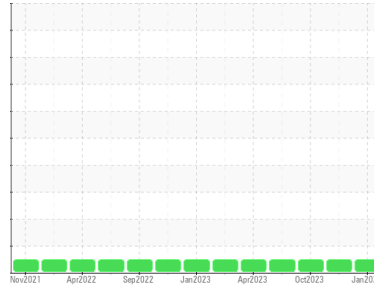




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Machine Id

**1718**

Component

**Diesel Engine**

Fluid

**DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

### 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 INFORMATION |             | method      | limit/base | current            | history1    | history2    |
|--------------------|-------------|-------------|------------|--------------------|-------------|-------------|
| Sample Number      | Client Info |             |            | <b>WC0810316</b>   | WC0860408   | WC0860391   |
| Sample Date        | Client Info |             |            | <b>11 Jan 2024</b> | 07 Dec 2023 | 17 Oct 2023 |
| Machine Age        | mls         | Client Info |            | <b>209242</b>      | 205910      | 201502      |
| Oil Age            | mls         | Client Info |            | <b>0</b>           | 6000        | 6000        |
| Oil Changed        | Client Info |             |            | <b>Changed</b>     | Changed     | Changed     |
| Sample Status      |             |             |            | <b>NORMAL</b>      | NORMAL      | NORMAL      |

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

| WEAR METALS |     | method      | limit/base | current      | history1 | history2 |
|-------------|-----|-------------|------------|--------------|----------|----------|
| Iron        | ppm | ASTM D5185m | >100       | <b>4</b>     | 6        | 5        |
| Chromium    | ppm | ASTM D5185m | >20        | <b>&lt;1</b> | 0        | 0        |
| Nickel      | ppm | ASTM D5185m | >4         | <b>0</b>     | 0        | 0        |
| Titanium    | ppm | ASTM D5185m |            | <b>0</b>     | 0        | <1       |
| Silver      | ppm | ASTM D5185m | >3         | <b>0</b>     | 0        | <1       |
| Aluminum    | ppm | ASTM D5185m | >20        | <b>2</b>     | 3        | 3        |
| Lead        | ppm | ASTM D5185m | >40        | <b>0</b>     | 0        | 0        |
| Copper      | ppm | ASTM D5185m | >330       | <b>1</b>     | 2        | 2        |
| Tin         | ppm | ASTM D5185m | >15        | <b>0</b>     | 0        | 0        |
| 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 | 250        | <b>53</b>   | 98       | 79       |
| Barium     | ppm | ASTM D5185m | 10         | <b>3</b>    | 0        | 4        |
| Molybdenum | ppm | ASTM D5185m | 100        | <b>66</b>   | 62       | 74       |
| Manganese  | ppm | ASTM D5185m |            | <b>0</b>    | 0        | <1       |
| Magnesium  | ppm | ASTM D5185m | 450        | <b>341</b>  | 217      | 343      |
| Calcium    | ppm | ASTM D5185m | 3000       | <b>1679</b> | 1618     | 1439     |
| Phosphorus | ppm | ASTM D5185m | 1150       | <b>983</b>  | 783      | 964      |
| Zinc       | ppm | ASTM D5185m | 1350       | <b>1188</b> | 1049     | 1125     |
| Sulfur     | ppm | ASTM D5185m | 4250       | <b>3735</b> | 2852     | 2820     |

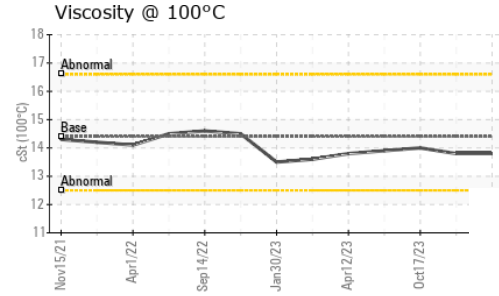
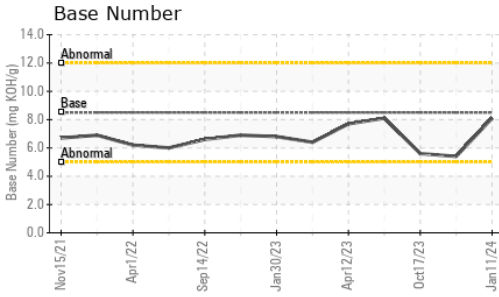
| CONTAMINANTS |     | method      | limit/base | current  | history1 | history2 |
|--------------|-----|-------------|------------|----------|----------|----------|
| Silicon      | ppm | ASTM D5185m | >25        | <b>4</b> | 7        | 10       |
| Sodium       | ppm | ASTM D5185m | >158       | <b>3</b> | 4        | 4        |
| Potassium    | ppm | ASTM D5185m | >20        | <b>1</b> | 0        | <1       |

| INFRA-RED |          | method      | limit/base | current     | history1 | history2 |
|-----------|----------|-------------|------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 | >3         | <b>0.2</b>  | 0.3      | 0.2      |
| Nitration | Abs/cm   | *ASTM D7624 | >20        | <b>7.1</b>  | 9.4      | 8.8      |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30        | <b>19.4</b> | 22.0     | 20.8     |

| FLUID DEGRADATION |          | method      | limit/base | current     | history1 | history2 |
|-------------------|----------|-------------|------------|-------------|----------|----------|
| Oxidation         | Abs/.1mm | *ASTM D7414 | >25        | <b>15.3</b> | 19.8     | 17.1     |
| Base Number (BN)  | mg KOH/g | ASTM D2896  | 8.5        | <b>8.1</b>  | 5.4      | 5.6      |



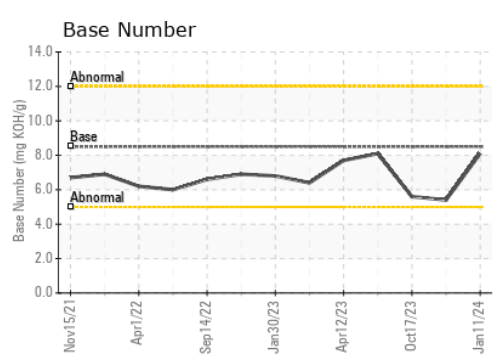
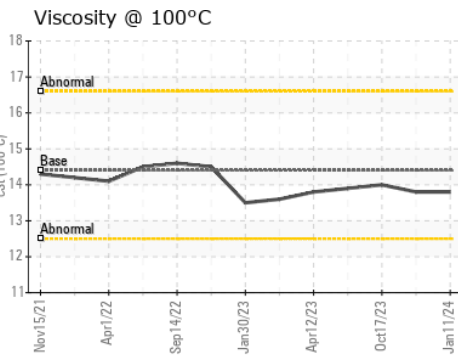
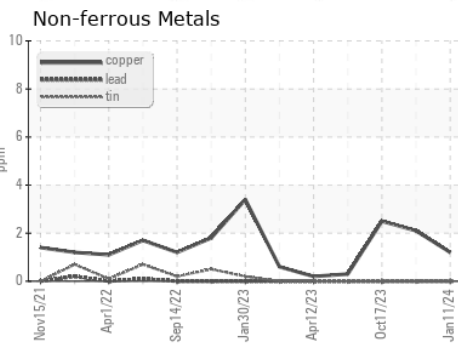
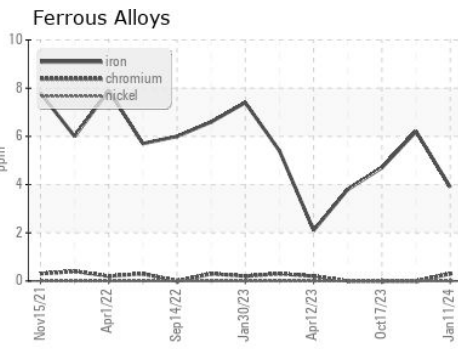
# OIL ANALYSIS REPORT



| 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 PROPERTIES | method | limit/base | current | history1    | history2 |      |
|------------------|--------|------------|---------|-------------|----------|------|
| Visc @ 100°C     | cSt    | ASTM D445  | 14.4    | <b>13.8</b> | 13.8     | 14.0 |

### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0810316 **Received** : 18 Jan 2024  
**Lab Number** : **06064124** **Diagnosed** : 19 Jan 2024  
**Unique Number** : 10835506 **Diagnostician** : Wes Davis  
**Test Package** : FLEET

**TOWN OF CHAPEL HILL**  
 6900 MILLHOUSE RD  
 CHAPEL HILL, NC  
 US 27516  
 Contact: Lisa DePasqua  
 ldepasqua@townofchapelhill.org  
 T: (919)696-4941  
 F:

Certificate L2367  
 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)