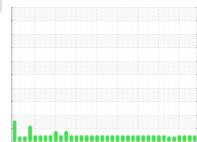


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



(67478P)
Machine Id
3824
Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (12 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

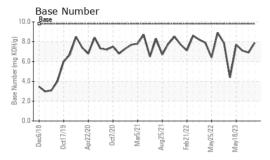
Fluid Condition

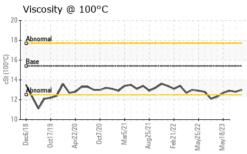
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 history2	GAL)		c2018 Oct201	9 Apr2020 Oct2020 Mar	2021 Aug2021 Feb2022 May2022	May2023	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 11964 11507 10914 Oil Age hrs Client Info 0 0 0 Oil Changed Client Info Changed Changed Changed Sample Status 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 NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 <	Sample Number		Client Info		GFL0093770	GFL0093729	GFL0079027
Oil Age hrs Client Info Changed Changed Changed NORMAL 1.0 4.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	Sample Date		Client Info		12 Jan 2024	25 Oct 2023	28 Jul 2023
Oil Changed Sample Status Client Info MoRMAL Changed NORMAL Change NoE Change NEG Change N	Machine Age	hrs	Client Info		11964	11507	10914
NORMAL NORMAL NORMAL	Oil Age	hrs	Client Info		0	0	0
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method Glycol NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >165 11 11 12 Chromium ppm ASTM D5185m >5 <1 1 1 Nickel ppm ASTM D5185m >4 0 0 <1 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >20 <1 1 2 Lead ppm ASTM D5185m >90 <1 1 2 Copper ppm ASTM D5185m >5 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method limit/base curren	CONTAMINAT	ION	method	limit/base	current	history1	history2
Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >165 11 11 12 Chromium ppm ASTM D5185m >5 <1 1 1 Nickel ppm ASTM D5185m >4 0 0 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 <1 1 2 Lead ppm ASTM D5185m >20 <1 1 2 Lead ppm ASTM D5185m >90 <1 1 2 Lead ppm ASTM D5185m >90 <1 1 2 Lead ppm ASTM D5185m 0 0 0 0 0 Copper ppm ASTM D5185m 0 0 0 0 0 <td>Fuel</td> <td></td> <td>WC Method</td> <td>>3.0</td> <th><1.0</th> <td><1.0</td> <td><1.0</td>	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 >5 <1 1 1 Nickel ppm ASTM D5185m >4 0 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>165	11	11	12
Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 <1 1 2 Lead ppm ASTM D5185m >150 2 4 4 Copper ppm ASTM D5185m >90 <1 1 2 Tin ppm ASTM D5185m >5 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Boron ppm ASTM D5185m 0 4 12 5 5 Barium ppm ASTM D5185m 0 0 1 1 1 2 Boron ppm ASTM D5185m 0 0 1 0 0 1 1	Chromium	ppm	ASTM D5185m	>5	<1	1	1
Silver	Nickel	ppm	ASTM D5185m	>4	0	0	<1
Aluminum ppm ASTM D5185m >20 <1 1 2 Lead ppm ASTM D5185m >150 2 4 4 Copper ppm ASTM D5185m >90 <1	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >90 <1 1 2 Tin ppm ASTM D5185m >5 <1	Aluminum	ppm	ASTM D5185m	>20	<1	1	2
Tin ppm ASTM D5185m >5 <1 <1 <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 4 12 5 Barium ppm ASTM D5185m 0 0 0 1 Molybdenum ppm ASTM D5185m 0 0 0 1 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1070 1074 1070 1167 Phosphorus ppm ASTM D5185m 1070 1074 1070 1167 Phosphorus ppm ASTM D5185m 1270 1260 1277 1255 Sulfur ppm ASTM D5185m 2060 2889 2872	Lead	ppm	ASTM D5185m	>150	2	4	4
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 4 12 5 Barium ppm ASTM D5185m 0 0 0 1 Molybdenum ppm ASTM D5185m 0 0 0 1 Manganese ppm ASTM D5185m 1010 949 903 892 Calcium ppm ASTM D5185m 1010 949 903 892 Calcium ppm ASTM D5185m 1070 1074 1070 1167 Phosphorus ppm ASTM D5185m 1150 1059 1027 1034 Zinc ppm ASTM D5185m 2060 2889 2872 3061 CONTAMINANTS method limit/base current history1<	Copper	ppm	ASTM D5185m	>90	<1	1	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 4 12 5 Barium ppm ASTM D5185m 0	Tin	ppm	ASTM D5185m	>5	<1	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 4 12 5 Barium ppm ASTM D5185m 0 0 0 1 Molybdenum ppm ASTM D5185m 60 58 58 60 Manganese ppm ASTM D5185m 0 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 1 Molybdenum ppm ASTM D5185m 60 58 58 60 Manganese ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 58 60 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 949 903 892 Calcium ppm ASTM D5185m 1070 1074 1070 1167 Phosphorus ppm ASTM D5185m 1150 1059 1027 1034 Zinc ppm ASTM D5185m 1270 1260 1277 1255 Sulfur ppm ASTM D5185m 2060 2889 2872 3061 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m >20 0 <1	Boron	ppm	ASTM D5185m	0	4	12	5
Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 949 903 892 Calcium ppm ASTM D5185m 1070 1074 1070 1167 Phosphorus ppm ASTM D5185m 1150 1059 1027 1034 Zinc ppm ASTM D5185m 1270 1260 1277 1255 Sulfur ppm ASTM D5185m 2060 2889 2872 3061 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m >20 0 <1	Barium	ppm	ASTM D5185m	0	0	0	1
Magnesium ppm ASTM D5185m 1010 949 903 892 Calcium ppm ASTM D5185m 1070 1074 1070 1167 Phosphorus ppm ASTM D5185m 1150 1059 1027 1034 Zinc ppm ASTM D5185m 1270 1260 1277 1255 Sulfur ppm ASTM D5185m 2060 2889 2872 3061 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m >20 0 <1	Molybdenum	ppm	ASTM D5185m	60	58	58	60
Calcium ppm ASTM D5185m 1070 1074 1070 1167 Phosphorus ppm ASTM D5185m 1150 1059 1027 1034 Zinc ppm ASTM D5185m 1270 1260 1277 1255 Sulfur ppm ASTM D5185m 2060 2889 2872 3061 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m >20 0 <1	Manganese	ppm	ASTM D5185m	0	0	<1	0
Phosphorus ppm ASTM D5185m 1150 1059 1027 1034 Zinc ppm ASTM D5185m 1270 1260 1277 1255 Sulfur ppm ASTM D5185m 2060 2889 2872 3061 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m >20 0 <1	Magnesium	ppm	ASTM D5185m	1010	949	903	892
Zinc ppm ASTM D5185m 1270 1260 1277 1255 Sulfur ppm ASTM D5185m 2060 2889 2872 3061 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m >20 0 <1	Calcium	ppm	ASTM D5185m	1070	1074	1070	1167
Sulfur ppm ASTM D5185m 2060 2889 2872 3061 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m >4 3 2 Potassium ppm ASTM D5185m >20 0 <1	Phosphorus	ppm		1150	1059	1027	1034
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m 4 3 2 Potassium ppm ASTM D5185m >20 0 <1	Zinc	ppm	ASTM D5185m	1270	1260	1277	1255
Silicon ppm ASTM D5185m >35 6 8 6 Sodium ppm ASTM D5185m 4 3 2 Potassium ppm ASTM D5185m >20 0 <1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.1 9.0 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.8 17.3	Sulfur	ppm	ASTM D5185m	2060	2889	2872	3061
Sodium ppm ASTM D5185m 4 3 2 Potassium ppm ASTM D5185m >20 0 <1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 <1	Silicon	ppm	ASTM D5185m	>35	6	8	6
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >7.5 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 8.1 9.0 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.8 17.3	Sodium	ppm	ASTM D5185m		4	3	2
Soot % % *ASTM D7844 > 7.5 0.3 0.3 0.2 Nitration Abs/cm *ASTM D7624 > 20 8.1 9.0 9.2 Sulfation Abs/.1mm *ASTM D7415 > 30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 16.2 16.8 17.3	Potassium	ppm	ASTM D5185m	>20	0	<1	1
Nitration Abs/cm *ASTM D7624 >20 8.1 9.0 9.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.8 17.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.9 20.1 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.8 17.3	Soot %	%	*ASTM D7844	>7.5	0.3	0.3	0.2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.8 17.3	Nitration	Abs/cm	*ASTM D7624	>20	8.1	9.0	9.2
Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.8 17.3	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.9	20.1	20.7
	FLUID DEGRADATION method limit/base current history1 history2						
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.2	16.8	17.3
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.9	6.9	7.1



OIL ANALYSIS REPORT

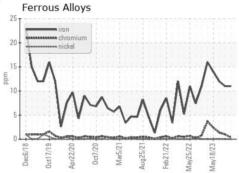


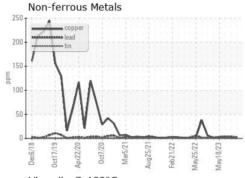


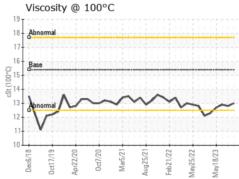
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

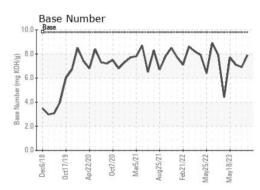
FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.0	12.8	12.9

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : FLEET

: 06064720 : 10836102

: GFL0093770

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 18 Jan 2024 : 19 Jan 2024 Diagnosed

Diagnostician : Wes Davis

GFL Environmental - 029 - Wytheville

2390 North 4th Street Wytheville, VA US 24382

Contact: CHARLES CORVIN

charles.corvin@gflenv.com;canastasio@wearcheckusa.com T: (276)223-4476

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)

F: (276)223-1283