

OIL ANALYSIS REPORT

Area (WXQ193) Machine Id ISUZU 10880

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (4 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.

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Sample Rating Trend



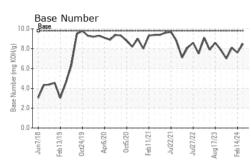
NORMAL

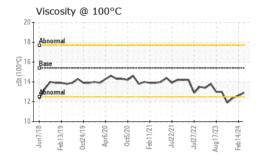
n2018 Feb2019 Oct2019 Apr2020 Oct2020 Feb2021 Jul2021 Jul2022 Aug2023 Feb2024

Sample Number Client Info GFL0109035 GFL0109035 GFL0109037 GFL0109131 Sample Date Client Info 05 Mar 2024 14 Feb 2042 25 Jan 2024 Machine Age hrs Client Info 6966 6843 6708 Oil Age Lient Info NA N/A N/A N/A Sample Status Client Info NGRMAL NORMAL NORMAL NORMAL CONTAMINATION method S5 <1.0 <1.0 <1.0 WC Method >5.2 <1.0 <1.0 <1.0 Water WC Method >5.2 <1.0 <1.0 <1.0 Kitho Sigm >100 7 <5 14 <1.0 Chronulm ppm ASTM DSigm<>>20 21 <1	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 16601 16478 16343 Oil Age irrs Client Info 6966 6843 6708 Oil Changed Client Info N/A N/A N/A N/A Sample Status Imit/base current History1 History2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG Chromium ppm ASTM 05185m >100 7 5 14 Nickel ppm ASTM 05185m >4 0 0 0 Nickel ppm ASTM 05185m >20 2 2 3 Lead ppm ASTM 05185m >20 0 0 0 Astm 05185m >15 0 0 0 0 1 Chromium ppm ASTM 05185m	Sample Number		Client Info		GFL0109035	GFL0109057	GFL0109113
Oil Age Inrs Client Info 6966 6843 6708 Oil Changed Client Info N/A N/A N/A Sample Status Imate Info N/A NORMAL NORMAL NORMAL CONTAMINATION method Imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0 NEG NEG NEG Wear WC Method >0 1 <1 1 Nickel ppm ASTM D5185m >100 7 5 14 Chromium ppm ASTM D5185m >4 0 0 <1 Nickel ppm ASTM D5185m >3 0 0 <1 Copper ppm ASTM D5185m >3 0 0 <1 Copper ppm ASTM D5185m >15 0 0 0 Cadmium ppm ASTM D5185m<	Sample Date		Client Info		05 Mar 2024	14 Feb 2024	25 Jan 2024
Oll Changed Client Info N/A N/A N/A N/A Sample Status Image of the status Image of the status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	Machine Age	hrs	Client Info		16601	16478	16343
Sample Status NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 7 5 14 Nickel ppm ASTM D5185m >4 0 0 0 Initianum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 0 0 0 Vanadium ppm ASTM D5185m >15 0 0 0 Vanadium ppm ASTM D5185m 0 12 16 15 Ba	Oil Age	hrs	Client Info		6966	6843	6708
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5165m >20 <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 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1<	-		Client Info				
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Water WC Method >0.2 NEG NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 2 2 3 Lead ppm ASTM D5185m >30 0 0 <1 Copper ppm ASTM D5185m >40 0 0 <1 Copper ppm ASTM D5185m >40 0 0 <1 Copper ppm ASTM D5185m >40 0 0 0 Cadmium ppm ASTM D5185m 0 12 16 15 Boron ppm ASTM D5185m 0 12 16	CONTAMINAT	ION	method	limit/base	current	history1	history2
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Iron ppm ASTM D5185m >100 7 5 14 Chromium ppm ASTM D5185m >20 <1	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 3 Lead ppm ASTM D5185m >40 0 0 <1 Copper ppm ASTM D5185m >40 0 0 0 Vanadium ppm ASTM D5185m >15 0 0 0 Cadmium ppm ASTM D5185m >15 0 0 0 ADDITIVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 <1 0 Molydenum ppm ASTM D5185m 010 740 745 <1 0 <1 Calcium ppm ASTM D5185m <	Iron	ppm	ASTM D5185m	>100	7	5	14
Titanium ppm ASTM D5185m <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 3 Lead ppm ASTM D5185m >40 0 0 <1	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum ppm ASTM D5185m >20 2 2 3 Lead ppm ASTM D5185m >40 0 0 <1 Copper ppm ASTM D5185m >330 <1 2 <1 Tin ppm ASTM D5185m >15 0 0 0 Vanadium ppm ASTM D5185m >15 0 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 Cadmium ppm ASTM D5185m 0 12 16 15 Boron ppm ASTM D5185m 0 0 <1 0 0 Molybdenum ppm ASTM D5185m 0 0 <12 16 15 Barium ppm ASTM D5185m 0 0 <14 0 Magnesium ppm ASTM D5185m 1070 1118 1035 1197 Phosphorus ppm ASTM D5185m	Titanium	ppm	ASTM D5185m		<1	0	<1
Lead ppm ASTM D5185m >40 0 0 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 <1	Aluminum	ppm	ASTM D5185m	>20	2	2	3
Tin ppm ASTM D5185m >15 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 12 16 15 Barium ppm ASTM D5185m 0 0 <12 16 15 Barium ppm ASTM D5185m 0 0 <12 16 15 Magnesium ppm ASTM D5185m 0 0 0 <14 0 Magnesium ppm ASTM D5185m 1010 740 740 745 Calcium ppm ASTM D5185m 1070 1118 1035 1197 Phosphorus ppm ASTM D5185m 1270 1092 1076 1140 Sulfur ppm ASTM D5185m	Lead	ppm	ASTM D5185m	>40	0	0	<1
Vanadium ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>330	<1	2	<1
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ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 12 16 15 Barium ppm ASTM D5185m 0 0 <1 0 Molybdenum ppm ASTM D5185m 60 59 61 66 Manganese ppm ASTM D5185m 0 0 0 <1 Magnesium ppm ASTM D5185m 1010 740 740 745 Calcium ppm ASTM D5185m 1070 1118 1035 1197 Phosphorus ppm ASTM D5185m 1270 1092 1076 1140 Sulfur ppm ASTM D5185m 2060 2823 2784 2866 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 0 3 Potassium ppm ASTM D5185m 2	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron ppm ASTM D5185m 0 12 16 15 Barium ppm ASTM D5185m 0 0 <1 0 Molybdenum ppm ASTM D5185m 60 59 61 66 Manganese ppm ASTM D5185m 0 0 0 <1 Magnesium ppm ASTM D5185m 1010 740 740 745 Calcium ppm ASTM D5185m 1010 740 740 745 Calcium ppm ASTM D5185m 1070 1118 1035 1197 Phosphorus ppm ASTM D5185m 1270 1092 1076 1140 Sulfur ppm ASTM D5185m 2060 2823 2784 2866 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 0 3 Potassium ppm ASTM D5185m <	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 59 61 66 Manganese ppm ASTM D5185m 0 0 0 <1	Boron	ppm	ASTM D5185m	0	12	16	15
Manganese ppm ASTM D5185m 0 0 0 <1	Barium	ppm	ASTM D5185m	0	0	<1	0
Magnesium ppm ASTM D5185m 1010 740 740 745 Calcium ppm ASTM D5185m 1070 1118 1035 1197 Phosphorus ppm ASTM D5185m 1150 868 848 1015 Zinc ppm ASTM D5185m 1270 1092 1076 1140 Sulfur ppm ASTM D5185m 2060 2823 2784 2866 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 2 0 3 Potassium ppm ASTM D5185m >20 2 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.1 1.8 Nitration Abs/.mm *ASTM D7415	Molybdenum	ppm	ASTM D5185m	60	59	61	66
Calcium ppm ASTM D5185m 1070 1118 1035 1197 Phosphorus ppm ASTM D5185m 1150 868 848 1015 Zinc ppm ASTM D5185m 1270 1092 1076 1140 Sulfur ppm ASTM D5185m 2060 2823 2784 2866 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 2 0 3 Potassium ppm ASTM D5185m >20 2 0 3 Ntration ppm ASTM D5185m >20 2 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 6.9 6.0 8.8 Sulfation Abs/.1m *ASTM D7415 <td< th=""><th>Manganese</th><th>ppm</th><th>ASTM D5185m</th><th>0</th><th>0</th><th>0</th><th><1</th></td<>	Manganese	ppm	ASTM D5185m	0	0	0	<1
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Zinc ppm ASTM D5185m 1270 1092 1076 1140 Sulfur ppm ASTM D5185m 2060 2823 2784 2866 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 2 0 3 Potassium ppm ASTM D5185m >20 2 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.1 1.8 Nitration Abs/cm *ASTM D7624 >20 6.9 6.0 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.2 20.4 FLUID DEGRADATION method limit/base	Calcium	ppm	ASTM D5185m	1070	1118	1035	1197
SulfurppmASTM D5185m2060282327842866CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25344SodiumppmASTM D5185m203PotassiumppmASTM D5185m>20240INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>31.10.11.8NitrationAbs/cm*ASTM D7624>206.96.08.8SulfationAbs/lm*ASTM D7145>3018.617.220.4CxidationAbs/lm*ASTM D7414>2512.912.313.6	Phosphorus	ppm		1150	868	848	1015
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25344SodiumppmASTM D5185m203PotassiumppmASTM D5185m>20240INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>31.10.11.8NitrationAbs/cm*ASTM D7624>206.96.08.8SulfationAbs/lmm*ASTM D7415>3018.617.220.4FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/lmm*ASTM D7414>2512.912.313.6	Zinc	ppm	ASTM D5185m	1270	1092	1076	
Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m 20 2 0 3 Potassium ppm ASTM D5185m >20 2 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.1 1.8 Nitration Abs/cm *ASTM D7624 >20 6.9 6.0 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.2 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.9 12.3 13.6	Sulfur	ppm	ASTM D5185m	2060	2823	2784	2866
Sodium ppm ASTM D5185m 2 0 3 Potassium ppm ASTM D5185m >20 2 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.1 1.8 Nitration Abs/cm *ASTM D7624 >20 6.9 6.0 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.2 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.9 12.3 13.6	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 4 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.1 1.8 Nitration Abs/cm *ASTM D7624 >20 6.9 6.0 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.2 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.9 12.3 13.6	Silicon	ppm	ASTM D5185m	>25	3	4	4
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 1.1 0.1 1.8 Nitration Abs/cm *ASTM D7624 >20 6.9 6.0 8.8 Sulfation Abs/.1mm *ASTM D7615 >30 18.6 17.2 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.9 12.3 13.6	Sodium	ppm	ASTM D5185m		2	0	3
Soot % % *ASTM D7844 >3 1.1 0.1 1.8 Nitration Abs/cm *ASTM D7624 >20 6.9 6.0 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.2 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.9 12.3 13.6	Potassium	ppm	ASTM D5185m	>20	2	4	0
Nitration Abs/cm *ASTM D7624 >20 6.9 6.0 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.2 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.9 12.3 13.6	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.6 17.2 20.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.9 12.3 13.6	Soot %	%	*ASTM D7844	>3	1.1	0.1	1.8
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.9 12.3 13.6	Nitration	Abs/cm	*ASTM D7624	>20	6.9	6.0	8.8
Oxidation Abs/.1mm *ASTM D7414 >25 12.9 12.3 13.6	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.6	17.2	20.4
	FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.5 7.6 8.1	Oxidation	Abs/.1mm	*ASTM D7414	>25	12.9	12.3	13.6
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.5	7.6	8.1



OIL ANALYSIS REPORT





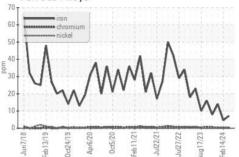
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.9	12.6	12.4
GRAPHS						

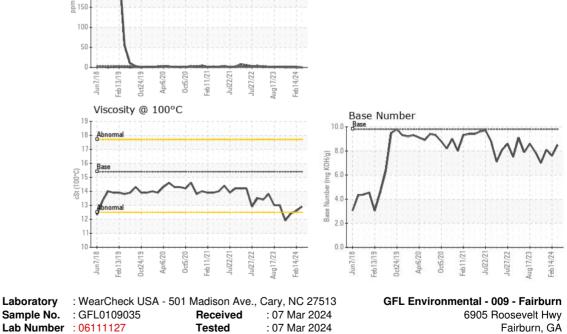
Ferrous Alloys

Non-ferrous Metals

300 250 200

Unique Number : 10914624





: 07 Mar 2024 - Wes Davis

 Certificate 12367
 Test Package
 : FLEET

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

Diagnosed

nvironmental - 009 - Fairburn 6905 Roosevelt Hwy Fairburn, GA US 30213 Contact: Eric Jones erjones@gflenv.com T: (678)630-9927 6:2012) F: