

# **OIL ANALYSIS REPORT**

Sample Rating Trend







7834M 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

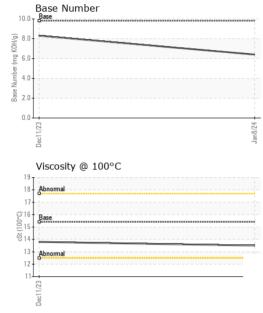
### **Fluid Condition**

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

Sample Date   Client Info   08 Jan 2024   11 Dec 2023	GAL)			Dec2023	Jan2024		
Client Info	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   0   0   0   0   0   0   0   0   0	Sample Number		Client Info		GFL0108727	GFL0105656	
Oil Age         hrs         Client Info         0         0	Sample Date		Client Info		08 Jan 2024	11 Dec 2023	
Client Info   Changed   NORMAL   NORM	Machine Age	hrs	Client Info		5394	5222	
CONTAMINATION   method   limit/base   current   history1   history2	Oil Age	hrs	Client Info		0	0	
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	
Fuel	Sample Status				NORMAL	NORMAL	
Water         WC Method         0.2.2         NEG         NEG	CONTAMINATIO	NC	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >80         16         12            Chromium         ppm         ASTM D5185m         >5         <1	Fuel		WC Method	>5	<1.0	<1.0	
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	
Chromium	Glycol		WC Method		NEG	NEG	
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>80	16	12	
Description	Chromium	ppm	ASTM D5185m	>5	<1	<1	
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	
Aluminum	Titanium	ppm	ASTM D5185m		0	0	
Lead	Silver	ppm	ASTM D5185m	>3		0	
Copper         ppm         ASTM D5185m         >150         2         <1            Tin         ppm         ASTM D5185m         >5         <1	Aluminum	ppm	ASTM D5185m	>30	3	1	
Tin	Lead	ppm	ASTM D5185m	>30	0	0	
Vanadium         ppm         ASTM D5185m         0         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         3         1            Barium         ppm         ASTM D5185m         0         0         0            Molybdenum         ppm         ASTM D5185m         0         0         0            Molybdenum         ppm         ASTM D5185m         0         <1         0            Manganese         ppm         ASTM D5185m         0         <1         0            Mangnesium         ppm         ASTM D5185m         1010         915         990            Calcium         ppm         ASTM D5185m         1070         1037         1060            Phosphorus         ppm         ASTM D5185m         1270         1274         1231            Sulfur         ppm         ASTM D5185m         2060         2834         3010	Copper	ppm	ASTM D5185m	>150	2		
Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         3         1            Barium         ppm         ASTM D5185m         0         0         0            Molybdenum         ppm         ASTM D5185m         0         -1         0            Manganese         ppm         ASTM D5185m         0         -1         0            Magnesium         ppm         ASTM D5185m         1010         915         990            Calcium         ppm         ASTM D5185m         1070         1037         1060            Phosphorus         ppm         ASTM D5185m         1150         1046         1041            Zinc         ppm         ASTM D5185m         2060         2834         3010            Sulfur         ppm         ASTM D5185m         20         4         4            Sodium         ppm         ASTM D5185m         >20         3<		ppm		>5			
ADDITIVES	Vanadium	ppm	ASTM D5185m				
Boron   ppm   ASTM D5185m   0   0   0   0   0   0   0   0	Cadmium	ppm	ASTM D5185m		0	0	
Barium         ppm         ASTM D5185m         0         0         0            Molybdenum         ppm         ASTM D5185m         60         56         53            Manganese         ppm         ASTM D5185m         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         56         53            Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0	3	1	
Manganese         ppm         ASTM D5185m         0         <1         0            Magnesium         ppm         ASTM D5185m         1010         915         990            Calcium         ppm         ASTM D5185m         1070         1037         1060            Phosphorus         ppm         ASTM D5185m         1150         1046         1041            Zinc         ppm         ASTM D5185m         1270         1274         1231            Sulfur         ppm         ASTM D5185m         2060         2834         3010            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4            Sodium         ppm         ASTM D5185m         5         2            Potassium         ppm         ASTM D5185m         >20         3         <1	Barium	ppm	ASTM D5185m	0	0	0	
Magnesium         ppm         ASTM D5185m         1010         915         990            Calcium         ppm         ASTM D5185m         1070         1037         1060            Phosphorus         ppm         ASTM D5185m         1150         1046         1041            Zinc         ppm         ASTM D5185m         1270         1274         1231            Sulfur         ppm         ASTM D5185m         2060         2834         3010            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4            Sodium         ppm         ASTM D5185m         5         2            Potassium         ppm         ASTM D5185m         >20         3         <1	Molybdenum	ppm			56	53	
Calcium         ppm         ASTM D5185m         1 070         1037         1 060            Phosphorus         ppm         ASTM D5185m         1 150         1046         1 041            Zinc         ppm         ASTM D5185m         1 270         1 274         1 231            Sulfur         ppm         ASTM D5185m         2 060         2834         3010            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         > 20         4         4            Sodium         ppm         ASTM D5185m         > 20         3         <1	•	ppm	ASTM D5185m	0	<1	0	
Phosphorus         ppm         ASTM D5185m         1150         1046         1041            Zinc         ppm         ASTM D5185m         1270         1274         1231            Sulfur         ppm         ASTM D5185m         2060         2834         3010            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4            Sodium         ppm         ASTM D5185m         5         2            Potassium         ppm         ASTM D5185m         >20         3         <1	Magnesium	ppm	ASTM D5185m	1010	915	990	
Zinc         ppm         ASTM D5185m         1270         1274         1231            Sulfur         ppm         ASTM D5185m         2060         2834         3010            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4            Sodium         ppm         ASTM D5185m         5         2            Potassium         ppm         ASTM D5185m         >20         3         <1		ppm	ASTM D5185m	1070	1037	1060	
Sulfur         ppm         ASTM D5185m         2060         2834         3010            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4            Sodium         ppm         ASTM D5185m         5         2            Potassium         ppm         ASTM D5185m         >20         3         <1		ppm					
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4            Sodium         ppm         ASTM D5185m         5         2            Potassium         ppm         ASTM D5185m         >20         3         <1	-	ppm					
Silicon         ppm         ASTM D5185m         >20         4         4            Sodium         ppm         ASTM D5185m         5         2            Potassium         ppm         ASTM D5185m         >20         3         <1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.3         0.2            Nitration         Abs/cm         *ASTM D7624         >20         9.3         7.2            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         18.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.9         15.4			ASTM D5185m	2060	2834	3010	
Sodium         ppm         ASTM D5185m         5         2            Potassium         ppm         ASTM D5185m         >20         3         <1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.3         0.2            Nitration         Abs/cm         *ASTM D7624         >20         9.3         7.2            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         18.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.9         15.4	CONTAMINANT	S		limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         3         <1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.3         0.2            Nitration         Abs/cm         *ASTM D7624         >20         9.3         7.2            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         18.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.9         15.4		ppm	ASTM D5185m	>20	4		
INFRA-RED		ppm	ASTM D5185m			2	
Soot %         %         *ASTM D7844 >3         0.3         0.2            Nitration         Abs/cm         *ASTM D7624 >20         9.3         7.2            Sulfation         Abs/.1mm         *ASTM D7415 >30         20.3         18.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         17.9         15.4	Potassium	ppm	ASTM D5185m	>20	3	<1	
Nitration         Abs/cm         *ASTM D7624         >20         9.3         7.2            Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         18.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.9         15.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         18.9            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.9         15.4	Soot %	%	*ASTM D7844	>3	0.3	0.2	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9 15.4	Nitration	Abs/cm	*ASTM D7624	>20	9.3	7.2	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.3	18.9	
	FLUID DEGRADA	NOITA	method	limit/base	current	history1	history2
Base Number (BN)         mg KOH/g         ASTM D2896         9.8         6.4         8.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.9	15.4	
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.4	8.3	



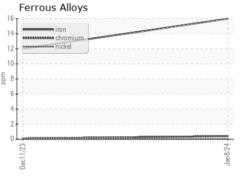
## **OIL ANALYSIS REPORT**

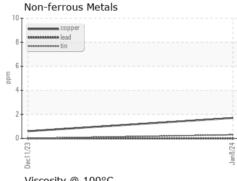


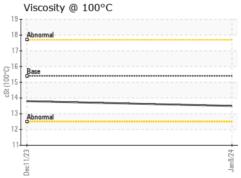
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance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

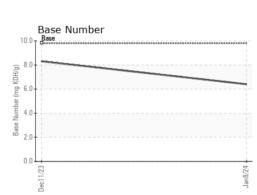
FLUID PROPE	ERITES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.8	

### **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10822333

: GFL0108727 : 06056384 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 10 Jan 2024 Diagnosed

Diagnostician : Wes Davis

: 11 Jan 2024

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)