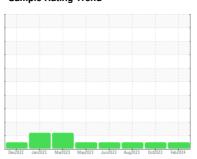


# **OIL ANALYSIS REPORT**

### **Sample Rating Trend**









## 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

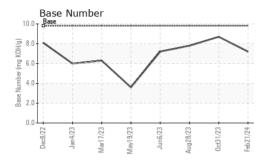
### **Fluid Condition**

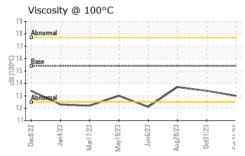
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number   Client Info   GFL0092822   GFL0092788   GFL008082   GFL00808	N SHP 15W40 (	GAL)	Dec2022	lan 2023 Mar 2023 May 20	23 Jun2023 Aug2023 Oct2023	Feb2024	
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age	Sample Number		Client Info		GFL0092822	GFL0092788	GFL0080826
Dil Age	Sample Date		Client Info		21 Feb 2024	31 Oct 2023	28 Aug 2023
Oil Changed   Client Info   Not Changed   NoRMAL   NORM	Machine Age	hrs	Client Info		335199	19405	335199
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2   history2   NEG   NEG	Oil Age	hrs	Client Info		18293	18293	335199
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0	Oil Changed		Client Info		Not Changd	N/A	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol         WC Method         >0.2         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         31         6         7           Chromium         ppm         ASTM D5185m         >20         <1         <1         <1           Nickel         ppm         ASTM D5185m         >5         0         <1         <1           Silver         ppm         ASTM D5185m         >2         <1         0         0           Silver         ppm         ASTM D5185m         >2         <1         0         0           Silver         ppm         ASTM D5185m         >2         0         <1         <1           Aluminum         ppm         ASTM D5185m         >20         4         1         3           Lead         ppm         ASTM D5185m         >40         <1         0         0           Copper         ppm         ASTM D5185m         >15         <1         0         0           Vanadium         ppm         ASTM D5185m         >15         <1 <th< td=""><td>CONTAMINA</td><td>TION</td><td>method</td><td>limit/base</td><th>current</th><td>history1</td><td>history2</td></th<>	CONTAMINA	TION	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	Water		WC Method	>0.2	NEG	NEG	NEG
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR META	LS	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	31	6	7
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Titanium	Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Silver	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Lead	Silver					<1	<1
Lead	Aluminum		ASTM D5185m	>20		1	3
Copper         ppm         ASTM D5185m         >330         2         <1         <1           Tin         ppm         ASTM D5185m         >15         <1					<1		
Tin							
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         6         2         4           Barium         ppm         ASTM D5185m         0         <1         4         0           Molybdenum         ppm         ASTM D5185m         0         65         59         66           Manganese         ppm         ASTM D5185m         0         1         0         <1           Magnesium         ppm         ASTM D5185m         1070         1038         986         1186           Phosphorus         ppm         ASTM D5185m         1150         935         897         1120           Zinc         ppm         ASTM D5185m         1270         1116         1112         1360           Sulfur         ppm         ASTM D5185m         2060         2648         3048         3839           CONTAMINANTS         method         limit/base         current         history1 <t< td=""><td></td><td></td><td></td><td></td><th>_</th><td></td><td></td></t<>					_		
Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         6         2         4           Barium         ppm         ASTM D5185m         0         <1				0			
Boron   ppm   ASTM D5185m   0   6   2   4					-		
Barium         ppm         ASTM D5185m         0         <1         4         0           Molybdenum         ppm         ASTM D5185m         60         65         59         66           Manganese         ppm         ASTM D5185m         0         1         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Barium         ppm         ASTM D5185m         0         <1         4         0           Molybdenum         ppm         ASTM D5185m         60         65         59         66           Manganese         ppm         ASTM D5185m         0         1         0         <1	Boron	ppm	ASTM D5185m	0	6	2	4
Molybdenum         ppm         ASTM D5185m         60         65         59         66           Manganese         ppm         ASTM D5185m         0         1         0         <1           Magnesium         ppm         ASTM D5185m         1010         883         841         1112           Calcium         ppm         ASTM D5185m         1070         1038         986         1186           Phosphorus         ppm         ASTM D5185m         1150         935         897         1120           Zinc         ppm         ASTM D5185m         1270         1116         1112         1360           Sulfur         ppm         ASTM D5185m         2060         2648         3048         3839           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         3           Sodium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7844         >4 <t< td=""><td>Barium</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>&lt;1</th><td>4</td><td>0</td></t<>	Barium	ppm	ASTM D5185m	0	<1	4	0
Manganese         ppm         ASTM D5185m         0         1         0         <1           Magnesium         ppm         ASTM D5185m         1010         883         841         1112           Calcium         ppm         ASTM D5185m         1070         1038         986         1186           Phosphorus         ppm         ASTM D5185m         1150         935         897         1120           Zinc         ppm         ASTM D5185m         1270         1116         1112         1360           Sulfur         ppm         ASTM D5185m         2060         2648         3048         3839           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         3           Sodium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.1         0.1           Nitration         Abs/cm         *ASTM D7845	Molybdenum		ASTM D5185m	60	65	59	66
Magnesium         ppm         ASTM D5185m         1010         883         841         1112           Calcium         ppm         ASTM D5185m         1070         1038         986         1186           Phosphorus         ppm         ASTM D5185m         1150         935         897         1120           Zinc         ppm         ASTM D5185m         1270         1116         1112         1360           Sulfur         ppm         ASTM D5185m         2060         2648         3048         3839           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         3           Sodium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.1         0.1           Nitration         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION         *ASTM D7414<	-		ASTM D5185m	0	1	0	<1
Calcium         ppm         ASTM D5185m         1070         1038         986         1186           Phosphorus         ppm         ASTM D5185m         1150         935         897         1120           Zinc         ppm         ASTM D5185m         1270         1116         1112         1360           Sulfur         ppm         ASTM D5185m         2060         2648         3048         3839           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         3           Sodium         ppm         ASTM D5185m         >20         5         1         0           Potassium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION         *ASTM D	-				883		1112
Phosphorus         ppm         ASTM D5185m         1150         935         897         1120           Zinc         ppm         ASTM D5185m         1270         1116         1112         1360           Sulfur         ppm         ASTM D5185m         2060         2648         3048         3839           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         3           Sodium         ppm         ASTM D5185m         6         0         2           Potassium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION         method         lim							1186
Zinc         ppm         ASTM D5185m         1270         1116         1112         1360           Sulfur         ppm         ASTM D5185m         2060         2648         3048         3839           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         3           Sodium         ppm         ASTM D5185m         6         0         2           Potassium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D74							
Sulfur         ppm         ASTM D5185m         2060         2648         3048         3839           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         5         3           Sodium         ppm         ASTM D5185m         6         0         2           Potassium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         13.8         13.8							
Silicon         ppm         ASTM D5185m         >25         5         5         3           Sodium         ppm         ASTM D5185m         6         0         2           Potassium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         13.8         13.8							
Sodium         ppm         ASTM D5185m         6         0         2           Potassium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         13.8         13.8	CONTAMINA	NTS	method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185m         6         0         2           Potassium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         13.8         13.8	Silicon	ppm	ASTM D5185m	>25	5	5	3
Potassium         ppm         ASTM D5185m         >20         5         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         13.8         13.8							
Soot %         %         *ASTM D7844 >4         0.5         0.1         0.1           Nitration         Abs/cm         *ASTM D7624 >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415 >30         20.2         17.8         17.9           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         17.1         13.8         13.8	Potassium		ASTM D5185m	>20			0
Nitration         Abs/cm         *ASTM D7624         >20         9.3         5.2         5.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         13.8         13.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         13.8         13.8	Soot %	%	*ASTM D7844	>4	0.5	0.1	0.1
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.2         17.8         17.9           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         13.8         13.8	Nitration	Abs/cm	*ASTM D7624	>20	9.3	5.2	5.7
Oxidation Abs/.1mm *ASTM D7414 >25 <b>17.1</b> 13.8 13.8							
	FLUID DEGRA	ADATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.1	13.8	13.8
	Base Number (BN)				7.2		



## **OIL ANALYSIS REPORT**

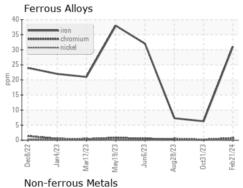


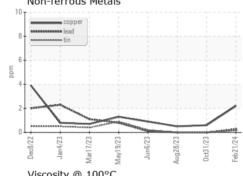


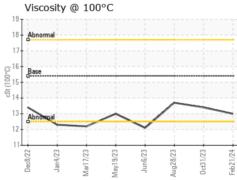
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

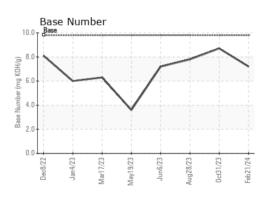
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.0	13.4	13.7

### **GRAPHS**













Certificate L2367

Laboratory Sample No.

: GFL0092822 Lab Number : 06099825 Unique Number : 10898055 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 26 Feb 2024 **Tested** : 27 Feb 2024

Diagnosed : 27 Feb 2024 - Wes Davis GFL Environmental - 455 - Flint

2051 W. Bristol Rd Flint Township, MI US 48507

Contact: MARK WOMBLE mwomble@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)