



# OIL ANALYSIS REPORT

|                 |               |
|-----------------|---------------|
| WEAR            | <b>NORMAL</b> |
| CONTAMINATION   | <b>NORMAL</b> |
| FLUID CONDITION | <b>NORMAL</b> |

Machine Id  
**CUMMINS 227**  
Component  
**Rear Diesel Engine**  
Fluid  
**ESSO XD-3 EXTRA 15W40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>WC0866534</b>   | WC0889049   | WC0889108   |
| Sample Date    |     | Client Info |           | <b>17 May 2024</b> | 11 Mar 2024 | 02 Jan 2024 |
| Machine Age    | kms | Client Info |           | <b>0</b>           | 0           | 0           |
| Oil Age        | kms | Client Info |           | <b>9440</b>        | 10042       | 9268        |
| Filter Age     | kms | Client Info |           | <b>9440</b>        | 10042       | 9268        |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>N/A</b>         | N/A         | N/A         |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## WEAR

All component wear rates are normal.

|              |        |               |      |             |     |     |
|--------------|--------|---------------|------|-------------|-----|-----|
| Iron         | ppm    | ASTM D5185(m) | >90  | <b>10</b>   | 8   | 6   |
| Chromium     | ppm    | ASTM D5185(m) | >20  | <b>0</b>    | 0   | 0   |
| Nickel       | ppm    | ASTM D5185(m) | >2   | <b>0</b>    | <1  | <1  |
| Titanium     | ppm    | ASTM D5185(m) | >2   | <b>0</b>    | 0   | 0   |
| Silver       | ppm    | ASTM D5185(m) | >2   | <b>0</b>    | 0   | 0   |
| Aluminum     | ppm    | ASTM D5185(m) | >20  | <b>1</b>    | 2   | 2   |
| Lead         | ppm    | ASTM D5185(m) | >40  | <b>0</b>    | 0   | 0   |
| Copper       | ppm    | ASTM D5185(m) | >330 | <b>4</b>    | 2   | 2   |
| Tin          | ppm    | ASTM D5185(m) | >15  | <b>0</b>    | 0   | 0   |
| Vanadium     | ppm    | ASTM D5185(m) |      | <b>0</b>    | 0   | 0   |
| White Metal  | scalar | Visual*       | NONE | <b>NONE</b> | --- | --- |
| Yellow Metal | scalar | Visual*       | NONE | <b>NONE</b> | --- | --- |

## CONTAMINATION

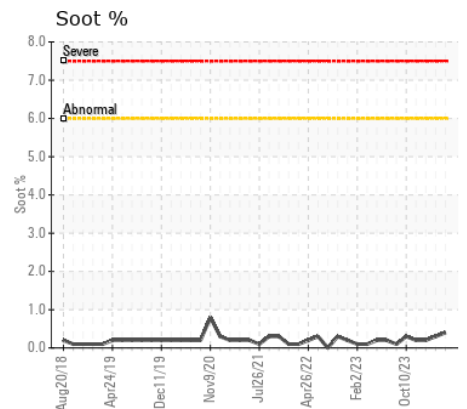
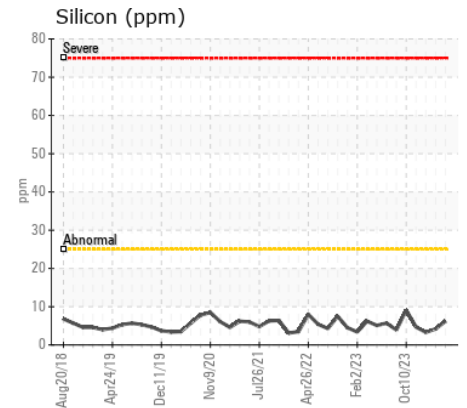
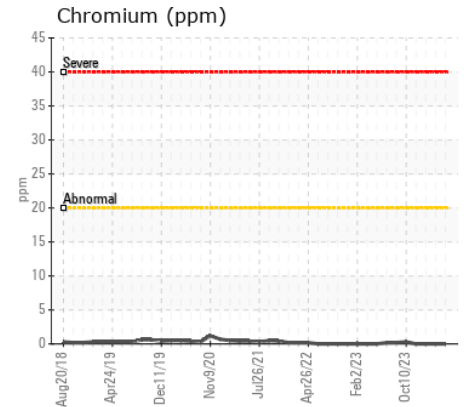
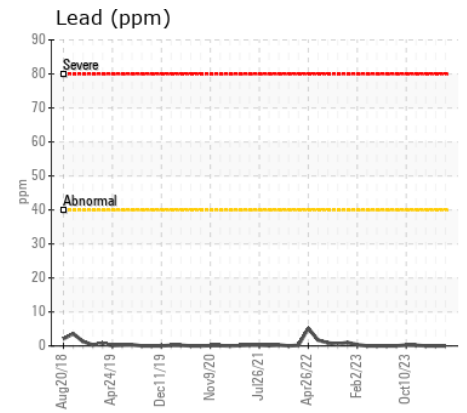
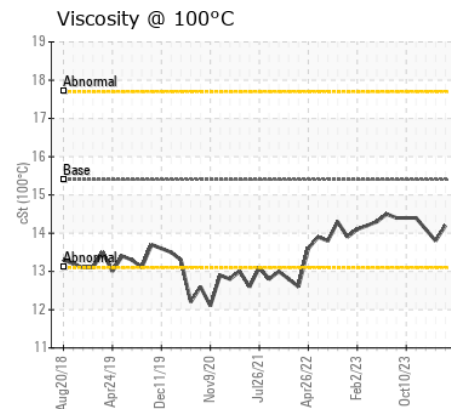
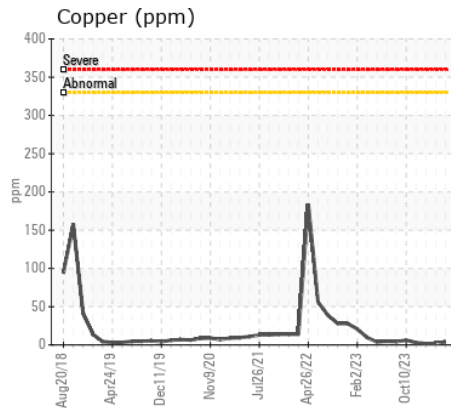
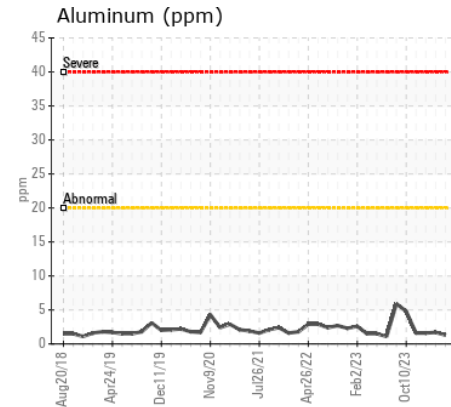
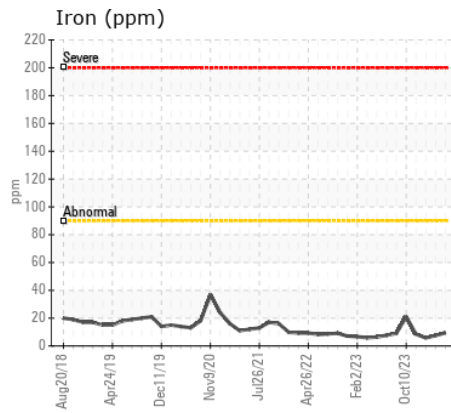
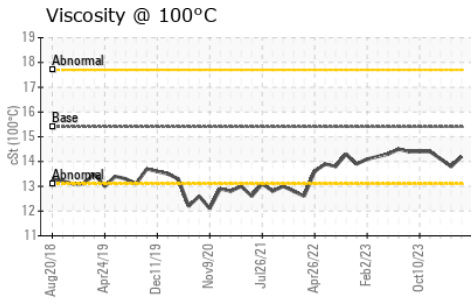
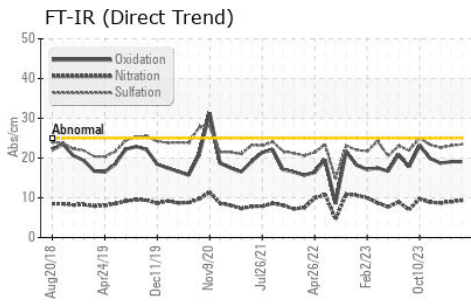
There is no indication of any contamination in the oil.

|                  |          |               |       |                |       |       |
|------------------|----------|---------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185(m) | >25   | <b>6</b>       | 4     | 3     |
| Potassium        | ppm      | ASTM D5185(m) | >20   | <b>6</b>       | 7     | 6     |
| Fuel             |          | WC Method     | >3.0  | <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   |
| Soot %           | %        | ASTM D7844*   | >6    | <b>0.4</b>     | 0.3   | 0.2   |
| Nitration        | Abs/cm   | ASTM D7624*   | >20   | <b>9.3</b>     | 9.0   | 8.7   |
| Sulfation        | Abs/.1mm | ASTM D7415*   | >30   | <b>23.4</b>    | 23.1  | 22.6  |
| Silt             | scalar   | Visual*       | NONE  | <b>NONE</b>    | ---   | ---   |
| Debris           | scalar   | Visual*       | NONE  | <b>NONE</b>    | ---   | ---   |
| Sand/Dirt        | scalar   | Visual*       | NONE  | <b>NONE</b>    | ---   | ---   |
| Appearance       | scalar   | Visual*       | NORML | <b>NORML</b>   | ---   | ---   |
| Odor             | scalar   | Visual*       | NORML | <b>NORML</b>   | NORML | NORML |
| Emulsified Water | scalar   | Visual*       | >0.2  | <b>NEG</b>     | NEG   | NEG   |

## FLUID CONDITION

The condition of the oil is acceptable for the time in service.

|              |          |               |      |             |      |      |
|--------------|----------|---------------|------|-------------|------|------|
| Sodium       | ppm      | ASTM D5185(m) | >192 | <b>5</b>    | 5    | 5    |
| Boron        | ppm      | ASTM D5185(m) |      | <b>110</b>  | 100  | 107  |
| Barium       | ppm      | ASTM D5185(m) |      | <b>0</b>    | 0    | 0    |
| Molybdenum   | ppm      | ASTM D5185(m) |      | <b>0</b>    | 1    | <1   |
| Manganese    | ppm      | ASTM D5185(m) |      | <b>0</b>    | 0    | 0    |
| Magnesium    | ppm      | ASTM D5185(m) |      | <b>14</b>   | 21   | 14   |
| Calcium      | ppm      | ASTM D5185(m) | 3780 | <b>2289</b> | 2217 | 2177 |
| Phosphorus   | ppm      | ASTM D5185(m) | 1370 | <b>967</b>  | 951  | 963  |
| Zinc         | ppm      | ASTM D5185(m) | 1500 | <b>1192</b> | 1136 | 1132 |
| Sulfur       | ppm      | ASTM D5185(m) | 3800 | <b>2843</b> | 2942 | 2961 |
| Oxidation    | Abs/.1mm | ASTM D7414*   | >25  | <b>19.1</b> | 19.1 | 18.7 |
| Visc @ 100°C | cSt      | ASTM D7279(m) | 15.4 | <b>14.2</b> | 13.8 | 14.1 |



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0866534 **Received** : 23 May 2024  
**Lab Number** : 02637070 **Tested** : 23 May 2024  
**Unique Number** : 5786232 **Diagnosed** : 23 May 2024 - Wes Davis  
**Test Package** : MOB 1 ( Additional Tests: Visual )

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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.