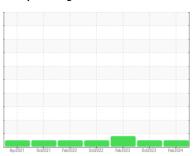


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 356M 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

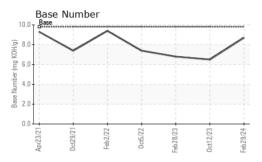
Fluid Condition

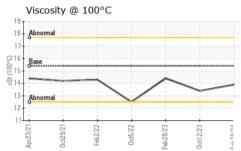
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/bass current history1 history2	GAL)		Apr2021	Oct2021 Feb2022	Oct2022 Feb2023 Oct2023	Feb2024	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0108940	GFL0093127	GFL0073870
Machine Age hrs Client Info 17785 17693 17186 16567 Oil Age hrs Client Info 17693 17186 16567 Oil Changed Client Info Changed ATTENTION CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limil/base current history1 history2 WEAR METALS method limil/base current history1 history2 WEAR METALS method limil/base current history1 history2 WEAR METALS method limil/base cur			Client Info		29 Feb 2024	12 Oct 2023	28 Feb 2023
Oil Changed Changed Changed Changed NORMAL NORMAL ATTENTION	Machine Age	hrs	Client Info		17785	17693	17186
CONTAMINATION	Oil Age	hrs	Client Info		17693	17186	16567
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	ATTENTION
Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method Image NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 19 58 17 Chromium ppm ASTM D5185m >20 <1 3 <1 Nickel ppm ASTM D5185m >20 <1 0 0 Silver ppm ASTM D5185m >20 4 14 2 Lead ppm ASTM D5185m >30 2 11 <75 Tin ppm ASTM D5185m >40 0 <1 1 Vanadium ppm ASTM D5185m >30 2 11 <75 Tin ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 19 58 17 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 3 <1 Nickel ppm ASTM D5185m >4 0 0 4 Titanium ppm ASTM D5185m >3 0 <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	19	58	17
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	3	<1
Silver ppm ASTM D5185m >3 0 <1 2 Aluminum ppm ASTM D5185m >20 4 14 2 Lead ppm ASTM D5185m >40 0 <1 <1 Copper ppm ASTM D5185m >330 2 11 75 Tin ppm ASTM D5185m >15 <1 1 1 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 histo	Nickel	ppm	ASTM D5185m	>4	0	0	4
Aluminum	Titanium	ppm	ASTM D5185m		<1	0	0
Lead ppm ASTM D5185m >40 0 <1 <1 Copper ppm ASTM D5185m >330 2 11 75 Tin ppm ASTM D5185m 0 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 3 5 9 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 2 <1 4 Calcium ppm ASTM D5185m 1070 1057 1058 1099 Phosphorus ppm ASTM D5185m 1270	Silver	ppm	ASTM D5185m	>3	0	<1	2
Copper ppm ASTM D5185m >330 2 11 75 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	4	14	2
Tin ppm ASTM D5185m >15 <1 1 1 Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 5 9 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 0 2 <1 4 Magnesium ppm ASTM D5185m 1070 1057 1058 1099 Phosphorus ppm ASTM D5185m 1150 1121 890 917 Zinc ppm ASTM D5185m 1270 1240 1258 1131 Sulfur ppm ASTM D5185m 2060	Lead	ppm	ASTM D5185m	>40	0	<1	<1
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 5 9 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 10 10 940 910 842 Calcium ppm ASTM D5185m 1070 1057 1058 1099 Phosphorus ppm ASTM D5185m 1150 1121 890 917 Zinc ppm ASTM D5185m 1270 1240 1258 1131 Sulfur ppm ASTM D5185m 2060 3232 2597 2836 CONTAMINANTS method limit/base	Copper	ppm	ASTM D5185m	>330	2	11	75
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 3 5 9 Barium ppm ASTM D5185m 0	Tin	ppm	ASTM D5185m	>15	<1	1	1
Boron	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 64 60 64 Manganese ppm ASTM D5185m 0 0 2 <1 Magnesium ppm ASTM D5185m 1010 940 910 842 Calcium ppm ASTM D5185m 1070 1057 1058 1099 Phosphorus ppm ASTM D5185m 1150 1121 890 917 Zinc ppm ASTM D5185m 1270 1240 1258 1131 Sulfur ppm ASTM D5185m 2060 3232 2597 2836 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 3 8 2 Potassium ppm ASTM D5185m >20	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 64 60 64 Manganese ppm ASTM D5185m 0 0 2 <1 Magnesium ppm ASTM D5185m 1010 940 910 842 Calcium ppm ASTM D5185m 1070 1057 1058 1099 Phosphorus ppm ASTM D5185m 1150 1121 890 917 Zinc ppm ASTM D5185m 1270 1240 1258 1131 Sulfur ppm ASTM D5185m 2060 3232 2597 2836 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 2 <1 3 Potassium ppm ASTM D5185m >20 2 <1 3 INFRA-RED method limit/b	Boron	ppm	ASTM D5185m	0			9
Manganese ppm ASTM D5185m 0 0 2 <1 Magnesium ppm ASTM D5185m 1010 940 910 842 Calcium ppm ASTM D5185m 1070 1057 1058 1099 Phosphorus ppm ASTM D5185m 1150 1121 890 917 Zinc ppm ASTM D5185m 1270 1240 1258 1131 Sulfur ppm ASTM D5185m 2060 3232 2597 2836 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 2 <1	Barium	ppm	ASTM D5185m	0	-	0	0
Magnesium ppm ASTM D5185m 1010 940 910 842 Calcium ppm ASTM D5185m 1070 1057 1058 1099 Phosphorus ppm ASTM D5185m 1150 1121 890 917 Zinc ppm ASTM D5185m 1270 1240 1258 1131 Sulfur ppm ASTM D5185m 2060 3232 2597 2836 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 2 <1	Molybdenum	ppm					
Calcium ppm ASTM D5185m 1070 1057 1058 1099 Phosphorus ppm ASTM D5185m 1150 1121 890 917 Zinc ppm ASTM D5185m 1270 1240 1258 1131 Sulfur ppm ASTM D5185m 2060 3232 2597 2836 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 2 <1	-	ppm	ASTM D5185m	0	-	2	
Phosphorus ppm ASTM D5185m 1150 1121 890 917 Zinc ppm ASTM D5185m 1270 1240 1258 1131 Sulfur ppm ASTM D5185m 2060 3232 2597 2836 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 2 <1		ppm					
Zinc ppm ASTM D5185m 1270 1240 1258 1131 Sulfur ppm ASTM D5185m 2060 3232 2597 2836 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >25 5 8 2 Potassium ppm ASTM D5185m >20 2 <1		ppm	ASTM D5185m	1070			
Sulfur ppm ASTM D5185m 2060 3232 2597 2836 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >25 3 8 2 Potassium ppm ASTM D5185m >20 2 <1							
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 3 8 2 Potassium ppm ASTM D5185m >20 2 <1							
Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 3 8 2 Potassium ppm ASTM D5185m >20 2 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 1.2 0.5 Nitration Abs/cm *ASTM D7624 >20 6.2 12.6 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 23.8 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 21.7 15.8			ASTM D5185m	2060	3232	2597	2836
Sodium ppm ASTM D5185m 3 8 2 Potassium ppm ASTM D5185m >20 2 <1		ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 1.2 0.5 Nitration Abs/cm *ASTM D7624 >20 6.2 12.6 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 23.8 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 21.7 15.8				>25			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 1.2 0.5 Nitration Abs/cm *ASTM D7624 >20 6.2 12.6 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 23.8 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 21.7 15.8		ppm					
Soot % % *ASTM D7844 >3 0.3 1.2 0.5 Nitration Abs/cm *ASTM D7624 >20 6.2 12.6 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 23.8 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 21.7 15.8	Potassium	ppm	ASTM D5185m	>20	2	<1	3
Nitration Abs/cm *ASTM D7624 >20 6.2 12.6 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 23.8 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 21.7 15.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.3 23.8 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 21.7 15.8	Soot %	%	*ASTM D7844	>3	0.3	1.2	0.5
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 21.7 15.8	Nitration	Abs/cm	*ASTM D7624	>20	6.2	12.6	8.6
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.3	23.8	20.0
	FLUID DEGRAI	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.7 6.5 6.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.3	21.7	15.8
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.7	6.5	6.8



OIL ANALYSIS REPORT

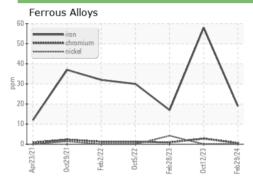


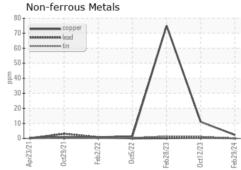


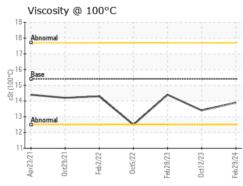
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

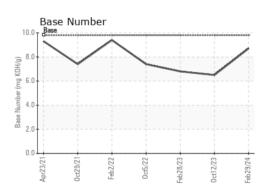
FLUID PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.4	14.4

GRAPHS













Laboratory Sample No.

: GFL0108940 Lab Number : 06106937 Unique Number : 10910434 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 04 Mar 2024 **Tested** : 04 Mar 2024

Diagnosed : 04 Mar 2024 - Wes Davis

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313

Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

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)

Report Id: GFL415 [WUSCAR] 06106937 (Generated: 03/04/2024 15:33:53) Rev: 1

Submitted By: Frank Wolak