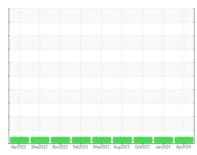


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 229053-19

Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the

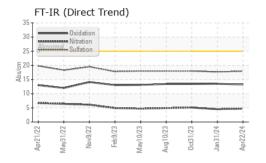
Fluid Condition

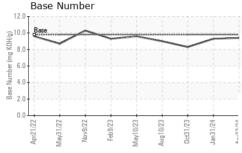
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

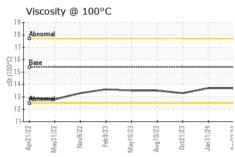
SAMPLE INFORMATION method limit/base current history1 Sample Number Client Info GFL0103127 GFL0103141 GFL0091942 Sample Date Client Info G92 Apr 2024 31 Jan 2024 31 Oct 2023 Get 1	. i n <i>j</i>		Aprzuzz Ma	YZUZZ INOVZUZZ FBDZUZ3	mayzuza Augzuza Uctzuza Janzu	Z4 Aprzuz4				
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2			
Machine Age hrs Client Info 690 641 616 Oil Age hrs Client Info 616 300 386 Oil Changed Client Info Changed Not Changed Changed Changed Sample Status Client Info Changed Not 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 WEAR METALS method limit/base current history2 history2 Iron ppm ASTM D5185m >150 4 0 5 WEAR METALS method limit/base current history2 history2 WEAR METALS method limit/base our cent history2 WEAR METALS method limit/base our cent history2	Sample Number		Client Info		GFL0103127	GFL0103141	GFL0091942			
Oil Age hrs Client Info 616 300 386 Oil Changed Sample Status Client Info Changed Not Changed Not Changed Normal NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 Water WC Method >3.0 <1.0 <1.0 <1.0 WEAR METALS method limil/base nEG NEG NEG WEAR METALS method limil/base current history1 history2 Iron ppm ASTM D5185m >150 4 0 5 Chromium ppm ASTM D5185m >150 4 0 0 1 Nickel ppm ASTM D5185m >15 <1 <1 0 0 1 1 0 0 1 1 0 0 1 1 0 1 1 0 1 1 <	Sample Date		Client Info		22 Apr 2024	31 Jan 2024	31 Oct 2023			
Client Info Changed Not Changed Not Changed NorMAL NORMAL NORMAL	Machine Age	hrs	Client Info		-	641	616			
NORMAL NORMAL NORMAL	Oil Age	hrs	Client Info		616	300	386			
Fuel	Oil Changed		Client Info		Changed	Not Changd	Changed			
Fuel	Sample Status				NORMAL	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 >15.0 4 0 5 Chromium ppm ASTM D5185m >15.5 <1 <1 0 Nickel ppm ASTM D5185m >4 0 0 <1 0 Silver ppm ASTM D5185m >4 0 0 <1 0 Silver ppm ASTM D5185m >15 <1 2 1 Lead ppm ASTM D5185m >70 0 <1 2 2 1 Lead ppm ASTM D5185m >70 0 <1 2 0 0 <1 0 <1 0 0 <1 0 <1 0 <1 0 <1 0 <1 <th>CONTAMINAT</th> <th>ION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINAT	ION	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 D5185m >15 <1 <1 0 Nickel ppm ASTM D5185m >4 0 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2			
Nickel	Iron	ppm	ASTM D5185m	>150	4	0	5			
Titanium ppm ASTM D5185m 0 <1	Chromium	ppm	ASTM D5185m	>15	<1	<1	0			
Stilver	Nickel	ppm	ASTM D5185m	>4	0	0	<1			
Aluminum	Titanium	ppm	ASTM D5185m		0	<1	0			
Lead ppm ASTM D5185m >70 0 <1 2 Copper ppm ASTM D5185m >175 <1 <1 0 Tin ppm ASTM D5185m >5 0 0 <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 10 5 8 Barium ppm ASTM D5185m 0 0 <1 0 Molybdenum ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 1006 1089 968 Calcium ppm ASTM D5185m 1070 1099 1216 </td <td>Silver</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>3</td> <th>0</th> <td>0</td> <td>0</td>	Silver	ppm	ASTM D5185m	>3	0	0	0			
Copper ppm ASTM D5185m >175 <1 <1 0 Tin ppm ASTM D5185m >5 0 0 <1	Aluminum	ppm	ASTM D5185m	>15	<1	2	1			
Tin ppm ASTM D5185m >5 0 0 <1 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 10 5 8 Barium ppm ASTM D5185m 0 0 <1 0 Molybdenum ppm ASTM D5185m 0 0 <1 0 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1070 1099 1216 1056 Phosphorus ppm ASTM D5185m 1150 1091 1243 1046 Zinc ppm ASTM D5185m 1270 1298 1403 1326 Sulfur ppm ASTM D5185m 2060 3671 4074 3	Lead	ppm	ASTM D5185m	>70	0	<1	2			
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 10 5 8 Barium ppm ASTM D5185m 0 0 <1 0 Molybdenum ppm ASTM D5185m 0 0 <1 0 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 1006 1089 968 Calcium ppm ASTM D5185m 1070 1099 1216 1056 Phosphorus ppm ASTM D5185m 1270 1298 1403 1326 Sulfur ppm ASTM D5185m 2060 3671 4074 3393 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>175	<1	<1	0			
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 5 8 Barium ppm ASTM D5185m 0 0 <1	Tin	ppm	ASTM D5185m	>5	0	0	<1			
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 5 8 Barium ppm ASTM D5185m 0 0 <1	Vanadium	ppm	ASTM D5185m		0	0	0			
Boron	Cadmium	ppm	ASTM D5185m		0	0	0			
Barium ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2			
Molybdenum ppm ASTM D5185m 60 61 71 62 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	10	5	8			
Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 1006 1089 968 Calcium ppm ASTM D5185m 1070 1099 1216 1056 Phosphorus ppm ASTM D5185m 1150 1091 1243 1046 Zinc ppm ASTM D5185m 1270 1298 1403 1326 Sulfur ppm ASTM D5185m 2060 3671 4074 3393 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 4 Sodium ppm ASTM D5185m >20 <1	Barium	ppm	ASTM D5185m	0	0	<1	0			
Magnesium ppm ASTM D5185m 1010 1006 1089 968 Calcium ppm ASTM D5185m 1070 1099 1216 1056 Phosphorus ppm ASTM D5185m 1150 1091 1243 1046 Zinc ppm ASTM D5185m 1270 1298 1403 1326 Sulfur ppm ASTM D5185m 2060 3671 4074 3393 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 4 Sodium ppm ASTM D5185m >20 <1 0 Potassium ppm ASTM D5185m >20 <1 4 <1 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >3 0.2 0.2 0.4 Nitration Abs/cm "ASTM D7415	Molybdenum	ppm	ASTM D5185m	60	61		62			
Calcium ppm ASTM D5185m 1070 1099 1216 1056 Phosphorus ppm ASTM D5185m 1150 1091 1243 1046 Zinc ppm ASTM D5185m 1270 1298 1403 1326 Sulfur ppm ASTM D5185m 2060 3671 4074 3393 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 4 Sodium ppm ASTM D5185m >20 <1 4 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.4 Nitration Abs/.1mm *ASTM D7415 >30 17.9 17.7 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Manganese	ppm	ASTM D5185m	0	<1	0	<1			
Phosphorus ppm ASTM D5185m 1150 1091 1243 1046 Zinc ppm ASTM D5185m 1270 1298 1403 1326 Sulfur ppm ASTM D5185m 2060 3671 4074 3393 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 4 Sodium ppm ASTM D5185m >20 <1 0 <1 Potassium ppm ASTM D5185m >20 <1 4 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 4.7 4.5 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 17.7 18.0 FLUID DEGRADATION *ASTM D7414<	Magnesium	ppm	ASTM D5185m	1010	1006	1089	968			
Zinc ppm ASTM D5185m 1270 1298 1403 1326 Sulfur ppm ASTM D5185m 2060 3671 4074 3393 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 4 Sodium ppm ASTM D5185m >20 <1 0 Potassium ppm ASTM D5185m >20 <1 4 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 4.7 4.5 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 17.7 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *AST	Calcium	ppm	ASTM D5185m	1070	1099	1216	1056			
Sulfur ppm ASTM D5185m 2060 3671 4074 3393 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 4 Sodium ppm ASTM D5185m >20 <1 0 Potassium ppm ASTM D5185m >20 <1 4 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 4.7 4.5 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 17.7 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.5 13.4	Phosphorus	ppm		1150	1091	1243				
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 2 4 Sodium ppm ASTM D5185m 0 <1		ppm	ASTM D5185m	1270	1298	1403	1326			
Silicon ppm ASTM D5185m >25 3 2 4 Sodium ppm ASTM D5185m 0 <1 0 Potassium ppm ASTM D5185m >20 <1 4 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 4.7 4.5 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 17.7 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.5 13.4	Sulfur	ppm	ASTM D5185m	2060	3671	4074	3393			
Sodium ppm ASTM D5185m 0 <1	CONTAMINAN	ITS	method	limit/base	current	history1	history2			
Potassium ppm ASTM D5185m >20 <1	Silicon	ppm	ASTM D5185m	>25	3	2	4			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 4.7 4.5 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 17.7 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.5 13.4	Sodium	ppm	ASTM D5185m		0	<1	0			
Soot % % *ASTM D7844 >3 0.2 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 4.7 4.5 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 17.7 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.5 13.4	Potassium	ppm	ASTM D5185m	>20	<1	4	<1			
Nitration Abs/cm *ASTM D7624 >20 4.7 4.5 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.9 17.7 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.5 13.4	INFRA-RED		method	limit/base	current	history1	history2			
Sulfation Abs/.1mm *ASTM D7415 >30 17.9 17.7 18.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.5 13.4	Soot %	%	*ASTM D7844	>3	0.2	0.2	0.4			
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.5 13.4	Nitration	Abs/cm	*ASTM D7624	>20	4.7	4.5	5.1			
Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.5 13.4	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.9	17.7	18.0			
	FLUID DEGRADATION method limit/base current history1 history2									
Base Number (BN) mg KOH/g ASTM D2896 9.8 9.4 9.3 8.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.2	13.5	13.4			
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.4	9.3	8.3			

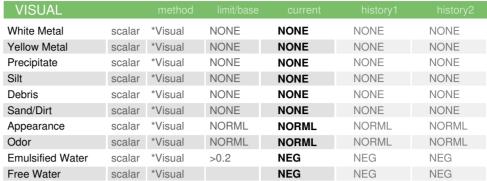


OIL ANALYSIS REPORT



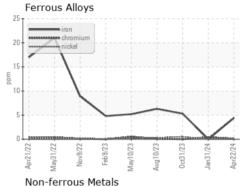


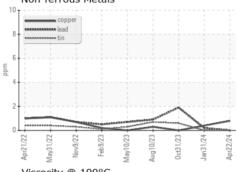


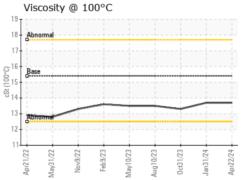


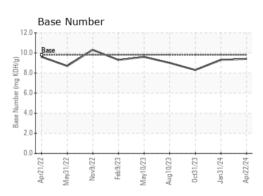
FLUID PROPI	ERITES	method	ilmit/base		nistory i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.7	13.3

GRAPHS













Certificate 12367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : GFL0103127 Lab Number : 06158306 Unique Number : 10993729

Test Package : FLEET

Received : 23 Apr 2024 **Tested** : 24 Apr 2024 Diagnosed : 24 Apr 2024 - Wes Davis

261 INDUSTRIAL DR Ruckersville, VA US 22698

GFL Environmental - 683 - Ruckersville Hauling

Contact: Jaf Finney jfinney@gflenv.com T: (434)990-4972

 st - 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)

To discuss this sample report, contact Customer Service at 1-800-237-1369.