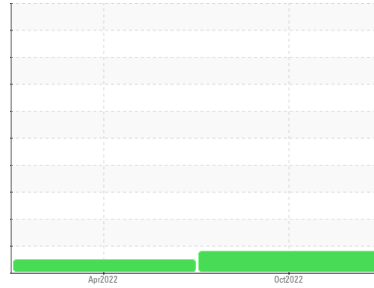




# OIL ANALYSIS REPORT

Sample Rating Trend



**WEAR**



Machine Id  
**091540**

Component  
**Diesel Engine**

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

## DIAGNOSIS

### ▲ Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### ▲ Wear

Aluminum ppm levels are abnormal. A sharp increase in the aluminum level is noted. Piston wear is indicated.

### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

## SAMPLE INFORMATION

|               | method      | limit/base  | current            | history1    | history2 |
|---------------|-------------|-------------|--------------------|-------------|----------|
| Sample Number | Client Info |             | <b>WC0713521</b>   | WC0686044   | ---      |
| Sample Date   | Client Info |             | <b>07 Oct 2022</b> | 04 Apr 2022 | ---      |
| Machine Age   | hrs         | Client Info | <b>1433</b>        | 1236        | ---      |
| Oil Age       | hrs         | Client Info | <b>433</b>         | 1236        | ---      |
| Oil Changed   | Client Info |             | <b>Changed</b>     | Changed     | ---      |
| Sample Status |             |             | <b>ABNORMAL</b>    | NORMAL      | ---      |

## CONTAMINATION

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

## WEAR METALS

|           | method | limit/base    | current | history1     | history2 |     |
|-----------|--------|---------------|---------|--------------|----------|-----|
| Iron      | ppm    | ASTM D5185(m) | >100    | <b>32</b>    | 66       | --- |
| Chromium  | ppm    | ASTM D5185(m) | >20     | <b>2</b>     | 3        | --- |
| Nickel    | ppm    | ASTM D5185(m) | >4      | <b>&lt;1</b> | 1        | --- |
| Titanium  | ppm    | ASTM D5185(m) |         | <b>&lt;1</b> | <1       | --- |
| Silver    | ppm    | ASTM D5185(m) | >3      | <b>0</b>     | 0        | --- |
| Aluminum  | ppm    | ASTM D5185(m) | >20     | <b>▲ 23</b>  | 8        | --- |
| Lead      | ppm    | ASTM D5185(m) | >40     | <b>0</b>     | 0        | --- |
| Copper    | ppm    | ASTM D5185(m) | >330    | <b>2</b>     | 4        | --- |
| Tin       | ppm    | ASTM D5185(m) | >15     | <b>0</b>     | <1       | --- |
| Antimony  | ppm    | ASTM D5185(m) |         | <b>0</b>     | <1       | --- |
| Vanadium  | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0        | --- |
| Beryllium | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0        | --- |
| Cadmium   | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0        | --- |

## ADDITIVES

|            | method | limit/base    | current | history1     | history2 |     |
|------------|--------|---------------|---------|--------------|----------|-----|
| Boron      | ppm    | ASTM D5185(m) | 250     | <b>124</b>   | 29       | --- |
| Barium     | ppm    | ASTM D5185(m) | 10      | <b>0</b>     | 0        | --- |
| Molybdenum | ppm    | ASTM D5185(m) | 100     | <b>15</b>    | 16       | --- |
| Manganese  | ppm    | ASTM D5185(m) |         | <b>&lt;1</b> | <1       | --- |
| Magnesium  | ppm    | ASTM D5185(m) | 450     | <b>606</b>   | 466      | --- |
| Calcium    | ppm    | ASTM D5185(m) | 3000    | <b>1425</b>  | 1725     | --- |
| Phosphorus | ppm    | ASTM D5185(m) | 1150    | <b>807</b>   | 844      | --- |
| Zinc       | ppm    | ASTM D5185(m) | 1350    | <b>842</b>   | 946      | --- |
| Sulfur     | ppm    | ASTM D5185(m) | 4250    | <b>2584</b>  | 2570     | --- |
| Lithium    | ppm    | ASTM D5185(m) |         | <b>&lt;1</b> | <1       | --- |

## CONTAMINANTS

|           | method | limit/base    | current | history1 | history2 |     |
|-----------|--------|---------------|---------|----------|----------|-----|
| Silicon   | ppm    | ASTM D5185(m) | >25     | <b>7</b> | 19       | --- |
| Sodium    | ppm    | ASTM D5185(m) | >158    | <b>3</b> | 3        | --- |
| Potassium | ppm    | ASTM D5185(m) | >20     | <b>3</b> | 4        | --- |

## INFRA-RED

|           | method   | limit/base  | current | history1    | history2 |     |
|-----------|----------|-------------|---------|-------------|----------|-----|
| Soot %    | %        | ASTM D7844* | >3      | <b>0</b>    | 0        | --- |
| Nitration | Abs/cm   | ASTM D7624* | >20     | <b>7.7</b>  | 3.9      | --- |
| Sulfation | Abs/.1mm | ASTM D7415* | >30     | <b>20.0</b> | 12.1     | --- |

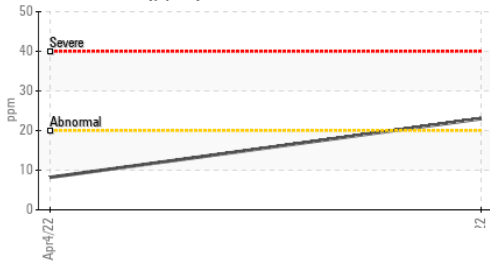
## FLUID DEGRADATION

|           | method   | limit/base  | current | history1    | history2 |     |
|-----------|----------|-------------|---------|-------------|----------|-----|
| Oxidation | Abs/.1mm | ASTM D7414* | >25     | <b>14.3</b> | 7.3      | --- |



# OIL ANALYSIS REPORT

▲ Aluminum (ppm)

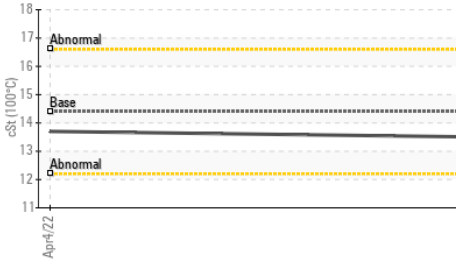


| VISUAL           | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Emulsified Water | scalar | Visual*    | >0.2    | NEG      | NEG      |
| Free Water       | scalar | Visual*    |         | NEG      | NEG      |

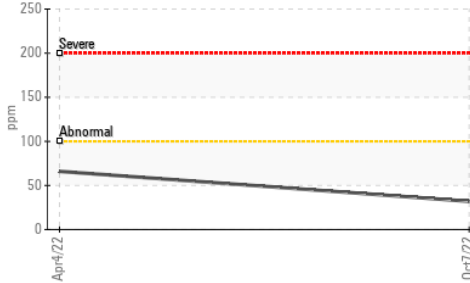
| FLUID PROPERTIES | method | limit/base    | current | history1 | history2 |
|------------------|--------|---------------|---------|----------|----------|
| Visc @ 100°C     | cSt    | ASTM D7279(m) | 14.4    | 13.5     | 13.7     |

## GRAPHS

Viscosity @ 100°C



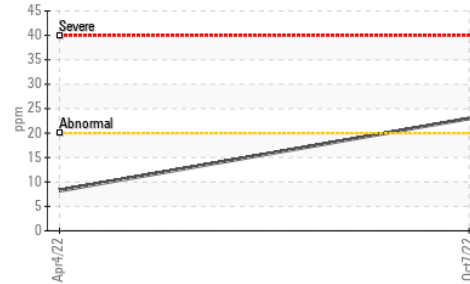
Iron (ppm)



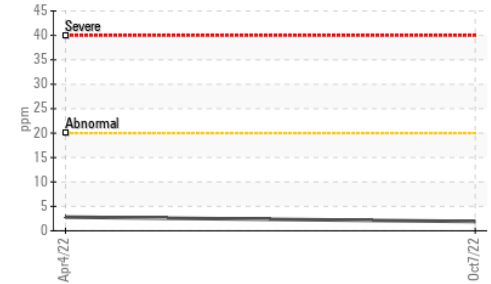
Lead (ppm)



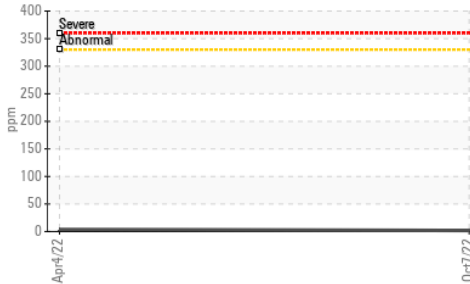
▲ Aluminum (ppm)



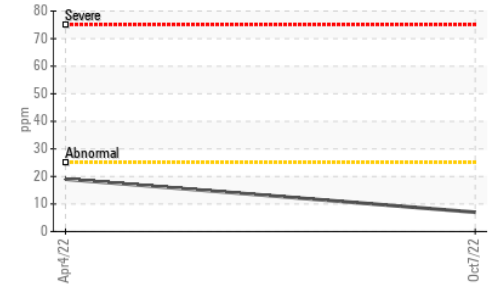
Chromium (ppm)



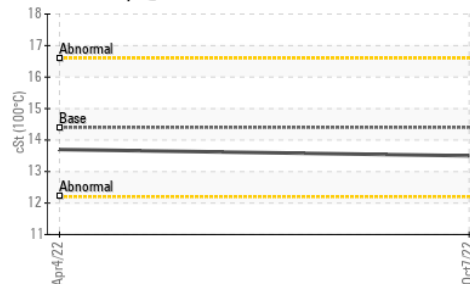
Copper (ppm)



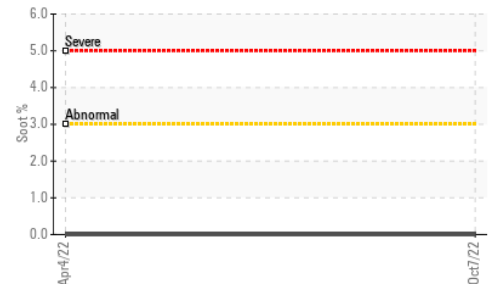
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017  
Accredited  
Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0713521      **Received** : 12 Oct 2022  
**Lab Number** : 02515626      **Diagnosed** : 12 Oct 2022  
**Unique Number** : 5464601      **Diagnostician** : Kevin Marson  
**Test Package** : MOB 1

**C.G. EQUIPMENT**  
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 Contact: CG Equipment CG Guelph  
 cory@cgequipment.com  
 T: (519)826-0550  
 F: (519)837-2055

To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.