



# OIL ANALYSIS REPORT

|                 |        |
|-----------------|--------|
| WEAR            | NORMAL |
| CONTAMINATION   | NORMAL |
| FLUID CONDITION | NORMAL |

Machine Id  
**KENWORTH 008**  
 Component  
**Diesel Engine**  
 Fluid  
**DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>RW0005373</b>   | RW0005469   | RW0004729   |
| Sample Date    |     | Client Info |           | <b>20 May 2024</b> | 13 Apr 2024 | 24 Feb 2024 |
| Machine Age    | hrs | Client Info |           | <b>3225</b>        | 2946        | 2671        |
| Oil Age        | hrs | Client Info |           | <b>279</b>         | 275         | 280         |
| Filter Age     | hrs | Client Info |           | <b>279</b>         | 275         | 280         |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## WEAR

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >90  | <b>5</b>     | 6    | 15   |
| Chromium     | ppm    | ASTM D5185m | >20  | <b>&lt;1</b> | 0    | <1   |
| Nickel       | ppm    | ASTM D5185m | >2   | <b>&lt;1</b> | 0    | <1   |
| Titanium     | ppm    | ASTM D5185m | >2   | <b>&lt;1</b> | 0    | 0    |
| Silver       | ppm    | ASTM D5185m | >2   | <b>1</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >20  | <b>3</b>     | 3    | 2    |
| Lead         | ppm    | ASTM D5185m | >40  | <b>&lt;1</b> | <1   | 1    |
| Copper       | ppm    | ASTM D5185m | >330 | <b>1</b>     | 0    | 2    |
| Tin          | ppm    | ASTM D5185m | >15  | <b>&lt;1</b> | 0    | <1   |
| Vanadium     | ppm    | ASTM D5185m |      | <b>&lt;1</b> | 0    | <1   |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |

## CONTAMINATION

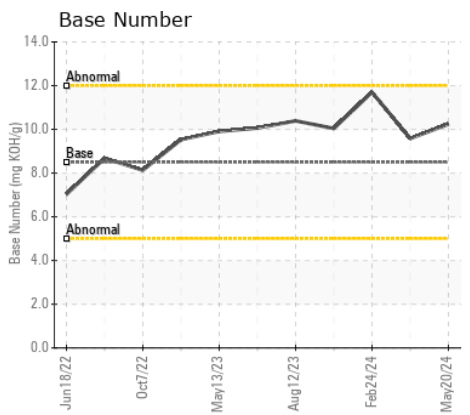
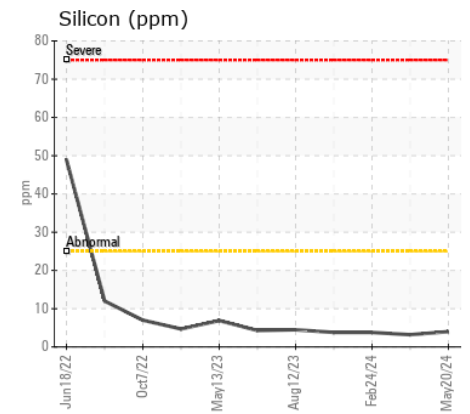
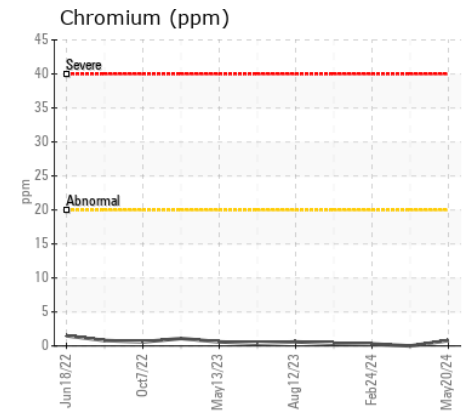
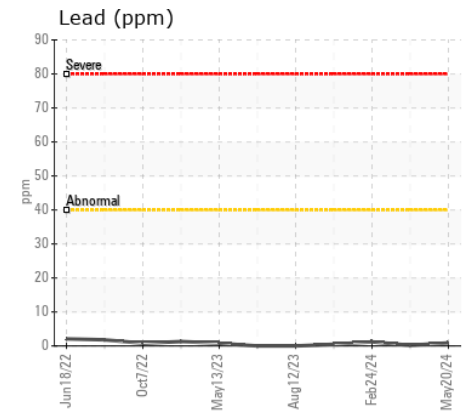
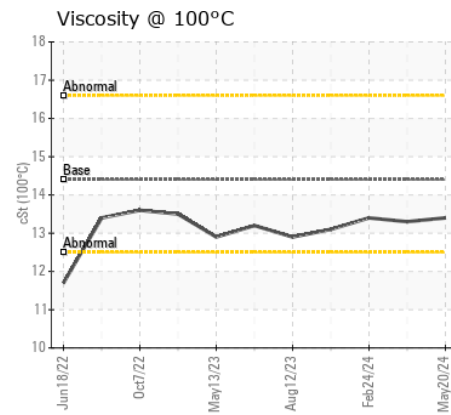
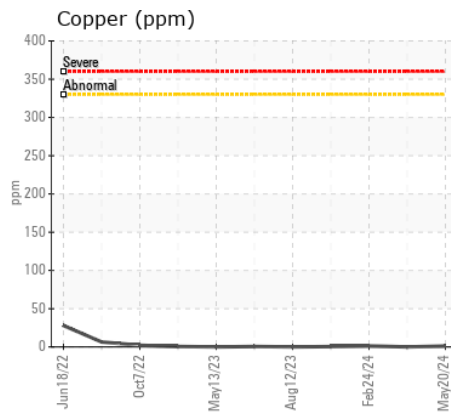
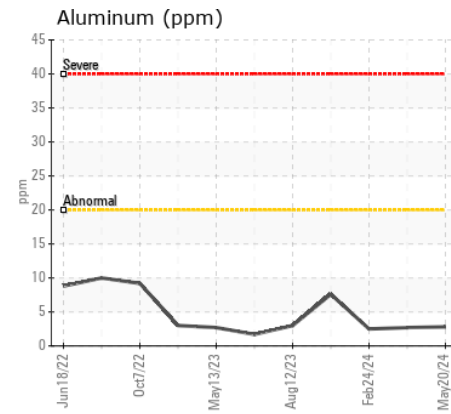
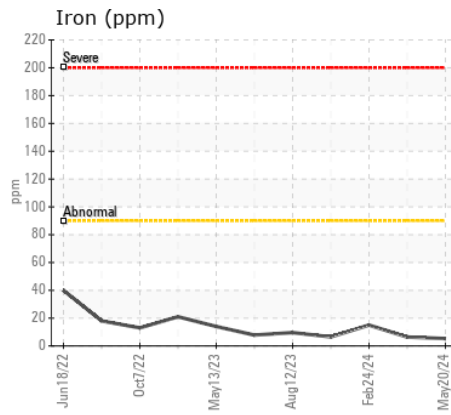
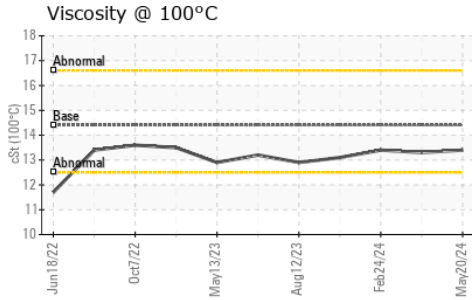
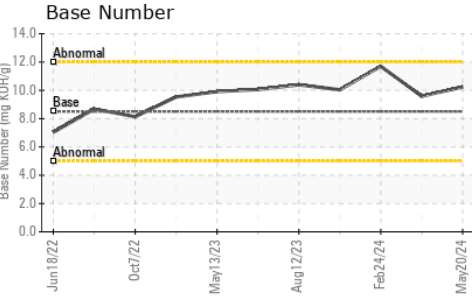
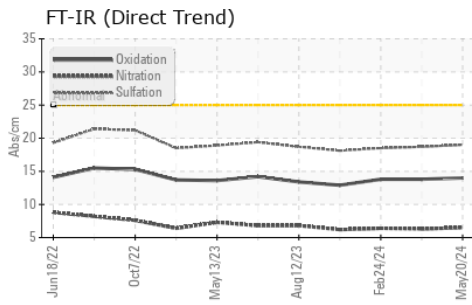
There is no indication of any contamination in the oil.

|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >25   | <b>4</b>       | 3     | 4     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>5</b>       | 5     | <1    |
| 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>0.3</b>     | 0.3   | 0.3   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>6.5</b>     | 6.3   | 6.4   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>19.0</b>    | 18.7  | 18.5  |
| Silt             | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Debris           | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Sand/Dirt        | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Appearance       | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | NORML |
| Odor             | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | NORML |
| Emulsified Water | scalar   | *Visual     | >0.2  | <b>NEG</b>     | NEG   | NEG   |

## 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.

|                  |          |             |      |              |      |       |
|------------------|----------|-------------|------|--------------|------|-------|
| Sodium           | ppm      | ASTM D5185m | >158 | <b>2</b>     | 2    | <1    |
| Boron            | ppm      | ASTM D5185m | 250  | <b>9</b>     | 2    | 4     |
| Barium           | ppm      | ASTM D5185m | 10   | <b>&lt;1</b> | 0    | 0     |
| Molybdenum       | ppm      | ASTM D5185m | 100  | <b>55</b>    | 63   | 67    |
| Manganese        | ppm      | ASTM D5185m |      | <b>&lt;1</b> | 0    | <1    |
| Magnesium        | ppm      | ASTM D5185m | 450  | <b>800</b>   | 1083 | 1065  |
| Calcium          | ppm      | ASTM D5185m | 3000 | <b>1055</b>  | 1256 | 1426  |
| Phosphorus       | ppm      | ASTM D5185m | 1150 | <b>898</b>   | 1213 | 1243  |
| Zinc             | ppm      | ASTM D5185m | 1350 | <b>1101</b>  | 1481 | 1569  |
| Sulfur           | ppm      | ASTM D5185m | 4250 | <b>3002</b>  | 4298 | 4516  |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>14.0</b>  | 13.8 | 13.8  |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 8.5  | <b>10.24</b> | 9.58 | 11.70 |
| Visc @ 100°C     | cSt      | ASTM D445   | 14.4 | <b>13.4</b>  | 13.3 | 13.4  |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : RW0005373  
**Lab Number** : 06193005  
**Unique Number** : 11049757  
**Test Package** : MOB 2

**Received** : 28 May 2024  
**Tested** : 30 May 2024  
**Diagnosed** : 30 May 2024 - Wes Davis

**HALLACK CONTRACTING, INC.**  
 4223 W POLK  
 HART, MI  
 US 49420

Contact: DAN HALLACK KARL BUTCHER  
 shop@hallackcontracting.com

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)873-5081  
 F: (231)873-2889