

# **OIL ANALYSIS REPORT**

## Sample Rating Trend





# MONTGOMERY Machine Id MACK 929110

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- LTR)

# 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.

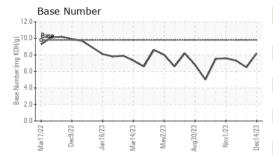
#### **Fluid Condition**

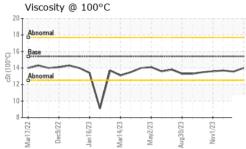
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number   Client Info   GFL0091301   GFL0091292   GFL008798   Sample Date   Client Info   14 Dec 2023   27 Nov 2023   21	N SHP 15W40 (-	LIK)	lar2022 Dec	2022 Jan 2023 Mar 202	23 May2023 Aug2023 Nov2	023 Dec202	
Client Info	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   11994   11865   11821   11821   11865   0   0   11894   11865   0   0   0   11894   11865   0   0   0   0   0   0   0   0   0	Sample Number		Client Info		GFL0091301	GFL0091292	GFL0087989
Dil Age			Client Info		14 Dec 2023	27 Nov 2023	21 Nov 2023
Dil Age	Machine Age	hrs	Client Info		11994	11865	11821
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   minit/base   current   history1   history1   history1   history1   history2   Nater   WC Method   >3.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1	Oil Age	hrs	Client Info		11994	11865	0
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history1   history1   history1   history2   water   WC Method   >3.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1			Client Info		Not Changd	Changed	Not Changd
Fuel							NORMAL
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imit/base         current         history1         history1           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >20         <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >120         5         12         12           Chromium         ppm         ASTM D5185m         >20         <1	Nater		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium   ppm   ASTM D5185m   >20	WEAR METAL	S	method	limit/base	current	history1	history2
Strickel	ron	ppm	ASTM D5185m	>120	5	12	12
Description	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Saliver	Nickel	ppm	ASTM D5185m	>5	<1	1	<1
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	0
December   December	Silver	ppm	ASTM D5185m	>2	0	<1	0
Copper	Aluminum	ppm	ASTM D5185m	>20	2	3	2
Company	_ead	ppm	ASTM D5185m	>40	1	0	0
Anadium         ppm         ASTM D5185m         <1         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         4         4         3           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0         0           Magnesium         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1070         1002         1034         1060           Phosphorus         ppm         ASTM D5185m         1150         933         1028         1030           Pince         ppm         ASTM D5185m         1270         1220         1261         1275           Sulfur         ppm         ASTM D5185m         2060         3049         2834         2824           CONTAMINANTS         method         limit/base         current         histor	Copper	ppm	ASTM D5185m	>330	<1	<1	1
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         4         4         3           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         <1	Γin	ppm	ASTM D5185m	>15	0	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	0	0
Soron   ppm   ASTM D5185m   0   0   0   0   0   0   0   0   0	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	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         948         935         990           Calcium         ppm         ASTM D5185m         1070         1002         1034         1060           Phosphorus         ppm         ASTM D5185m         1150         933         1028         1030           Zinc         ppm         ASTM D5185m         1270         1220         1261         1275           Sulfur         ppm         ASTM D5185m         2060         3049         2834         2824           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         5         7         8           Sodium         ppm         ASTM D5185m         >20         <1         2         <1           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7624	Boron	ppm	ASTM D5185m	0	4	4	3
Manganese         ppm         ASTM D5185m         0         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         948         935         990           Calcium         ppm         ASTM D5185m         1070         1002         1034         1060           Phosphorus         ppm         ASTM D5185m         1150         933         1028         1030           Zinc         ppm         ASTM D5185m         1270         1220         1261         1275           Sulfur         ppm         ASTM D5185m         2060         3049         2834         2824           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         5         7         8           Sodium         ppm         ASTM D5185m         >20         <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium         ppm         ASTM D5185m         1010         948         935         990           Calcium         ppm         ASTM D5185m         1070         1002         1034         1060           Phosphorus         ppm         ASTM D5185m         1150         933         1028         1030           Zinc         ppm         ASTM D5185m         1270         1220         1261         1275           Sulfur         ppm         ASTM D5185m         2060         3049         2834         2824           CONTAMINANTS         method         limit/base         current         history1         history3           Silicon         ppm         ASTM D5185m         >25         5         7         8           Sodium         ppm         ASTM D5185m         >20         <1	Molybdenum	ppm	ASTM D5185m	60	59	59	62
Calcium         ppm         ASTM D5185m         1070         1002         1034         1060           Phosphorus         ppm         ASTM D5185m         1150         933         1028         1030           Zinc         ppm         ASTM D5185m         1270         1220         1261         1275           Sulfur         ppm         ASTM D5185m         2060         3049         2834         2824           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         5         7         8           Sodium         ppm         ASTM D5185m         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus         ppm         ASTM D5185m         1150         933         1028         1030           Zinc         ppm         ASTM D5185m         1270         1220         1261         1275           Sulfur         ppm         ASTM D5185m         2060         3049         2834         2824           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         5         7         8           Sodium         ppm         ASTM D5185m         >25         5         7         8           Potassium         ppm         ASTM D5185m         >20         <1	Magnesium	ppm	ASTM D5185m	1010	948	935	990
Zinc         ppm         ASTM D5185m         1270         1220         1261         1275           Sulfur         ppm         ASTM D5185m         2060         3049         2834         2824           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         5         7         8           Sodium         ppm         ASTM D5185m         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1	Calcium	ppm	ASTM D5185m	1070	1002	1034	1060
Sulfur         ppm         ASTM D5185m         2060         3049         2834         2824           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         7         8           Sodium         ppm         ASTM D5185m         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1         2         <1           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >4         0.1         0.3         0.2           Nitration         Abs/cm         *ASTM D7624         >20         5.9         8.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.2         19.6         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3         16.1         16.0	Phosphorus	ppm	ASTM D5185m	1150	933	1028	1030
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         7         8           Sodium         ppm         ASTM D5185m         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1	Zinc	ppm	ASTM D5185m	1270	1220	1261	1275
Silicon         ppm         ASTM D5185m         >25         5         7         8           Sodium         ppm         ASTM D5185m         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1         2         <1           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >4         0.1         0.3         0.2           Nitration         Abs/cm         *ASTM D7624         >20         5.9         8.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.2         19.6         19.5           FLUID DEGRADATION method limit/base current         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3         16.1         16.0	Sulfur	ppm	ASTM D5185m	2060	3049	2834	2824
Sodium         ppm         ASTM D5185m         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1         2         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.1         0.3         0.2           Nitration         Abs/cm         *ASTM D7624         >20         5.9         8.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.2         19.6         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3         16.1         16.0	Silicon	ppm	ASTM D5185m	>25	5	7	8
INFRA-RED	Sodium	ppm	ASTM D5185m		3	5	5
Soot %         %         *ASTM D7844         >4         0.1         0.3         0.2           Nitration         Abs/cm         *ASTM D7624         >20         5.9         8.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.2         19.6         19.5           FLUID DEGRADATION method limit/base current history1         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3         16.1         16.0	Potassium	ppm	ASTM D5185m	>20	<1	2	<1
Nitration         Abs/cm         *ASTM D7624         >20         5.9         8.1         7.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.2         19.6         19.5           FLUID DEGRADATION method limit/base current         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3         16.1         16.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.2         19.6         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3         16.1         16.0	Soot %	%	*ASTM D7844	>4	0.1	0.3	0.2
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.2         19.6         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.3         16.1         16.0	Vitration	Abs/cm	*ASTM D7624	>20	5.9	8.1	7.9
Oxidation				>30			
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
		Abs/.1mm	*ASTM D7414	>25	14.3	16.1	16.0
	Base Number (BN)	mg KOH/g			8.2	6.5	7.3



# **OIL ANALYSIS REPORT**

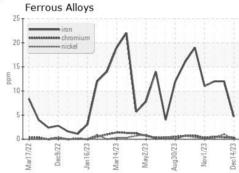


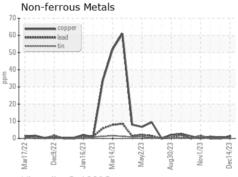


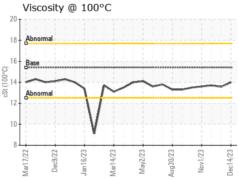
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

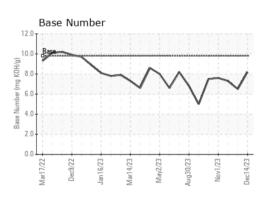
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.57	13.7

### **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0091301 : 06039978 : 10795207

Recieved : 19 Dec 2023 Diagnosed : 20 Dec 2023 Diagnostician : Wes Davis

GFL Environmental - 955 - Montgomery 1121 Wilbanks St

Montgomery, AL US 36108 Contact: LISA REEVES

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)

T:

F: