



# OIL ANALYSIS REPORT

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

Machine Id  
**KENWORTH T800 ST31**  
 Component  
**Diesel Engine**  
 Fluid  
**HPL 10W40 (11 GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>HPL0005064</b>  | HPL0003882  | HPL0003663  |
| Sample Date    |     | Client Info |           | <b>23 Apr 2024</b> | 29 Nov 2023 | 05 Aug 2023 |
| Machine Age    | hrs | Client Info |           | <b>12653</b>       | 11857       | 11070       |
| Oil Age        | hrs | Client Info |           | <b>0</b>           | 0           | 0           |
| Filter Age     | hrs | Client Info |           | <b>0</b>           | 0           | 0           |
| Oil Changed    |     | Client Info |           | <b>N/A</b>         | N/A         | N/A         |
| 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 D5185m | >90  | <b>26</b>    | 14   | 10   |
| Chromium     | ppm    | ASTM D5185m | >20  | <b>3</b>     | <1   | <1   |
| Nickel       | ppm    | ASTM D5185m | >2   | <b>&lt;1</b> | 0    | <1   |
| Titanium     | ppm    | ASTM D5185m | >2   | <b>&lt;1</b> | 0    | <1   |
| Silver       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >20  | <b>9</b>     | 11   | 6    |
| Lead         | ppm    | ASTM D5185m | >40  | <b>5</b>     | 4    | 6    |
| Copper       | ppm    | ASTM D5185m | >330 | <b>3</b>     | <1   | 7    |
| Tin          | ppm    | ASTM D5185m | >15  | <b>&lt;1</b> | <1   | 2    |
| 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

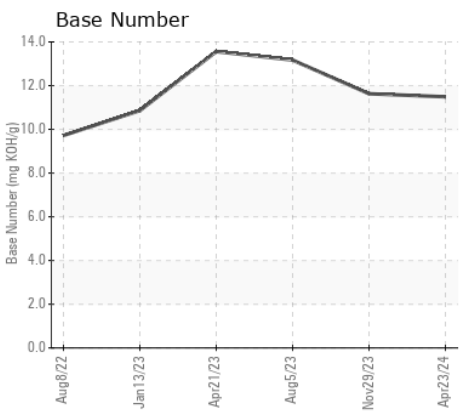
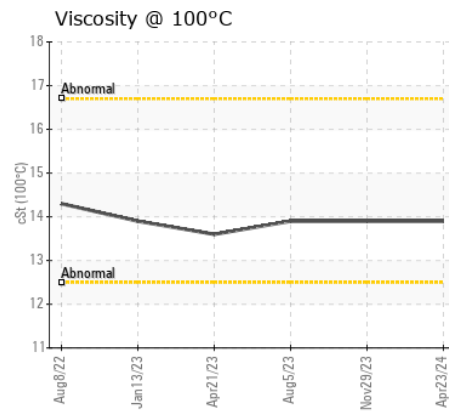
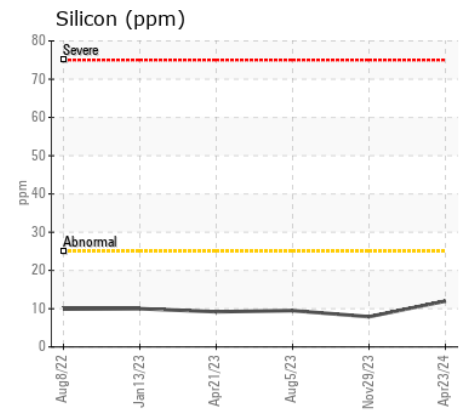
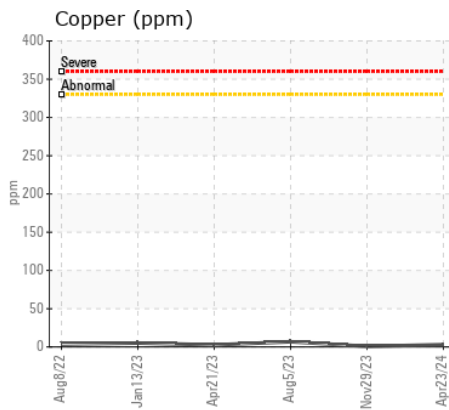
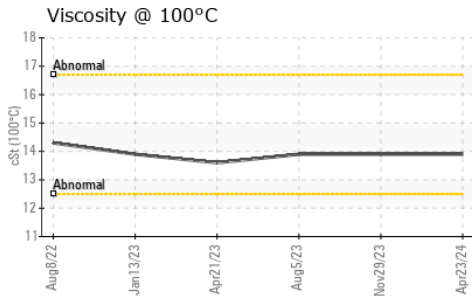
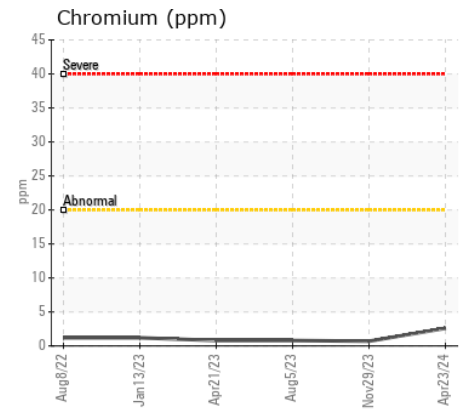
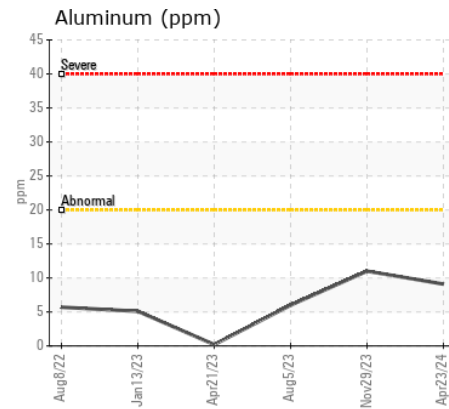
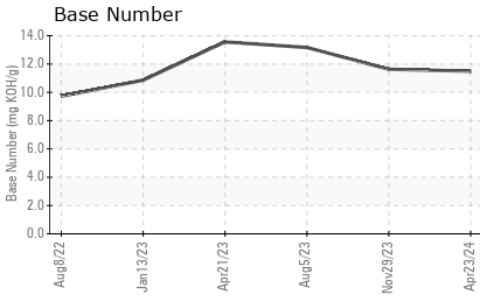
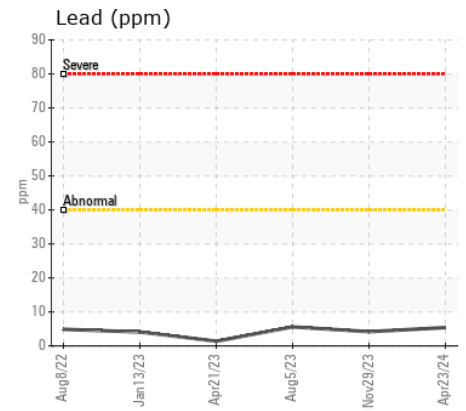
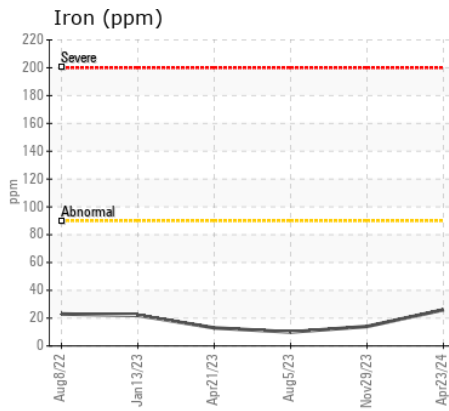
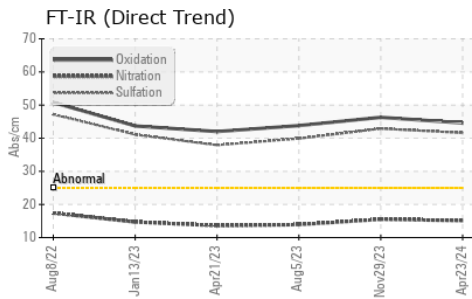
There is no indication of any contamination in the oil.

|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >25   | <b>12</b>      | 8     | 10    |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>5</b>       | 3     | 9     |
| 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>0.7</b>     | 0.5   | 0.3   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>15.1</b>    | 15.5  | 13.9  |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>41.6</b>    | 42.9  | 39.9  |
| 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 acceptable for the time in service.

|                  |          |             |     |              |       |       |
|------------------|----------|-------------|-----|--------------|-------|-------|
| Sodium           | ppm      | ASTM D5185m |     | <b>3</b>     | 0     | 6     |
| Boron            | ppm      | ASTM D5185m |     | <b>0</b>     | 11    | 15    |
| Barium           | ppm      | ASTM D5185m |     | <b>&lt;1</b> | 0     | 0     |
| Molybdenum       | ppm      | ASTM D5185m |     | <b>555</b>   | 586   | 525   |
| Manganese        | ppm      | ASTM D5185m |     | <b>1</b>     | <1    | 2     |
| Magnesium        | ppm      | ASTM D5185m |     | <b>998</b>   | 974   | 966   |
| Calcium          | ppm      | ASTM D5185m |     | <b>2583</b>  | 2512  | 2435  |
| Phosphorus       | ppm      | ASTM D5185m |     | <b>1122</b>  | 1001  | 983   |
| Zinc             | ppm      | ASTM D5185m |     | <b>1298</b>  | 1281  | 1314  |
| Sulfur           | ppm      | ASTM D5185m |     | <b>9318</b>  | 7137  | 9445  |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25 | <b>44.6</b>  | 46.3  | 43.8  |
| Base Number (BN) | mg KOH/g | ASTM D2896  |     | <b>11.49</b> | 11.63 | 13.17 |
| Visc @ 100°C     | cSt      | ASTM D445   |     | <b>13.9</b>  | 13.9  | 13.9  |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : HPL0005064  
**Lab Number** : 06160588  
**Unique Number** : 10996011  
**Test Package** : MOB 2  
**Received** : 25 Apr 2024  
**Tested** : 26 Apr 2024  
**Diagnosed** : 26 Apr 2024 - Sean Felton

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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)