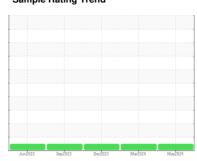


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id
529057
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

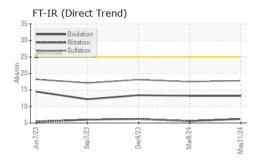
Fluid Condition

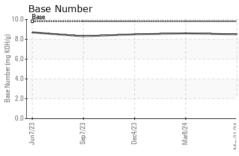
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

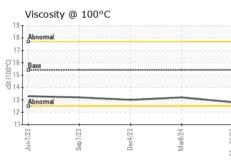
SAMPLE INFORMATION method limit/base current history1 history2	AAL)		Junzuza	5ep2U23	Dec2023 Marz024	May2024	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 661009 661000 661000 661000 661000 661000 661000 400 Oil Changed Client Info 339 600 400 AVIA NORMAL NORM	Sample Number		Client Info		GFL0086966	GFL0086984	GFL0086957
Oil Age mls Client Info 339 600 400 Oil Changed Client Info Not Changd N/A NORMAL NORMAL NORMAL NORMAL Contamination Memory of the content o	Sample Date		Client Info		31 May 2024	08 Mar 2024	04 Dec 2023
Oil Changed Client Info Not Changd NORMAL NORMAL NORMAL	Machine Age	mls	Client Info		-	661000	661000
Sample Status	Oil Age	mls	Client Info		339	600	400
Fuel	Oil Changed		Client Info		Not Changd	Not Changd	N/A
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
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 >10.0 17 10 20 Chromium ppm ASTM D5185m >2.0 0 0 <1 Nickel ppm ASTM D5185m >4 0 0 0 <1 Silver ppm ASTM D5185m >4 0 0 0 <1 Silver ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >20 <1 <1 2 1 1 1 1	CONTAMINAT	ION	method	limit/base	current	history1	history2
Second WC Method NEG NEG NEG	Fuel		WC Method	>5	<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 >20 0 0 <1 Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	17	10	20
Titanium	Chromium	ppm	ASTM D5185m	>20	0	0	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		0	0	<1
Lead ppm ASTM D5185m >40 <1 1 1 Copper ppm ASTM D5185m >330 2 1 4 Tin ppm ASTM D5185m >15 0 0 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 5 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 1 Calcium ppm ASTM D5185m 1070 1063 1098 1040 Phosphorus ppm ASTM D5185m 1270	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 2 1 4 Tin ppm ASTM D5185m >15 0 0 <1	Aluminum	ppm	ASTM D5185m	>20	<1	<1	3
Tin ppm ASTM D5185m >15 0 0 <1 Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 5 5 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 900 971 934 Calcium ppm ASTM D5185m 1070 1063 1098 1040 Phosphorus ppm ASTM D5185m 1270 1178 1245 1234 Sulfur ppm ASTM D5185m 2060	Lead	ppm	ASTM D5185m	>40	<1	1	1
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 5 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 1010 900 971 934 Calcium ppm ASTM D5185m 1070 1063 1098 1040 Phosphorus ppm ASTM D5185m 1270 1178 1245 1234 Sulfur ppm ASTM D5185m 2060 3413 3696 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 1 1	Copper	ppm	ASTM D5185m	>330	2	1	4
Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 5 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 <1	Tin	ppm	ASTM D5185m	>15	0	0	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 5 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 58 59 56 Manganese ppm ASTM D5185m 0 0 0 0 <1	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron	Cadmium	ppm	ASTM D5185m		0	0	<1
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 58 59 56 Manganese ppm ASTM D5185m 0 0 0 <1 Magnesium ppm ASTM D5185m 1010 900 971 934 Calcium ppm ASTM D5185m 1070 1063 1098 1040 Phosphorus ppm ASTM D5185m 1150 1010 1046 1028 Zinc ppm ASTM D5185m 1270 1178 1245 1234 Sulfur ppm ASTM D5185m 2060 3413 3696 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 2 4 Sodium ppm ASTM D5185m >20 1 1 5 INFRA-RED method limit/base </th <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 59 56 Manganese ppm ASTM D5185m 0 0 0 <1	Boron	ppm	ASTM D5185m	0	0	5	
Manganese ppm ASTM D5185m 0 0 0 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 900 971 934 Calcium ppm ASTM D5185m 1070 1063 1098 1040 Phosphorus ppm ASTM D5185m 1150 1010 1046 1028 Zinc ppm ASTM D5185m 1270 1178 1245 1234 Sulfur ppm ASTM D5185m 2060 3413 3696 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 2 4 Sodium ppm ASTM D5185m >20 1 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.2 0.4 Nitration Abs/cm *ASTM D7415 >30 17.8 17.5 18.1 FLUID DEGRADATION *ASTM D7414<	Molybdenum	ppm	ASTM D5185m	60	58		56
Calcium ppm ASTM D5185m 1070 1063 1098 1040 Phosphorus ppm ASTM D5185m 1150 1010 1046 1028 Zinc ppm ASTM D5185m 1270 1178 1245 1234 Sulfur ppm ASTM D5185m 2060 3413 3696 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 2 4 Sodium ppm ASTM D5185m >20 1 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 6.2 5.6 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 17.5 18.1 FLUID DEGRADATION	Manganese	ppm	ASTM D5185m	0	0	0	<1
Phosphorus ppm ASTM D5185m 1150 1010 1046 1028 Zinc ppm ASTM D5185m 1270 1178 1245 1234 Sulfur ppm ASTM D5185m 2060 3413 3696 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 2 4 Sodium ppm ASTM D5185m >20 1 1 5 Potassium ppm ASTM D5185m >20 1 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 6.2 5.6 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 17.5 18.1 FLUID DEGRADATION meth	Magnesium	ppm	ASTM D5185m	1010	900	971	934
Zinc ppm ASTM D5185m 1270 1178 1245 1234 Sulfur ppm ASTM D5185m 2060 3413 3696 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 2 4 Sodium ppm ASTM D5185m >20 1 1 5 Potassium ppm ASTM D5185m >20 1 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 6.2 5.6 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 17.5 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM	Calcium	ppm	ASTM D5185m	1070	1063	1098	1040
Sulfur ppm ASTM D5185m 2060 3413 3696 2951 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 2 4 Sodium ppm ASTM D5185m >20 1 1 2 Potassium ppm ASTM D5185m >20 1 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 6.2 5.6 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 17.5 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.2 13.4	Phosphorus	ppm	ASTM D5185m	1150	1010		1028
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 2 4 Sodium ppm ASTM D5185m <1		ppm	ASTM D5185m	1270	1178	1245	
Silicon ppm ASTM D5185m >25 0 2 4 Sodium ppm ASTM D5185m <1 <1 2 Potassium ppm ASTM D5185m >20 1 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 6.2 5.6 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 17.5 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.2 13.4	Sulfur	ppm	ASTM D5185m	2060	3413	3696	2951
Sodium ppm ASTM D5185m <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 1 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 6.2 5.6 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 17.5 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.2 13.4		ppm		>25	0		
INFRA-RED	Sodium	ppm	ASTM D5185m		<1	<1	2
Soot % % *ASTM D7844 >3 0.3 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 6.2 5.6 6.2 Sulfation Abs/.1mm *ASTM D7415 >30 17.8 17.5 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.2 13.4	Potassium	ppm	ASTM D5185m	>20	1	1	5
Nitration Abs/cm *ASTM D7624 >20 6.2 5.6 6.2 Sulfation Abs/.1mm *ASTM D7615 >30 17.8 17.5 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.2 13.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.8 17.5 18.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.2 13.4	Soot %	%	*ASTM D7844	>3	0.3	0.2	0.4
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.2 13.4	Nitration	Abs/cm	*ASTM D7624	>20	6.2	5.6	6.2
Oxidation Abs/.1mm *ASTM D7414 >25 13.2 13.2 13.4	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.8	17.5	18.1
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.5 8.6 8.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.2	13.2	13.4
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.5	8.6	8.5

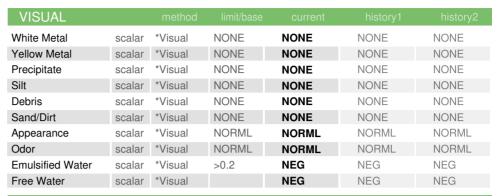


OIL ANALYSIS REPORT



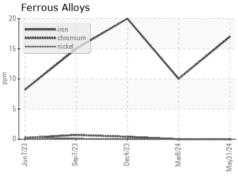


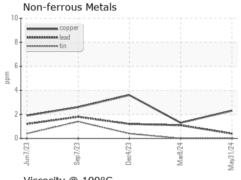


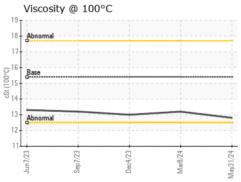


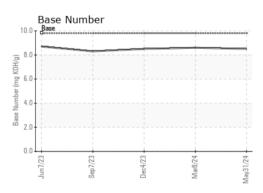
FLUID PROP	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.8	13.2	13.0

GRAPHS













Certificate 12367

Laboratory Sample No.

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0086966 Lab Number : 06198818 Unique Number : 11060941

Received : 04 Jun 2024 **Tested** Diagnosed

: 05 Jun 2024 : 05 Jun 2024 - Wes Davis

GFL Environmental - 408 - Brown City 4235 M-53

BROWN CITY, MI US 48416 Contact: MARK WOMBLE

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)

T:

F: