date		/\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				•	
Machine Age hrs Client Info 25055 24908 24741 Oil Age hrs Client Info 147 354 187 Oil Changed Client Info Not Changd Not Changd Not Changd Sample Status method limit/base current history1 history2 Fuel WC Method >3.0 <1.0							
Oil Age hrs Client Info 147 354 187 Oil Changed Client Info Not Changd Changed Not Changed Sample Status Client Info 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 3-0.2 NEG NEG NEG USCARDING WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 3 4 3 Obromium ppm ASTM D5185m >20 <1 0 0 Nickel ppm ASTM D5185m >20 <1 <1 <1 Silver ppm ASTM D5185m >20 <1 <1 <1 Lead ppm		hre			•		
Oil Changed Sample Status	-						
NORMAL NORMAL NORMAL NORMAL		1113					
Fuel			Oliciii iiilo			_	_
Fuel		DNI	method	limit/hase			
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 3 4 3 Chromium ppm ASTM D5185m >20 <1		J 1 N					
WEAR METALS							
WEAR METALS				>0.2	-		
Iron							
Chromium ppm ASTM D5185m >20 <1 0 0 Nickel ppm ASTM D5185m >5 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel		ppm	ASTM D5185m	>120	3		
Titanium ppm ASTM D5185m >2 8 <1 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 4 2 2 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 <1	Chromium	ppm	ASTM D5185m	>20	<1	0	0
Stilver	Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Aluminum	Titanium	ppm	ASTM D5185m	>2	8	<1	<1
Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 <1 0 0 Tin ppm ASTM D5185m >15 <1 <1 <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 9 2 3 Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 0 1 0 0 Magnese ppm ASTM D5185m 0 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 912 958 913 Calcium ppm ASTM D5185m 1070	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 <1 0 0 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	4	2	2
Tin ppm ASTM D5185m >15 <1 <1 <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 9 2 3 Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 0 1 0 0 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 912 958 913 Calcium ppm ASTM D5185m 1070 1142 1064 995 Phosphorus ppm ASTM D5185m 1270 1255 1268 1242 Sulfur ppm ASTM D5185m 2060	Lead	ppm	ASTM D5185m	>40	0	0	0
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 9 2 3 Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 60 57 59 55 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 912 958 913 Calcium ppm ASTM D5185m 1070 1142 1064 995 Phosphorus ppm ASTM D5185m 1150 1041 1071 1001 Zinc ppm ASTM D5185m 2060 3512 3648 3059 CONTAMINANTS method limit/base current history1 <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><th><1</th><td>0</td><td>0</td></t<>	Copper	ppm	ASTM D5185m	>330	<1	0	0
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 9 2 3 Barium ppm ASTM D5185m 0 1 0 2 2 0 0 2 2 0 2	Tin	ppm	ASTM D5185m	>15	<1	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 60 57 59 55 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 912 958 913 Calcium ppm ASTM D5185m 1070 1142 1064 995 Phosphorus ppm ASTM D5185m 1150 1041 1071 1001 Zinc ppm ASTM D5185m 1270 1255 1268 1242 Sulfur ppm ASTM D5185m 2060 3512 3648 3059 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 3 2 2 Potassium ppm ASTM D5185m <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 57 59 55 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 912 958 913 Calcium ppm ASTM D5185m 1070 1142 1064 995 Phosphorus ppm ASTM D5185m 1150 1041 1071 1001 Zinc ppm ASTM D5185m 1270 1255 1268 1242 Sulfur ppm ASTM D5185m 2060 3512 3648 3059 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 3 2 2 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/b	Boron	ppm	ASTM D5185m	0	9	2	3
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 912 958 913 Calcium ppm ASTM D5185m 1070 1142 1064 995 Phosphorus ppm ASTM D5185m 1150 1041 1071 1001 Zinc ppm ASTM D5185m 1270 1255 1268 1242 Sulfur ppm ASTM D5185m 2060 3512 3648 3059 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 3 2 2 Potassium ppm ASTM D5185m >20 3 2 2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D741	Barium	ppm	ASTM D5185m	0	1	0	0
Magnesium ppm ASTM D5185m 1010 912 958 913 Calcium ppm ASTM D5185m 1070 1142 1064 995 Phosphorus ppm ASTM D5185m 1150 1041 1071 1001 Zinc ppm ASTM D5185m 1270 1255 1268 1242 Sulfur ppm ASTM D5185m 2060 3512 3648 3059 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 3 2 2 Potassium ppm ASTM D5185m >20 3 2 2 Soot % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >	Molybdenum	ppm	ASTM D5185m	60	57	59	55
Calcium ppm ASTM D5185m 1070 1142 1064 995 Phosphorus ppm ASTM D5185m 1150 1041 1071 1001 Zinc ppm ASTM D5185m 1270 1255 1268 1242 Sulfur ppm ASTM D5185m 2060 3512 3648 3059 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 3 2 2 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method </td <td>Manganese</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td><1</td> <td><1</td>	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus ppm ASTM D5185m 1150 1041 1071 1001 Zinc ppm ASTM D5185m 1270 1255 1268 1242 Sulfur ppm ASTM D5185m 2060 3512 3648 3059 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 3 2 2 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm <t< td=""><td>Magnesium</td><td>ppm</td><td>ASTM D5185m</td><td>1010</td><th>912</th><td>958</td><td>913</td></t<>	Magnesium	ppm	ASTM D5185m	1010	912	958	913
Zinc ppm ASTM D5185m 1270 1255 1268 1242 Sulfur ppm ASTM D5185m 2060 3512 3648 3059 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 3 2 2 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Calcium	ppm	ASTM D5185m	1070	1142	1064	995
Sulfur ppm ASTM D5185m 2060 3512 3648 3059 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m >20 3 2 2 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	Phosphorus	ppm	ASTM D5185m	1150	1041	1071	1001
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 0 2 2 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	Zinc	ppm	ASTM D5185m	1270	1255	1268	1242
Silicon ppm ASTM D5185m >25 4 4 3 Sodium ppm ASTM D5185m 0 2 2 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	Sulfur	ppm	ASTM D5185m	2060	3512	3648	3059
Sodium ppm ASTM D5185m 0 2 2 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	Silicon	ppm	ASTM D5185m	>25	4	4	3
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	Sodium	ppm	ASTM D5185m		0	2	2
Soot % % *ASTM D7844 >4 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	Potassium	ppm	ASTM D5185m	>20	3	2	2
Nitration Abs/cm *ASTM D7624 >20 5.9 7.6 6.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.9 18.3 17.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	Soot %	%	*ASTM D7844	>4	0.2	0.2	0.1
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4	Nitration	Abs/cm	*ASTM D7624	>20	5.9	7.6	6.3
Oxidation Abs/.1mm *ASTM D7414 >25 14.0 14.6 14.4			*ASTM D7415	>30		18.3	
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.0	14.6	14.4
			ASTM D2896	9.8	8.7	7.7	8.2



OIL ANALYSIS REPORT





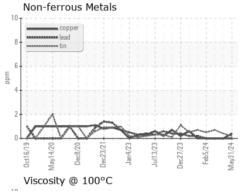


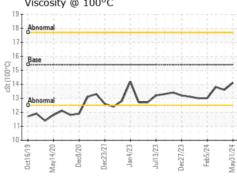
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	LIGHT	NONE	NONE
Sand/Dirt	scalar	*Visual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

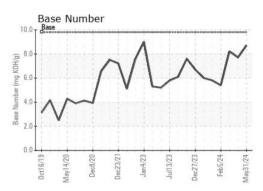
FLUID PROP	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	13.6	13.8

GRAPHS

Ferrous Alloys











Certificate 12367

Laboratory Sample No.

Lab Number : 06201006 Unique Number : 11063129

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0093442

Test Package : FLEET

Received **Tested**

: 06 Jun 2024 Diagnosed : 06 Jun 2024 - Wes Davis

: 05 Jun 2024

1910 S CHICKASAW STREET Pauls Valley, OK

GFL Environmental - 892 - Pauls Valley Hauling

US 73075 Contact: Tony Graham tgraham2@wcamerica.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)

Report Id: GFL892 [WUSCAR] 06201006 (Generated: 06/06/2024 19:32:50) Rev: 1

Submitted By: Andy Smith

T:

F: