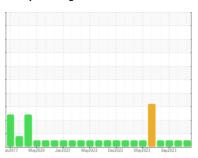


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id 10593 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (7 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

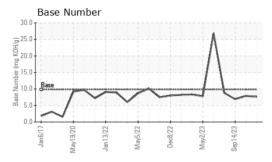
Fluid Condition

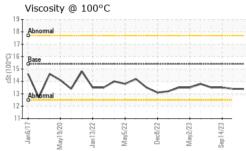
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

	#AL) ##2017 May2020 Jan2022 May2022 Dec2022 May2023 Say2023						
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info 0 0 0 Oil Changed Client Info Not Changd Not Cha	Sample Number		Client Info		GFL0089585	GFL0089635	GFL0089592
Oil Age hrs Client Info Not Changd Not Changd	Sample Date		Client Info		17 Nov 2023	10 Oct 2023	14 Sep 2023
Oil Changed Sample Status	Machine Age	hrs	Client Info		0	0	
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		0	0	0
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 Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 10 7 12 Chromium ppm ASTM D5185m >90 10 7 12 Chromium ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >20 2 2 2 Lead ppm ASTM D5185m >30 1 1 1	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imitibase current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 10 7 12 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 0 Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >15 0 <1 0 Cadmium ppm ASTM D5185m >10 0 <1 0	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 10 7 12 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>90	10	7	12
Titanium ppm ASTM D5185m >2 <1 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 0 Cadd ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >330 1 1 1 Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 <1 0 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m 0 3 4 3 Barium ppm ASTM D5185m 0 60 62 60 59 Manganese ppm ASTM D5185m <t< td=""><td>Chromium</td><td>ppm</td><td>ASTM D5185m</td><td>>20</td><th><1</th><td><1</td><td><1</td></t<>	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>2	<1	0	0
Aluminum ppm ASTM D5185m >20 2 2 0 Lead ppm ASTM D5185m >40 <1	Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >330 1 1 1 Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 41 41 41 Magnesium ppm ASTM D5185m 0 <1 <1 <1 <1 Abs/am ppm ASTM D5185m 1070 1063 969	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 1 1 1 Tin ppm ASTM D5185m >15 0 <1	Aluminum	ppm	ASTM D5185m	>20	2	2	0
Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 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 60 59 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1070 1063 969 1061 Phosphorus ppm ASTM D5185m 1270 1218 1165 1255 Sulfur ppm ASTM D5185m 2060 2846 2777 3404 CONTAMINANTS method limit/base current history1 hist	Lead	ppm	ASTM D5185m	>40	<1	0	0
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 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 0 60 62 60 59 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1070 1063 969 1061 Phosphorus ppm ASTM D5185m 1170 989 942 982 Zinc ppm ASTM D5185m 1270 1218 1165 1255 Sulfur ppm ASTM D5185m 2060 2846 2777 3404 CONTAMINANTS method limit/base current hist	Copper	ppm	ASTM D5185m	>330	1	1	1
Cadmium ppm ASTM D5185m 0 0 0 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 0 <1	Tin	ppm	ASTM D5185m	>15	0	<1	0
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 60 59 Manganese ppm ASTM D5185m 0 <1	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 62 60 59 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 949 881 953 Calcium ppm ASTM D5185m 1070 1063 969 1061 Phosphorus ppm ASTM D5185m 1150 989 942 982 Zinc ppm ASTM D5185m 1270 1218 1165 1255 Sulfur ppm ASTM D5185m 2060 2846 2777 3404 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m 7 5 7 Potassium ppm ASTM D5185m 20	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 62 60 59 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	3	4	3
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 949 881 953 Calcium ppm ASTM D5185m 1070 1063 969 1061 Phosphorus ppm ASTM D5185m 1150 989 942 982 Zinc ppm ASTM D5185m 1270 1218 1165 1255 Sulfur ppm ASTM D5185m 2060 2846 2777 3404 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >20 <1 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.4 0.2 0.4 Nitration Abs/m *ASTM D78	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 949 881 953 Calcium ppm ASTM D5185m 1070 1063 969 1061 Phosphorus ppm ASTM D5185m 1150 989 942 982 Zinc ppm ASTM D5185m 1270 1218 1165 1255 Sulfur ppm ASTM D5185m 2060 2846 2777 3404 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >25 1 1 10 9 Sodium ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m	60	62	60	59
Calcium ppm ASTM D5185m 1070 1063 969 1061 Phosphorus ppm ASTM D5185m 1150 989 942 982 Zinc ppm ASTM D5185m 1270 1218 1165 1255 Sulfur ppm ASTM D5185m 2060 2846 2777 3404 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 989 942 982 Zinc ppm ASTM D5185m 1270 1218 1165 1255 Sulfur ppm ASTM D5185m 2060 2846 2777 3404 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	1010	949	881	953
Zinc ppm ASTM D5185m 1270 1218 1165 1255 Sulfur ppm ASTM D5185m 2060 2846 2777 3404 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m 7 5 7 Potassium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m	1070	1063	969	1061
Sulfur ppm ASTM D5185m 2060 2846 2777 3404 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m 7 5 7 Potassium ppm ASTM D5185m >20 <1	Phosphorus	ppm	ASTM D5185m	1150	989	942	982
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m 7 5 7 Potassium ppm ASTM D5185m >20 <1	Zinc	ppm	ASTM D5185m	1270	1218	1165	1255
Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m 7 5 7 Potassium ppm ASTM D5185m >20 <1 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.8 6.4 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 19.1 17.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.0 13.6 18.2	Sulfur	ppm	ASTM D5185m	2060	2846	2777	3404
Sodium ppm ASTM D5185m 7 5 7 Potassium ppm ASTM D5185m >20 <1 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.8 6.4 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 19.1 17.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.0 13.6 18.2	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1	Silicon	ppm	ASTM D5185m	>25	11	10	9
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.8 6.4 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 19.1 17.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.0 13.6 18.2	Sodium	ppm	ASTM D5185m		7	5	7
Soot % % *ASTM D7844 >6 0.4 0.2 0.4 Nitration Abs/cm *ASTM D7624 >20 8.8 6.4 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 19.1 17.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.0 13.6 18.2	Potassium	ppm	ASTM D5185m	>20	<1	2	2
Nitration Abs/cm *ASTM D7624 >20 8.8 6.4 9.9 Sulfation Abs/.1mm *ASTM D7415 >30 19.1 17.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.0 13.6 18.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.1 17.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.0 13.6 18.2	Soot %	%	*ASTM D7844	>6	0.4	0.2	0.4
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.0 13.6 18.2	Nitration	Abs/cm	*ASTM D7624	>20	8.8	6.4	9.9
Oxidation Abs/.1mm *ASTM D7414 >25 16.0 13.6 18.2	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.1	17.5	20.2
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.0	13.6	18.2
	Base Number (BN)	mg KOH/g		9.8	7.6	7.9	6.9



OIL ANALYSIS REPORT

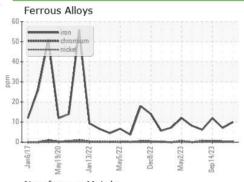


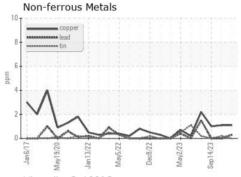


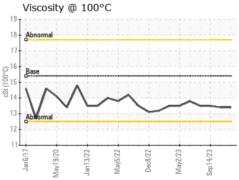
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

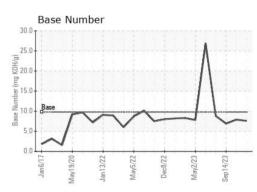
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.4	13.5

GRAPHS













Certificate L2367

Laboratory

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

: GFL0089585 : 06014766 : 10753910

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.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 22 Nov 2023 Diagnosed : 23 Nov 2023

Diagnostician : Wes Davis

GFL Environmental - 732 - Thomaston Hauling 2616 Waynmansville Road

Thomaston, GA US 30286

Contact: WILLIAM BROWN william.brown@gflenv.com T: (706)936-4065

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: GFL732 [WUSCAR] 06014766 (Generated: 11/23/2023 04:54:49) Rev: 1

Submitted By: WILLIAM BROWN