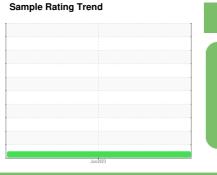


# **OIL ANALYSIS REPORT**





NORMAL

## 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

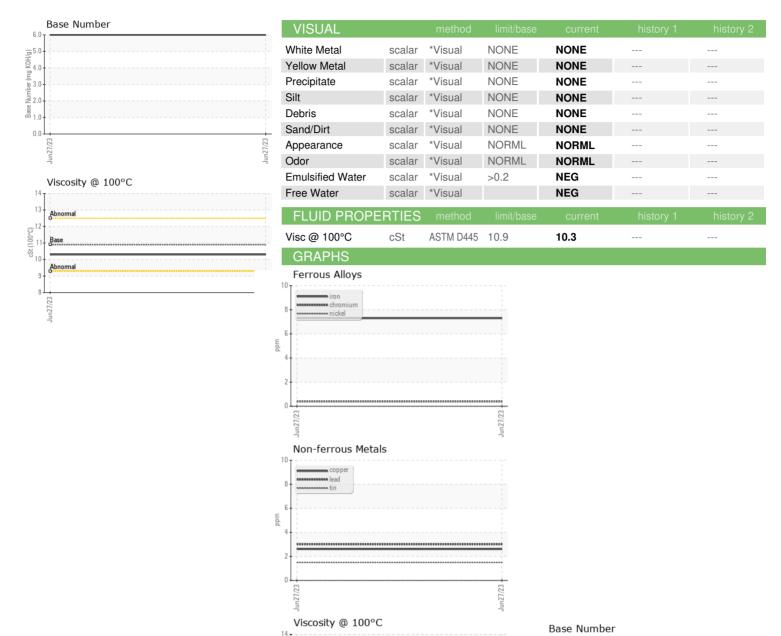
### **Fluid Condition**

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

Sample Number	L SAE 5W30 (	GAL)			Jun 2023		
Sample Date   Client Info   129469	SAMPLE INFORM	/ATION	method	limit/base	current	history 1	history 2
Machine Age         mls         Client Info         129469	Sample Number		Client Info		GFL0084536		
Oil Age         mls         Client Info         0	Sample Date		Client Info		27 Jun 2023		
Contamped   Client Info   Changed   Contamped   Cont	Machine Age	mls	Client Info		129469		
CONTAMINATION	Oil Age	mls	Client Info		0		
CONTAMINATION         method         limit/base         current         history 1         history 1           Fuel         WC Method         >4.0         <1.0	Oil Changed		Client Info		Changed		
Fuel	Sample Status				NORMAL		
WEAR METALS	CONTAMINATI	ON	method	limit/base	current	history 1	history 2
WEAR METALS         method         limit/base         current         history 1         history 1           Iron         ppm         ASTM D5185m         >150         7             Chromium         ppm         ASTM D5185m         >20         <1	Fuel		WC Method	>4.0	<1.0		
Iron	Glycol		WC Method		NEG		
Chromium	WEAR METALS	S	method	limit/base	current	history 1	history 2
Nickel	Iron	ppm	ASTM D5185m	>150	7		
Titanium	Chromium	ppm	ASTM D5185m	>20	<1		
Silver	Nickel	ppm	ASTM D5185m	>5	<1		
Aluminum	Titanium	ppm	ASTM D5185m		<1		
Lead	Silver	ppm	ASTM D5185m	>2	<1		
Copper         ppm         ASTM D5185m         >1.55         3             Tin         ppm         ASTM D5185m         >1.0         2             Vanadium         ppm         ASTM D5185m         <1	Aluminum	ppm	ASTM D5185m	>40	6		
Tin	Lead	ppm	ASTM D5185m	>50	3		
Vanadium         ppm         ASTM D5185m         <1             Cadmium         ppm         ASTM D5185m         <1             ADDITIVES         method         limit/base         current         history 1         history 1           Boron         ppm         ASTM D5185m         75         148             Barium         ppm         ASTM D5185m         5         0             Molybdenum         ppm         ASTM D5185m         100         75             Manganese         ppm         ASTM D5185m         12         563             Magnesium         ppm         ASTM D5185m         12         563             Calcium         ppm         ASTM D5185m         2100         1296             Phosphorus         ppm         ASTM D5185m         2500         3435             Zinc         ppm         ASTM D5185m         2500         3435             Silicon         ppm         ASTM D5185m         >30         11	Copper	ppm	ASTM D5185m	>155	3		
Cadmium         ppm         ASTM D5185m         <1             ADDITIVES         method         limit/base         current         history 1         history 1           Boron         ppm         ASTM D5185m         75         148             Barium         ppm         ASTM D5185m         5         0             Molybdenum         ppm         ASTM D5185m         100         75             Manganese         ppm         ASTM D5185m         12         563             Magnesium         ppm         ASTM D5185m         2100         1296             Calcium         ppm         ASTM D5185m         2100         1296             Phosphorus         ppm         ASTM D5185m         2500         3435             Zinc         ppm         ASTM D5185m         2500         3435             Sulfur         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400	Tin	ppm	ASTM D5185m	>10	2		
ADDITIVES         method         limit/base         current         history 1         history 1           Boron         ppm         ASTM D5185m         75         148             Barium         ppm         ASTM D5185m         5         0             Molybdenum         ppm         ASTM D5185m         100         75             Manganese         ppm         ASTM D5185m         2             Magnesium         ppm         ASTM D5185m         12         563             Calcium         ppm         ASTM D5185m         2100         1296             Phosphorus         ppm         ASTM D5185m         650         699             Zinc         ppm         ASTM D5185m         850         807             Sulfur         ppm         ASTM D5185m         2500         3435             Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400	Vanadium	ppm	ASTM D5185m		<1		
Boron	Cadmium	ppm	ASTM D5185m		<1		
Barium         ppm         ASTM D5185m         5         0             Molybdenum         ppm         ASTM D5185m         100         75             Manganese         ppm         ASTM D5185m         2             Magnesium         ppm         ASTM D5185m         12         563             Calcium         ppm         ASTM D5185m         2100         1296             Phosphorus         ppm         ASTM D5185m         650         699             Zinc         ppm         ASTM D5185m         2500         3435             Sulfur         ppm         ASTM D5185m         2500         3435             CONTAMINANTS         method         limit/base         current         history 1         history           Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20	ADDITIVES		method	limit/base	current	history 1	history 2
Molybdenum         ppm         ASTM D5185m         100         75             Manganese         ppm         ASTM D5185m         2             Magnesium         ppm         ASTM D5185m         12         563             Calcium         ppm         ASTM D5185m         2100         1296             Phosphorus         ppm         ASTM D5185m         650         699             Zinc         ppm         ASTM D5185m         850         807             Sulfur         ppm         ASTM D5185m         2500         3435             CONTAMINANTS         method         limit/base         current         history 1         histor           Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         curre	Boron	ppm	ASTM D5185m	75	148		
Manganese         ppm         ASTM D5185m         2             Magnesium         ppm         ASTM D5185m         12         563             Calcium         ppm         ASTM D5185m         2100         1296             Phosphorus         ppm         ASTM D5185m         650         699             Zinc         ppm         ASTM D5185m         850         807             Sulfur         ppm         ASTM D5185m         2500         3435             CONTAMINANTS         method         limit/base         current         history 1         history           Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         history           Soot %         %         *ASTM D7624         >20	Barium	ppm	ASTM D5185m	5	0		
Magnesium         ppm         ASTM D5185m         12         563             Calcium         ppm         ASTM D5185m         2100         1296             Phosphorus         ppm         ASTM D5185m         650         699             Zinc         ppm         ASTM D5185m         850         807             Sulfur         ppm         ASTM D5185m         2500         3435             CONTAMINANTS         method         limit/base         current         history 1         history           Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >20         2             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         history           Soot %         %         *ASTM D7844         0.1             Nitration         Abs/:nm         *ASTM D7415         >30	Molybdenum	ppm	ASTM D5185m	100	75		
Calcium         ppm         ASTM D5185m         2100         1296             Phosphorus         ppm         ASTM D5185m         650         699             Zinc         ppm         ASTM D5185m         850         807             Sulfur         ppm         ASTM D5185m         2500         3435             CONTAMINANTS         method         limit/base         current         history 1         history           Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         history           Soot %         %         *ASTM D7844         0.1             Nitration         Abs/cm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         *ASTM D7414         >25         1	Manganese	ppm	ASTM D5185m		2		
Phosphorus         ppm         ASTM D5185m         650         699             Zinc         ppm         ASTM D5185m         850         807             Sulfur         ppm         ASTM D5185m         2500         3435             CONTAMINANTS         method         limit/base         current         history 1         history 1           Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         histo           Soot %         %         *ASTM D7844         0.1             Nitration         Abs/cm         *ASTM D7624         >20         7.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base	Magnesium	ppm	ASTM D5185m	12	563		
Zinc         ppm         ASTM D5185m         850         807             Sulfur         ppm         ASTM D5185m         2500         3435             CONTAMINANTS         method         limit/base         current         history 1         histor           Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         histor           Soot %         %         *ASTM D7844         0.1             Nitration         Abs/cm         *ASTM D7624         >20         7.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base         current         history 1         history 1           Oxidation         Abs/.1mm         *ASTM D7414         <	Calcium	ppm	ASTM D5185m	2100	1296		
Sulfur         ppm         ASTM D5185m         2500         3435             CONTAMINANTS         method         limit/base         current         history 1         histor           Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         histo           Soot %         %         *ASTM D7844         0.1             Nitration         Abs/cm         *ASTM D7624         >20         7.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base         current         history 1         histo           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Phosphorus	ppm	ASTM D5185m	650	699		
CONTAMINANTS         method         limit/base         current         history 1         history 1           Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         history 1           Soot %         %         *ASTM D7844         0.1             Nitration         Abs/cm         *ASTM D7624         >20         7.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base         current         history 1         history 1           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Zinc	ppm	ASTM D5185m	850	807		
Silicon         ppm         ASTM D5185m         >30         11             Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         history 1           Soot %         %         *ASTM D7844         0.1             Nitration         Abs/cm         *ASTM D7624         >20         7.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base         current         history 1         history 1           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Sulfur	ppm	ASTM D5185m	2500	3435		
Sodium         ppm         ASTM D5185m         >400         3             Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         history 1           Soot %         *ASTM D7844         0.1             Nitration         Abs/cm         *ASTM D7624         >20         7.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base         current         history 1         history 1           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	CONTAMINAN <sup>*</sup>	TS	method	limit/base	current	history 1	history 2
Potassium         ppm         ASTM D5185m         >20         2             INFRA-RED         method         limit/base         current         history 1         history 1           Soot %         %         *ASTM D7844         0.1             Nitration         Abs/cm         *ASTM D7624         >20         7.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base         current         history 1         history 1           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Silicon	ppm	ASTM D5185m	>30	11		
INFRA-RED	Sodium	ppm	ASTM D5185m	>400	3		
Soot %         %         *ASTM D7844         0.1             Nitration         Abs/cm         *ASTM D7624         >20         7.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base         current         history 1         histor           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Potassium	ppm	ASTM D5185m	>20	2		
Nitration         Abs/cm         *ASTM D7624         >20         7.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base         current         history 1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	INFRA-RED		method	limit/base	current	history 1	history 2
Sulfation         Abs/.1mm         *ASTM D7415         >30         17.4             FLUID DEGRADATION         method         limit/base         current         history 1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         12.4	Soot %	%	*ASTM D7844		0.1		
FLUID DEGRADATION method limit/base current history 1 histo Oxidation Abs/.1mm *ASTM D7414 >25 12.4	Nitration	Abs/cm	*ASTM D7624	>20	7.2		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.4		
	FLUID DEGRAD	ATION	method	limit/base	current	history 1	history 2
D. A. J. (DAN) WOULD ADTHA DOORS	Oxidation	Abs/.1mm	*ASTM D7414	>25	12.4		
Base Number (BN) mg KOH/g		1/011/					



## **OIL ANALYSIS REPORT**







Certificate L2367

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

(100°C) Š

> : GFL0084536 : 05885463 : 10535946

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received Diagnosed Diagnostician

: 28 Jun 2023 : 30 Jun 2023 : Don Baldridge

% HQ 4.0

0.0

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)