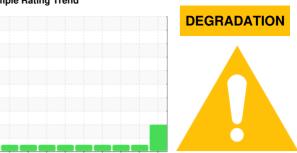


OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 924035-205291 Component Fragine

Diesel Engine

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

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

🔔 Wear

Cylinder, crank, or cam shaft wear is indicated.

Contamination

There is no indication of any contamination in the oil

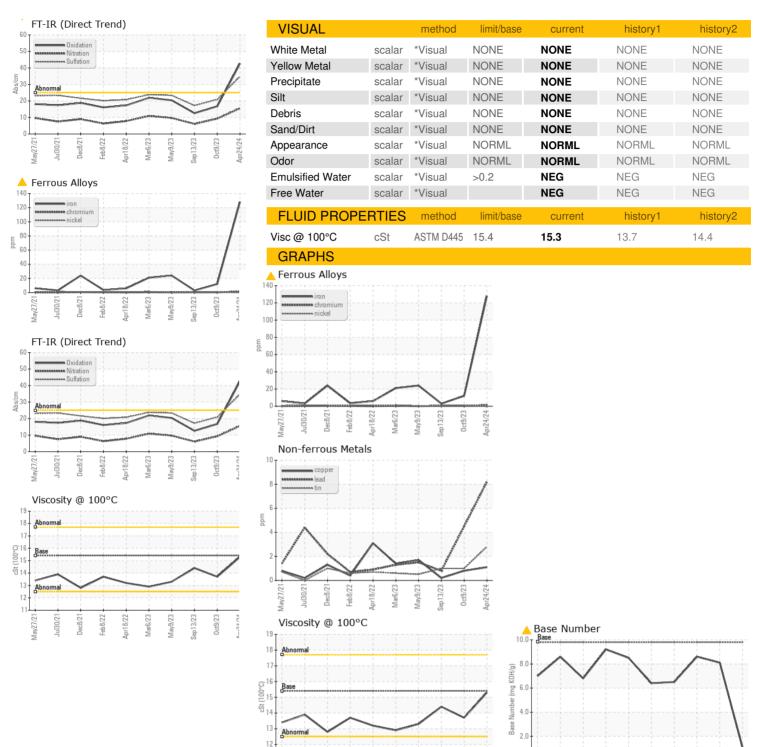
Fluid Condition

The BN level is low.

Sample Number Client Info QFL0092598 GFL0092570 GFL0092570 Gample Date Client Info 24 Apr 2024 09 Oct 2023 13 Sep 202 30 I Age hrs Client Info 600							
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 600 610 600	Sample Number		Client Info		GFL0092598	GFL0092570	GFL0092576
Oil Age hrs Client Info 600 600 600 600 Oil Changed Sample Status Client Info Changed ABNORMAL Oil Added Changed Changed Oil Added Changed Changed ABNORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history1 Water 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 history1 history1 Iron ppm ASTM D5185m >12.0 128 12 3 Iron ppm ASTM D5185m >2.0 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	Sample Date		Client Info		24 Apr 2024	09 Oct 2023	13 Sep 2023
Client Info	Machine Age	hrs	Client Info		4643	3423	3233
CONTAMINATION	Oil Age	hrs	Client Info		600	600	600
CONTAMINATION	Oil Changed		Client Info		Changed	Oil Added	Changed
Fuel	Sample Status				ABNORMAL	NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 ▲ 128 12 3 Chromium ppm ASTM D5185m >20 1 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Pron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20	WEAR METAL	S	method	limit/base	current	history1	history2
ASTM D5185m >5	ron	ppm	ASTM D5185m	>120	128	12	3
Silver	Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Aluminum	Γitanium	ppm	ASTM D5185m	>2	<1	0	<1
December December	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	8	4	1
Tin	_ead	ppm	ASTM D5185m	>40	8	4	<1
Anadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history3 Boron ppm ASTM D5185m 0 3 4 3 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 60 62 62 61 Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 1010 870 921 969 Calcium ppm ASTM D5185m 1070 1227 1123 1205 Phosphorus ppm ASTM D5185m 1150 1046 1085 1072 Zinc ppm ASTM D5185m 2060 2620 3109 3800 CONTAMINANTS method limit/base current his	Copper	ppm	ASTM D5185m	>330	1	<1	<1
ADDITIVES	Γin	ppm	ASTM D5185m	>15	3	1	1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 4 3 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 62 62 61 Manganese ppm ASTM D5185m 1010 870 921 969 Calcium ppm ASTM D5185m 1070 1227 1123 1205 Phosphorus ppm ASTM D5185m 1070 1227 1123 1205 Phosphorus ppm ASTM D5185m 1270 1251 1302 1283 Sulfur ppm ASTM D5185m 2060 2620 3109 3800 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 15 5 5 Sodium ppm ASTM D5185m	Vanadium	ppm	ASTM D5185m		0	0	<1
Soron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0	0	<1
Sarium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 62 62 61 Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 1010 870 921 969 Calcium ppm ASTM D5185m 1070 1227 1123 1205 Phosphorus ppm ASTM D5185m 1150 1046 1085 1072 Zinc ppm ASTM D5185m 1270 1251 1302 1283 Sulfur ppm ASTM D5185m 2060 2620 3109 3800 CONTAMINANTS method limit/base current history1 history3 Silicon ppm ASTM D5185m >25 15 5 5 Sodium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history3 Soot % *ASTM D7844 >4	Boron	ppm	ASTM D5185m	0	3	4	3
Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 1010 870 921 969 Calcium ppm ASTM D5185m 1070 1227 1123 1205 Phosphorus ppm ASTM D5185m 1150 1046 1085 1072 Zinc ppm ASTM D5185m 1270 1251 1302 1283 Sulfur ppm ASTM D5185m 2060 2620 3109 3800 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 15 5 5 Godium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 870 921 969 Calcium ppm ASTM D5185m 1070 1227 1123 1205 Phosphorus ppm ASTM D5185m 1150 1046 1085 1072 Zinc ppm ASTM D5185m 1270 1251 1302 1283 Sulfur ppm ASTM D5185m 2060 2620 3109 3800 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 15 5 5 Sodium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Soot % % *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/:mm *AST	Molybdenum	ppm	ASTM D5185m	60	62	62	61
Calcium ppm ASTM D5185m 1070 1227 1123 1205 Phosphorus ppm ASTM D5185m 1150 1046 1085 1072 Zinc ppm ASTM D5185m 1270 1251 1302 1283 Sulfur ppm ASTM D5185m 2060 2620 3109 3800 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 15 5 5 Sodium ppm ASTM D5185m >20 6 9 4 Potassium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Witration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *A	Manganese	ppm	ASTM D5185m	0	1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1046 1085 1072 Zinc ppm ASTM D5185m 1270 1251 1302 1283 Sulfur ppm ASTM D5185m 2060 2620 3109 3800 CONTAMINANTS method limit/base current history1 history3 Silicon ppm ASTM D5185m >25 15 5 5 Sodium ppm ASTM D5185m >20 6 9 4 Potassium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history3 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm <td< td=""><td>Magnesium</td><td>ppm</td><td>ASTM D5185m</td><td>1010</td><td>870</td><td>921</td><td>969</td></td<>	Magnesium	ppm	ASTM D5185m	1010	870	921	969
Zinc ppm ASTM D5185m 1270 1251 1302 1283 Sulfur ppm ASTM D5185m 2060 2620 3109 3800 CONTAMINANTS method limit/base current history1 history3 Gilicon ppm ASTM D5185m >25 15 5 5 Sodium ppm ASTM D5185m >20 6 9 4 Potassium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history3 Goot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *AS	Calcium	ppm	ASTM D5185m	1070	1227	1123	1205
Sulfur ppm ASTM D5185m 2060 2620 3109 3800 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 5 5 Sodium ppm ASTM D5185m 18 5 2 Potassium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history3 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	Phosphorus	ppm	ASTM D5185m	1150	1046	1085	1072
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 5 5 Sodium ppm ASTM D5185m 18 5 2 Potassium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	Zinc	ppm	ASTM D5185m	1270	1251	1302	1283
Silicon ppm ASTM D5185m >25 15 5 5 Sodium ppm ASTM D5185m 18 5 2 Potassium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	Sulfur	ppm	ASTM D5185m	2060	2620	3109	3800
Sodium ppm ASTM D5185m 18 5 2 Potassium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 6 9 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	Silicon	ppm	ASTM D5185m	>25	15	5	5
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	Sodium	ppm	ASTM D5185m		18	5	2
Soot % % *ASTM D7844 >4 1.9 0.5 0.1 Nitration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	Potassium	ppm	ASTM D5185m	>20	6	9	4
Nitration Abs/cm *ASTM D7624 >20 15.6 9.3 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 34.8 20.9 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	Soot %	%	*ASTM D7844	>4	1.9	0.5	0.1
FLUID DEGRADATION method limit/base current history1 history1 Dxidation Abs/.1mm *ASTM D7414 >25 42.6 16.7 12.6	Nitration	Abs/cm	*ASTM D7624	>20	15.6	9.3	6.1
Oxidation		Abs/.1mm			34.8		
	FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	42.6	16.7	12.6
-acc	Base Number (BN)	mg KOH/g	ASTM D2896		<u> </u>	8.1	8.6



OIL ANALYSIS REPORT







Certificate 12367

Sample No.

Laboratory : GFL0092598 Lab Number : 06160151 Unique Number : 10995574

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 25 Apr 2024 **Tested** : 29 Apr 2024

Diagnosed : 29 Apr 2024 - Sean Felton

GFL Environmental - 885 - Orlando

1263 W Landstreet Rd Orlando, FL US 32824

Contact: Brian Bou Diaz bboudiaz@gflenv.com T:

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

F: