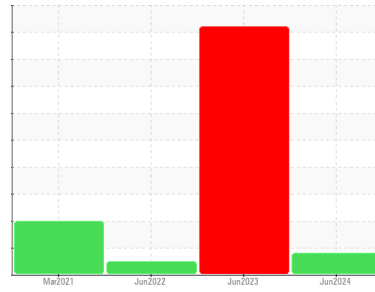




# OIL ANALYSIS REPORT

Sample Rating Trend



**WEAR**



Machine Id  
**522013-1087**

Component  
**Diesel Engine**

Fluid  
**SHELL ROTELLA T 15W40 (--- GAL)**

## DIAGNOSIS

### Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

### Wear

The lead level is abnormal. All other component wear rates are normal.

### Contamination

No evidence of coolant present in the oil. 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 acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>GFL0122760</b>	GFL0073492	GFL0051017
Sample Date	Client Info			<b>28 Jun 2024</b>	01 Jun 2023	02 Jun 2022
Machine Age	hrs	Client Info		<b>21364</b>	19846	18401
Oil Age	hrs	Client Info		<b>1516</b>	600	600
Oil Changed	Client Info			<b>Changed</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	SEVERE	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>5		<b>&lt;1.0</b>	<1.0	0.1
Water	WC Method	>0.2		<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<b>86</b>	89	65
Chromium	ppm	ASTM D5185m	>20	<b>4</b>	7	3
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	1
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>20	<b>5</b>	6	4
Lead	ppm	ASTM D5185m	>40	<b>▲ 65</b>	▲ 144	24
Copper	ppm	ASTM D5185m	>330	<b>7</b>	26	8
Tin	ppm	ASTM D5185m	>15	<b>4</b>	9	2
Antimony	ppm	ASTM D5185m		<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	316	<b>20</b>	11	18
Barium	ppm	ASTM D5185m	0.0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	1.2	<b>62</b>	91	73
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	3	<1
Magnesium	ppm	ASTM D5185m	24	<b>765</b>	619	954
Calcium	ppm	ASTM D5185m	2292	<b>1298</b>	1683	1375
Phosphorus	ppm	ASTM D5185m	1064	<b>977</b>	860	1058
Zinc	ppm	ASTM D5185m	1160	<b>1229</b>	1166	1307
Sulfur	ppm	ASTM D5185m	4996	<b>2555</b>	3002	2916

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	<b>14</b>	43	6
Sodium	ppm	ASTM D5185m		<b>5</b>	▲ 445	3
Potassium	ppm	ASTM D5185m	>20	<b>9</b>	▲ 67	2
Glycol	%	*ASTM D2982		<b>NEG</b>	▲ 0.10	NEG

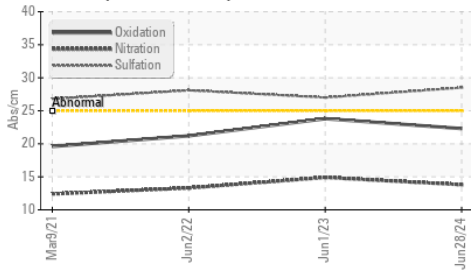
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>2.5</b>	1.5	2.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>13.8</b>	14.9	13.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>28.5</b>	27.0	28.1

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>22.3</b>	23.8	21.2
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	<b>6.1</b>	6.9	7.4

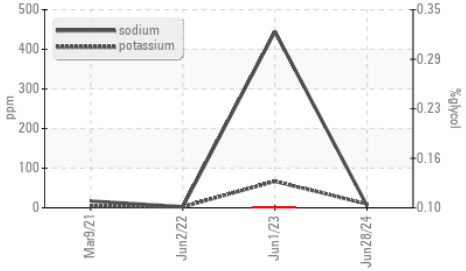


# OIL ANALYSIS REPORT

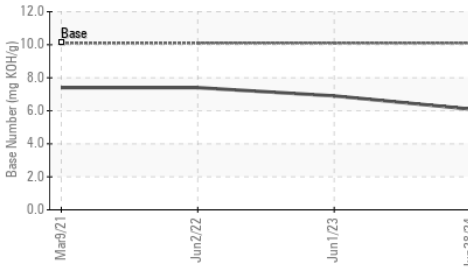
### FT-IR (Direct Trend)



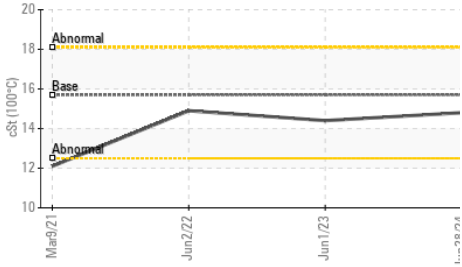
### Glycol Contamination



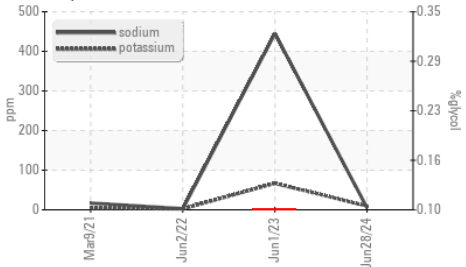
### Base Number



### Viscosity @ 100°C



### Glycol Contamination

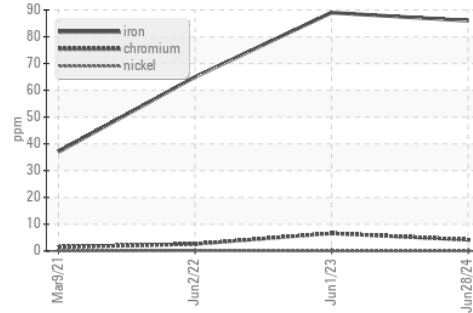


PARAMETER	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

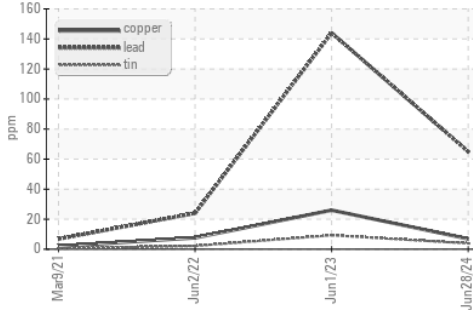
PARAMETER	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.7	14.8	14.4

## GRAPHS

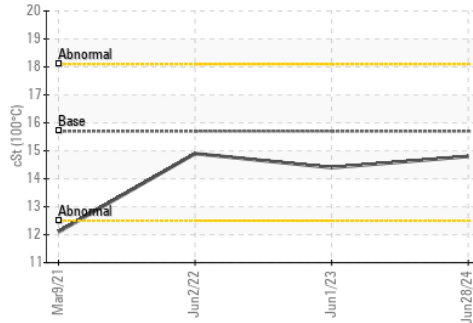
### Ferrous Alloys



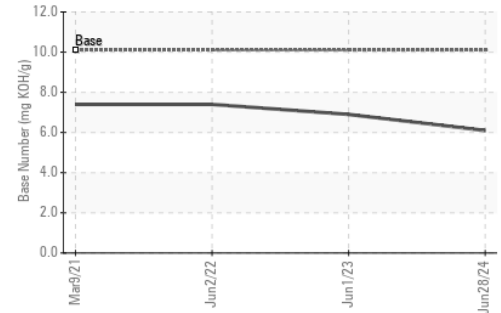
### Non-ferrous Metals



### Viscosity @ 100°C



### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0122760  
**Lab Number** : 06227038  
**Unique Number** : 11110531  
**Test Package** : FLEET

**GFL Environmental - 629 - Northern A1**  
 3947 US 131 N  
 Kalkaska, MI  
 US 49646-8428  
**Contact:** MITCH HERSHBERGER

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: (231)624-0848

F: