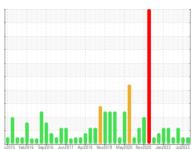


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



10570 FREIGHTLINER

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (32 QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

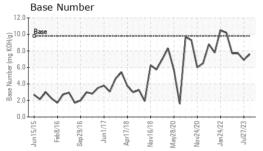
Fluid Condition

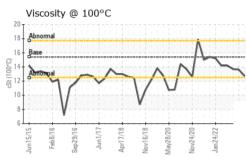
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method imitibase current history1 history2	(3 ا لا		n2015 Feb2016	Sep2016 Jun2017 Apr20	18 Nov2018 May2020 Nov2020 Jan	2022 Jul2023	
Sample Date Client Info 06 Dec 2023 27 Jul 2023 06 Feb 2023 Machine Age hrs Client Info 20431 19815 18976 Oil Age hrs Client Info 616 839 707 Oil Changed Client Info Changed C	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 06 Dec 2023 27 Jul 2023 06 Feb 2023 Machine Age hrs Client Info 20431 19815 18976 Oil Age hrs Client Info 616 839 707 Oil Changed Client Info Changed C	Sample Number		Client Info		GFL0103260	GFL0089304	GFL0056662
Machine Age hrs Client Info 616 839 707 Oil Age hrs Client Info 616 839 707 Oil Changed Client Info Changed Changed Changed Changed Changed Changed Changed Changed Changed ABNORMAL			Client Info		06 Dec 2023	27 Jul 2023	06 Feb 2023
Oil Age hrs Client Info 616 839 707 Oil Changed Changed <td>•</td> <td>hrs</td> <td>Client Info</td> <td></td> <th></th> <td>19815</td> <td>18976</td>	•	hrs	Client Info			19815	18976
Oil Changed Sample Status Client Info Changed NORMAL NORMAL Changed ABNORMAL ABNORMAL CONTAMINATION method limit/base current fistory1 fistory2 Fuel WC Method >5 <1.0		hrs	Client Info		616		
Sample Status MORMAL NORMAL ABNORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	-		Client Info		Changed	Changed	Changed
Fuel	-				_		Ü
Water Glycol WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >5 <1 2 2 Nickel ppm ASTM D5185m >5 <1 2 2 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >30 1 3 3 Lead ppm ASTM D5185m >30 0 0 <1 3 Copper ppm ASTM D5185m >5 0 <1 1 3 Tin ppm ASTM D5185m >5 0 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm	CONTAMINAT	TION	method	limit/base	current	history1	history2
Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >80 33 49 60 Chromium ppm ASTM D5185m >5 <1	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Iron	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >5 <1 2 2 Nickel ppm ASTM D5185m >2 0 0 0 Titanium ppm ASTM D5185m >3 0 0 <1	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 0 0 0 Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >30 0 0 <1	Iron	ppm	ASTM D5185m	>80	33	49	60
Titanium ppm ASTM D5185m 0 0 0 Silver ppm ASTM D5185m >3 0 0 <1	Chromium	ppm	ASTM D5185m	>5	<1	2	2
Silver ppm ASTM D5185m >3 0 0 <1 Aluminum ppm ASTM D5185m >30 1 3 3 Lead ppm ASTM D5185m >30 0 0 <1 Copper ppm ASTM D5185m >150 <1 1 3 Tin ppm ASTM D5185m >5 0 <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 1 5 7 Barium ppm ASTM D5185m 0 1 5 7 Barium ppm ASTM D5185m 0 3 2 1 1 1 1 1 1 1 1 1 1	Nickel	ppm	ASTM D5185m	>2	0	0	0
Aluminum ppm ASTM D5185m >30 1 3 3 Lead ppm ASTM D5185m >30 0 0 <1	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >30 0 0 <1 Copper ppm ASTM D5185m >150 <1 1 3 Tin ppm ASTM D5185m >5 0 <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 1 5 7 Barium ppm ASTM D5185m 0 3 2 1 Molybdenum ppm ASTM D5185m 0 0 <1 <1 <1 Magnesium ppm ASTM D5185m 0 0 <1 <1 <1 Calcium ppm ASTM D5185m 1070 996 1187 1154 Phosphorus ppm ASTM D5185m 1270	Silver	ppm	ASTM D5185m	>3	0	0	<1
Copper ppm ASTM D5185m >150 <1 1 3 Tin ppm ASTM D5185m >5 0 <1	Aluminum	ppm	ASTM D5185m	>30	1	3	3
Tin ppm ASTM D5185m >5 0 <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 1 5 7 Barium ppm ASTM D5185m 0 3 2 1 Molybdenum ppm ASTM D5185m 60 60 66 67 Manganese ppm ASTM D5185m 1010 839 968 757 Calcium ppm ASTM D5185m 1070 996 1187 1154 Phosphorus ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1	Lead	ppm	ASTM D5185m	>30	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 1 5 7 Barium ppm ASTM D5185m 0 3 2 1 Molybdenum ppm ASTM D5185m 60 60 66 66 67 Manganese ppm ASTM D5185m 0 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 839 968 757 Calcium ppm ASTM D5185m 1070 996 1187 1154 Phosphorus ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base curren	Copper	ppm	ASTM D5185m	>150	<1	1	3
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 5 7 Barium ppm ASTM D5185m 0 3 2 1 Molybdenum ppm ASTM D5185m 60 60 66 67 Manganese ppm ASTM D5185m 0 0 <1	Tin	ppm	ASTM D5185m	>5	0	<1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 5 7 Barium ppm ASTM D5185m 0 3 2 1 Molybdenum ppm ASTM D5185m 60 60 66 67 Manganese ppm ASTM D5185m 1010 839 968 757 Calcium ppm ASTM D5185m 1070 996 1187 1154 Phosphorus ppm ASTM D5185m 1150 931 1001 865 Zinc ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 1 5 7 Barium ppm ASTM D5185m 0 3 2 1 Molybdenum ppm ASTM D5185m 60 60 66 67 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 839 968 757 Calcium ppm ASTM D5185m 1070 996 1187 1154 Phosphorus ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m >	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 3 2 1 Molybdenum ppm ASTM D5185m 60 60 66 67 Manganese ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 60 66 67 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 839 968 757 Calcium ppm ASTM D5185m 1070 996 1187 1154 Phosphorus ppm ASTM D5185m 1150 931 1001 865 Zinc ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m 7 23 171 Potassium ppm ASTM D5185m 20 2 4 4 INFRA-RED method limit/base <td< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>1</th><td>5</td><td>7</td></td<>	Boron	ppm	ASTM D5185m	0	1	5	7
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 839 968 757 Calcium ppm ASTM D5185m 1070 996 1187 1154 Phosphorus ppm ASTM D5185m 1150 931 1001 865 Zinc ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.9 1 1.1 Nitration Abs/cm *ASTM D7415<	Barium	ppm	ASTM D5185m	0	3	2	1
Magnesium ppm ASTM D5185m 1010 839 968 757 Calcium ppm ASTM D5185m 1070 996 1187 1154 Phosphorus ppm ASTM D5185m 1150 931 1001 865 Zinc ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION *ASTM D74	Molybdenum	ppm	ASTM D5185m	60	60	66	67
Calcium ppm ASTM D5185m 1070 996 1187 1154 Phosphorus ppm ASTM D5185m 1150 931 1001 865 Zinc ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus ppm ASTM D5185m 1150 931 1001 865 Zinc ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m >20 2 4 4 Potassium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION *ASTM D7414 >25 17.1 19.6 18.0	Magnesium	ppm	ASTM D5185m	1010	839	968	757
Zinc ppm ASTM D5185m 1270 1102 1299 1139 Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m >20 2 4 4 Potassium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.9 1 1.1 Nitration Abs/cm *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm <td< td=""><td>Calcium</td><td>ppm</td><td>ASTM D5185m</td><td>1070</td><th>996</th><td>1187</td><td>1154</td></td<>	Calcium	ppm	ASTM D5185m	1070	996	1187	1154
Sulfur ppm ASTM D5185m 2060 2595 3632 3359 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m >20 2 4 171 Potassium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.9 1 1.1 Nitration Abs/cm *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	Phosphorus	ppm	ASTM D5185m	1150	931	1001	865
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m 7 23 171 Potassium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.9 1 1.1 Nitration Abs/cm *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	Zinc	ppm	ASTM D5185m	1270	1102	1299	1139
Silicon ppm ASTM D5185m >20 6 5 7 Sodium ppm ASTM D5185m 7 23 ▲ 171 Potassium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.9 1 1.1 Nitration Abs/cm *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	Sulfur	ppm	ASTM D5185m	2060	2595	3632	3359
Sodium ppm ASTM D5185m 7 23 ▲ 171 Potassium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.9 1 1.1 Nitration Abs/cm *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.9 1 1.1 Nitration Abs/cm *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	Silicon	ppm	ASTM D5185m	>20	6		7
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.9 1 1.1 Nitration Abs/cm *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	Sodium	ppm	ASTM D5185m		7	23	<u> </u>
Soot % % *ASTM D7844 >3 0.9 1 1.1 Nitration Abs/cm *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	Potassium	ppm	ASTM D5185m	>20	2	4	4
Nitration Abs/cm *ASTM D7624 >20 9.7 10.7 11.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.3 22.3 22.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	Soot %	%	*ASTM D7844	>3	0.9	1	1.1
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	Nitration	Abs/cm	*ASTM D7624	>20	9.7	10.7	11.0
Oxidation Abs/.1mm *ASTM D7414 >25 17.1 19.6 18.0	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.3	22.3	22.1
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.6 6.9 7.7	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.1	19.6	18.0
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.6	6.9	7.7



OIL ANALYSIS REPORT

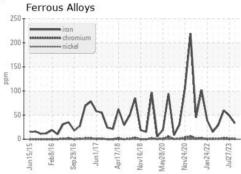


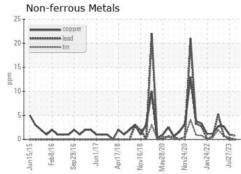


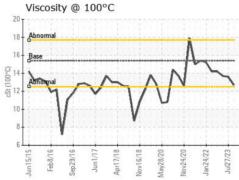
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

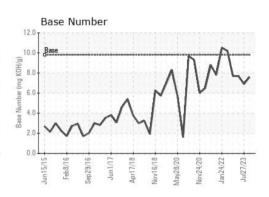
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.7	13.6	13.7

GRAPHS













Certificate L2367

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0103260 : 06029101 : 10778892

Received

: 08 Dec 2023 : 09 Dec 2023 Diagnosed Diagnostician : Wes Davis

GFL Environmental - 001 - Raleigh(CNG)

3741 Conquest Drive Garner, NC US 27529

Contact: Craig Johnson craig.johnson@gflenv.com

T: (919)662-7100 F: (919)662-7130

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)