

# **OIL ANALYSIS REPORT**

## Sample Rating Trend



**NORMAL** 



Machine Id **AUTOCAR 10632** 

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (7 GAL)

# 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

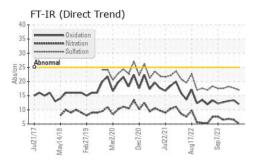
## **Fluid Condition**

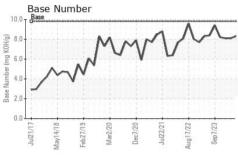
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

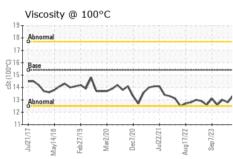
SAMPLE INFORMATION   method   limit/base   current   history2   GFL0109051   Sample Number   Client Info   06 May 2024   12 Mar 2024   21 Feb 2024   4726   4823   010 Age   hrs   Client Info   0	HL)		12017 May20	110 FEDZUT9 MATZUZU	Deczozo Julzozi Augzozz :	Sep2U23	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Date         Client Info         06 May 2024         12 Mar 2024         21 Feb 2024           Machine Age         hrs         Client Info         5015         4726         4623           Oil Age         hrs         Client Info         0         0         4623           Oil Changed         Client Info         Not Changd         NORMAL         NORMAL         NARMAL           Sample Status         Client Info         Not Changd         NORMAL         NORMAL         ABNORMAL           CONTAMINATION         method         Imit base         current         history1         history2           Fuel         WC Method         >3.0         <1.0	Sample Number		Client Info		GFL0116805	GFL0109024	GFL0109051
Machine Age         hrs         Client Info         5015         4726         4623           Oil Age         hrs         Client Info         0         0         4623           Oil Changed         Client Info         Not Changd         NAT         NORMAL         ABNORMAL           Sample Status         method         imilibase         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         imilibase         current         history2         history2           Iron         ppm         ASTM D5185m         >75         6         4         11           Chromium         ppm         ASTM D5185m         >5         <1         0         <1           Chromium         ppm         ASTM D5185m         >5         <1         0         <1           Chromium         ppm         ASTM D5185m         >2         <1         0         <1           Silver			Client Info		06 May 2024	12 Mar 2024	21 Feb 2024
Oil Changed Sample Status         Client Info         Not Changd NORMAL         Not Changd NORMAL         N/A ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         >0.2         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >75         6         4         11           Iron         ppm         ASTM D5185m         >5         <1         0         <1           Chromium         ppm         ASTM D5185m         >5         <1         0         <1           Silver         ppm         ASTM D5185m         >2         <1         0         <1           Lead         ppm         ASTM D5185m         >10         <1         0         <1           Copper         ppm         ASTM D5185m         >10         <1         0         <1	Machine Age	hrs	Client Info			4726	4623
CONTAMINATION	Oil Age	hrs	Client Info		0	0	4623
CONTAMINATION	-		Client Info		Not Changd	Not Changd	N/A
Fuel					NORMAL	NORMAL	ABNORMAL
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imil/base         current         history1         history2           WEAR METALS         method         limil/base         current         history1         history2           Iron         ppm         ASTM D5185m         >75         6         4         11           Chromium         ppm         ASTM D5185m         >5         <1         0         <1           Nickel         ppm         ASTM D5185m         >4         0         0         <1           Silver         ppm         ASTM D5185m         >2         <1         0         0           Silver         ppm         ASTM D5185m         >25         0         0         <1           Silver         ppm         ASTM D5185m         >25         0         0         <1           Lead         ppm         ASTM D5185m         >100         <1         0         <1           Copper         ppm         ASTM D5185m         >4         <1         0         <1           Vanadium         ppm         ASTM D5185m         >1         0         0         <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >5         <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>75	6	4	11
Titanium         ppm         ASTM D5185m         >2         <1	Chromium	ppm	ASTM D5185m	>5	<1	0	<1
Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >15         2         <1	Nickel	ppm	ASTM D5185m	>4	0	0	<1
Aluminum         ppm         ASTM D5185m         >15         2         <1	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Lead         ppm         ASTM D5185m         >25         0         0         <1	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper         ppm         ASTM D5185m         >100         <1	Aluminum	ppm	ASTM D5185m	>15	2	<1	2
Tin	Lead	ppm	ASTM D5185m	>25	0	0	<1
Vanadium         ppm         ASTM D5185m         <1	Copper	ppm	ASTM D5185m	>100	<1	0	<1
Cadmium         ppm         ASTM D5185m         <1	Tin	ppm	ASTM D5185m	>4	<1	0	<1
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         12         9         14           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         59         56         66           Manganese         ppm         ASTM D5185m         0         0         0         <1           Magnesium         ppm         ASTM D5185m         1010         824         848         742           Calcium         ppm         ASTM D5185m         1070         1081         1135         1038           Phosphorus         ppm         ASTM D5185m         1150         1026         944         912           Zinc         ppm         ASTM D5185m         1270         1153         1173         1081           Sulfur         ppm         ASTM D5185m         2060         3142         3428         2726           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron         ppm         ASTM D5185m         0         12         9         14           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         59         56         66           Manganese         ppm         ASTM D5185m         0         0         0         <1	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         59         56         66           Manganese         ppm         ASTM D5185m         0         0         0         <1           Magnesium         ppm         ASTM D5185m         1010         824         848         742           Calcium         ppm         ASTM D5185m         1070         1081         1135         1038           Phosphorus         ppm         ASTM D5185m         1150         1026         944         912           Zinc         ppm         ASTM D5185m         1270         1153         1173         1081           Sulfur         ppm         ASTM D5185m         2060         3142         3428         2726           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         2         4           Sodium         ppm         ASTM D5185m         >9         1         A         73           Potassium         ppm         ASTM	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         59         56         66           Manganese         ppm         ASTM D5185m         0         0         0         <1	Boron	ppm	ASTM D5185m	0	12	9	14
Manganese         ppm         ASTM D5185m         0         0         0         <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium         ppm         ASTM D5185m         1010         824         848         742           Calcium         ppm         ASTM D5185m         1070         1081         1135         1038           Phosphorus         ppm         ASTM D5185m         1150         1026         944         912           Zinc         ppm         ASTM D5185m         1270         1153         1173         1081           Sulfur         ppm         ASTM D5185m         2060         3142         3428         2726           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         2         4           Sodium         ppm         ASTM D5185m         9         1         ^73           Potassium         ppm         ASTM D5185m         >20         14         0         ^99           INFRA-RED         method         limit/base         current         history1         history2           Soot %         "ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/cm         "ASTM D7415         >30	Molybdenum	ppm	ASTM D5185m	60	59		66
Calcium         ppm         ASTM D5185m         1070         1081         1135         1038           Phosphorus         ppm         ASTM D5185m         1150         1026         944         912           Zinc         ppm         ASTM D5185m         1270         1153         1173         1081           Sulfur         ppm         ASTM D5185m         2060         3142         3428         2726           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         2         4           Sodium         ppm         ASTM D5185m         >20         14         0         → 99           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION         method	Manganese	ppm	ASTM D5185m	0	0	0	<1
Phosphorus         ppm         ASTM D5185m         1150         1026         944         912           Zinc         ppm         ASTM D5185m         1270         1153         1173         1081           Sulfur         ppm         ASTM D5185m         2060         3142         3428         2726           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         2         4           Sodium         ppm         ASTM D5185m         9         1         ^73           Potassium         ppm         ASTM D5185m         >20         14         0         ^99           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION         method         <	Magnesium	ppm	ASTM D5185m	1010	824	848	742
Zinc         ppm         ASTM D5185m         1270         1153         1173         1081           Sulfur         ppm         ASTM D5185m         2060         3142         3428         2726           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         2         4           Sodium         ppm         ASTM D5185m         9         1         ^73           Potassium         ppm         ASTM D5185m         >20         14         0         ^99           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *AS	Calcium	ppm	ASTM D5185m	1070	1081	1135	1038
Sulfur         ppm         ASTM D5185m         2060         3142         3428         2726           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         2         4           Sodium         ppm         ASTM D5185m         9         1         1         73           Potassium         ppm         ASTM D5185m         >20         14         0         4         99           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.0         13.4         13.1		ppm		1150	1026		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         6         2         4           Sodium         ppm         ASTM D5185m         9         1         ^73           Potassium         ppm         ASTM D5185m         >20         14         0         99           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.0         13.4         13.1	Zinc	ppm	ASTM D5185m	1270	1153	1173	1081
Silicon         ppm         ASTM D5185m         >25         6         2         4           Sodium         ppm         ASTM D5185m         9         1         73           Potassium         ppm         ASTM D5185m         >20         14         0         4         99           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.0         13.4         13.1	Sulfur	ppm	ASTM D5185m	2060	3142	3428	2726
Sodium         ppm         ASTM D5185m         9         1         73           Potassium         ppm         ASTM D5185m         >20         14         0         ▶ 99           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.0         13.4         13.1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         14         0         ▲ 99           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.0         13.4         13.1		ppm		>25			
INFRA-RED	Sodium	ppm	ASTM D5185m		9	1	<u>^</u> 73
Soot %         %         *ASTM D7844 >6         0.2         0.2         0.3           Nitration         Abs/cm         *ASTM D7624 >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415 >30         17.0         17.7         18.2           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         12.0         13.4         13.1	Potassium	ppm	ASTM D5185m	>20	14	0	<b>4</b> 99
Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.5         6.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.0         13.4         13.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         17.0         17.7         18.2           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.0         13.4         13.1	Soot %	%	*ASTM D7844	>6	0.2	0.2	0.3
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm 'ASTM D7414 >25 12.0 13.4 13.1	Nitration	Abs/cm	*ASTM D7624	>20	5.1	6.5	6.8
Oxidation Abs/.1mm *ASTM D7414 >25 <b>12.0</b> 13.4 13.1	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.0	17.7	18.2
	FLUID DEGRADATION method limit/base current history1 history2						
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.3 8.1 8.1	Oxidation	Abs/.1mm	*ASTM D7414	>25	12.0	13.4	13.1
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.3	8.1	8.1



# **OIL ANALYSIS REPORT**



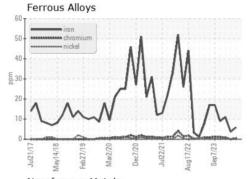


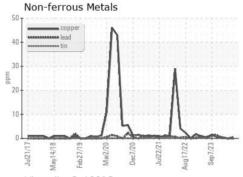


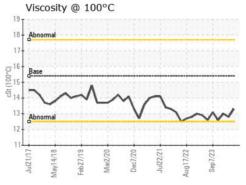
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

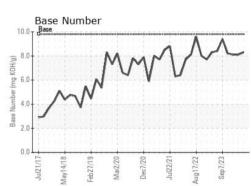
FLUID PROP	EKIIES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	12.8	13.0

### **GRAPHS**













Laboratory Sample No. Unique Number : 11020997

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0116805 Lab Number : 06174944

Received **Tested** Diagnosed

: 09 May 2024 : 10 May 2024 : 10 May 2024 - Wes Davis

GFL Environmental - 009 - Fairburn 6905 Roosevelt Hwy Fairburn, GA

US 30213 Contact: Eric Jones

erjones@gflenv.com T: (678)630-9927

Certificate 12367

Test Package : FLEET 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)