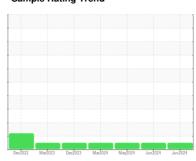


# **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id 927051 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

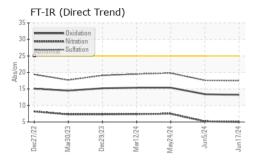
### **Fluid Condition**

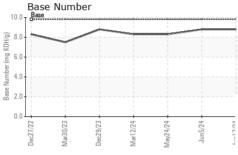
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

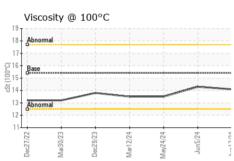
SAMPLE INFORMATION   method   limit/base   current   history1   history2   Sample Number   Cilent Info   GFL0123772   GFL0123759   GFL0123761   Sample Date   Cilent Info   17 Jun 2024   05 Jun 2024   24 May 2024   Amay 2	GAL)		Dec2022	Mar2023 Dec2023	Mar2024 May2024 Jun2024	Jun2024	
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Sample Date   Client Info   17 Jun 2024   05 Jun 2024   24 May 2024   Machine Age   hrs   Client Info   689   77   17256     Oil Age   hrs   Client Info   689   77   17256     Oil Changed   Client Info   689   77   17256     Oil Changed   Client Info   Changed   C	Sample Number		Client Info		GFL0123772	GFL0123759	GFL0123761
Machine Age         hrs         Client Info         17402         17333         17256           Oil Age         hrs         Client Info         69         77         17256           Oil Changed         Client Info         Changed C			Client Info		17 Jun 2024	05 Jun 2024	24 May 2024
Oil Changed Sample Status         Client Info         Changed NORMAL NORMAL NORMAL NORMAL         Changed NoRMAL NORMAL NORMAL         Changed NoRMAL NORMAL NORMAL         Changed NoRMAL NORMAL NORMAL         Changed NoRMAL NORMAL NORMAL NORMAL NORMAL         Change NoRMAL NORM	Machine Age	hrs	Client Info		17402	17333	
Sample Status	Oil Age	hrs	Client Info		69	77	17256
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Changed
Fuel         WC Method         >5         <1.0         <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 D5185m         >4         <1	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol         WC Method WC Method         >0.2         NEG NEG NEG NEG         NEG NEG           WEAR METALS         method Imitibase         current current         history1         history2           Iron         ppm ASTM D5185m         >110         2         1         10           Chromium         ppm ASTM D5185m         >4         <1         0         2           Nickel         ppm ASTM D5185m         >2         0         0         <1           Titanium         ppm ASTM D5185m         >2         0         0         1           Silver         ppm ASTM D5185m         >2         0         0         1           Aluminum         ppm ASTM D5185m         >25         2         1         2           Lead         ppm ASTM D5185m         >45         <1         <1         2         1           Copper         ppm ASTM D5185m         >45         <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	CONTAMINAT	ΓΙΟΝ	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         >110         2         1         10           Chromium         ppm         ASTM D5185m         >4         <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >4         <1         0         2           Nickel         ppm         ASTM D5185m         >2         0         0         <1	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>110	2	1	10
Titanium	Chromium	ppm	ASTM D5185m	>4	<1	0	2
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	Titanium	ppm	ASTM D5185m		0	0	<1
Lead         ppm         ASTM D5185m         >45         <1         <1         2           Copper         ppm         ASTM D5185m         >85         <1         0         2           Tin         ppm         ASTM D5185m         >4         0         <1         <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         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         <1           ADJ         ppm         ASTM D5185m         1010         977         1008	Silver	ppm	ASTM D5185m	>2	0	0	1
Copper         ppm         ASTM D5185m         >85         <1         0         2           Tin         ppm         ASTM D5185m         >4         0         <1	Aluminum	ppm	ASTM D5185m	>25	2	1	2
Tin         ppm         ASTM D5185m         >4         0         <1         <1           Vanadium         ppm         ASTM D5185m         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         3         3         3         3           Barium         ppm         ASTM D5185m         0         0         0         <1         4           Molybdenum         ppm         ASTM D5185m         0         0         0         <1         <1           Manganese         ppm         ASTM D5185m         0         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         977         1008         992           Calcium         ppm         ASTM D5185m         1070         1085         1069         1104           Phosphorus         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m	Lead	ppm	ASTM D5185m	>45	<1	<1	2
Vanadium         ppm         ASTM D5185m         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         3         3         3           Barium         ppm         ASTM D5185m         0         0         0         <1           Molybdenum         ppm         ASTM D5185m         0         0         0         <1         <1           Manganese         ppm         ASTM D5185m         0         0         <1         <1            Magnesium         ppm         ASTM D5185m         1010         977         1008         992           Calcium         ppm         ASTM D5185m         1070         1085         1069         1104           Phosphorus         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         2060	Copper	ppm	ASTM D5185m	>85	<1	0	2
Cadmium         ppm         ASTM D5185m         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         3         3         3           Barium         ppm         ASTM D5185m         0         0         0         <1	Tin	ppm		>4	0	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron         ppm         ASTM D5185m         0         3         3         3           Barium         ppm         ASTM D5185m         0         0         0         <1           Molybdenum         ppm         ASTM D5185m         60         59         59         62           Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         977         1008         992           Calcium         ppm         ASTM D5185m         1070         1085         1069         1104           Phosphorus         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         2060         3112         3844         3183           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m <th< td=""><td>Cadmium</td><td>ppm</td><td>ASTM D5185m</td><td></td><td>0</td><td>0</td><td>&lt;1</td></th<>	Cadmium	ppm	ASTM D5185m		0	0	<1
Barium         ppm         ASTM D5185m         0         0         0         <1           Molybdenum         ppm         ASTM D5185m         60         59         59         62           Manganese         ppm         ASTM D5185m         0         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         59         59         62           Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         977         1008         992           Calcium         ppm         ASTM D5185m         1070         1085         1069         1104           Phosphorus         ppm         ASTM D5185m         1150         1063         1064         1050           Zinc         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         2060         3112         3844         3183           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         >20         2         <1	Boron	ppm	ASTM D5185m	0		3	3
Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         977         1008         992           Calcium         ppm         ASTM D5185m         1070         1085         1069         1104           Phosphorus         ppm         ASTM D5185m         1150         1063         1064         1050           Zinc         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         2060         3112         3844         3183           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         >20         2         <1	Barium	ppm	ASTM D5185m	0			
Magnesium         ppm         ASTM D5185m         1010         977         1008         992           Calcium         ppm         ASTM D5185m         1070         1085         1069         1104           Phosphorus         ppm         ASTM D5185m         1150         1063         1064         1050           Zinc         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         2060         3112         3844         3183           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         >20         2         <1	Molybdenum	ppm	ASTM D5185m	60			62
Calcium         ppm         ASTM D5185m         1070         1085         1069         1104           Phosphorus         ppm         ASTM D5185m         1150         1063         1064         1050           Zinc         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         2060         3112         3844         3183           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         >20         2         <1	Manganese	ppm	ASTM D5185m				
Phosphorus         ppm         ASTM D5185m         1150         1063         1064         1050           Zinc         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         2060         3112         3844         3183           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         >20         2         <1	-	ppm	ASTM D5185m				
Zinc         ppm         ASTM D5185m         1270         1284         1332         1269           Sulfur         ppm         ASTM D5185m         2060         3112         3844         3183           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         >30         1         1         4           Potassium         ppm         ASTM D5185m         >20         2         <1		ppm	ASTM D5185m	1070			
Sulfur         ppm         ASTM D5185m         2060         3112         3844         3183           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         >30         1         1         4           Potassium         ppm         ASTM D5185m         >20         2         <1							
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         1         1         4           Potassium         ppm         ASTM D5185m         >20         2         <1		ppm					
Silicon         ppm         ASTM D5185m         >30         4         4         7           Sodium         ppm         ASTM D5185m         1         1         4           Potassium         ppm         ASTM D5185m         >20         2         <1         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.0         5.2         7.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.5         17.6         19.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.2         13.4         15.4			ASTM D5185m	2060	3112	3844	3183
Sodium         ppm         ASTM D5185m         1         1         4           Potassium         ppm         ASTM D5185m         >20         2         <1         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.0         5.2         7.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.5         17.6         19.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.2         13.4         15.4	CONTAMINAN	NTS	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         0.1         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.0         5.2         7.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.5         17.6         19.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.2         13.4         15.4		ppm		>30	4	4	7
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.3           Nitration         Abs/cm         *ASTM D7624         >20         5.0         5.2         7.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.5         17.6         19.8           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.2         13.4         15.4		ppm			1	1	4
Soot %         %         *ASTM D7844 >3         0.1         0.1         0.3           Nitration         Abs/cm         *ASTM D7624 >20         5.0         5.2         7.5           Sulfation         Abs/.1mm         *ASTM D7415 >30         17.5         17.6         19.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         13.2         13.4         15.4	Potassium	ppm	ASTM D5185m	>20	2	<1	3
Nitration         Abs/cm         *ASTM D7624         >20         5.0         5.2         7.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         17.5         17.6         19.8           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         13.2         13.4         15.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415 >30         17.5         17.6         19.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         13.2         13.4         15.4	Soot %	%	*ASTM D7844	>3	0.1		
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     13.2     13.4     15.4	Nitration	Abs/cm	*ASTM D7624	>20	5.0	5.2	7.5
Oxidation Abs/.1mm *ASTM D7414 >25 <b>13.2</b> 13.4 15.4	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.5	17.6	19.8
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN)         mg KOH/g         ASTM D2896         9.8         8.8         8.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.2	13.4	15.4
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.8	8.8	8.3



## **OIL ANALYSIS REPORT**



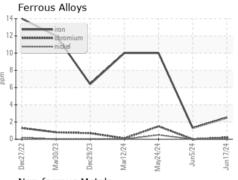


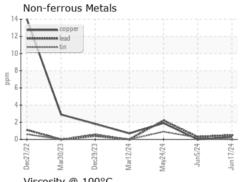


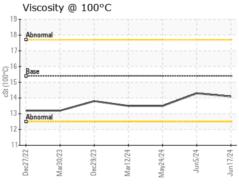
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

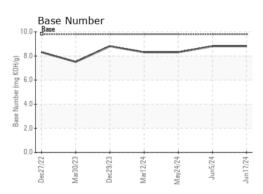
FLUID PROP	ERHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.3	13.5

## **GRAPHS**













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0123772 Lab Number : 06216597

Unique Number : 11089461 Test Package : FLEET

**Tested** Diagnosed

Received : 21 Jun 2024 : 24 Jun 2024 : 24 Jun 2024 - Wes Davis

GFL Environmental - 918 - Hartland HC

630 E Industrial Drive Hartland, WI US 53029

Contact: David McCall david.mccall@gflenv.com T: (262)369-3069

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)