

# **OIL ANALYSIS REPORT**

Sample Rating Trend

**NORMAL** 

# KENWORTH T880 T-885 (S/N 1XKZD40XXPJ225504)

**Diesel Engine** 

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

### DIAGNOSIS

### Recommendation

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

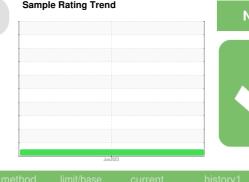
All component wear rates are normal.

### Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

### **Fluid Condition**

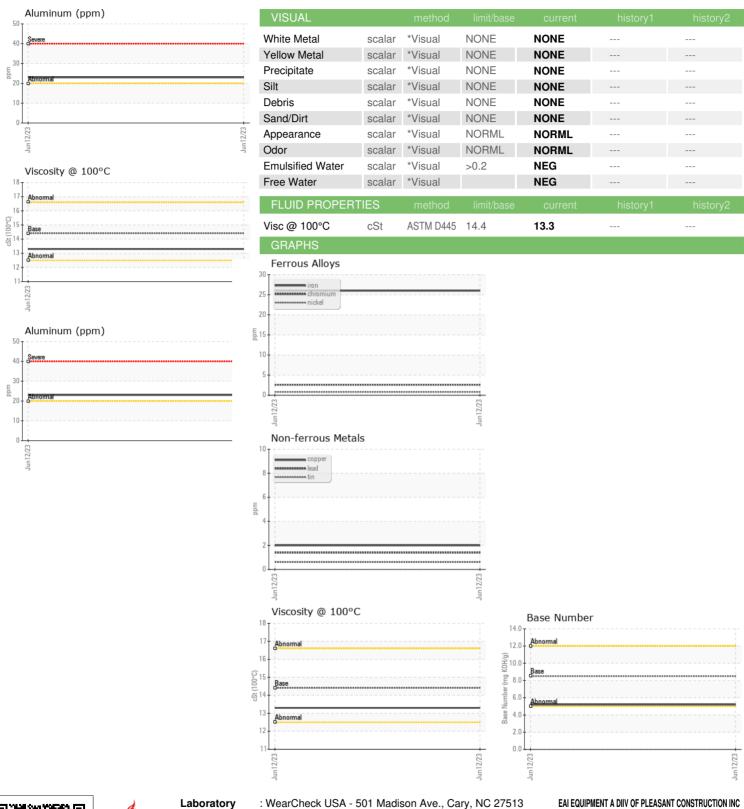
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



| SAMPLE INFORM   | MATION   | method  | limit/base   | current   | history1                   | history2                            |
|---|--|---|--|---|----------------------------|-------------------------------------|
| Sample Number   |  | Client Info   |  | WC0804175   |                            |                                     |
| Sample Date   |  | Client Info   |  | 12 Jun 2023   |                            |                                     |
| Machine Age   | mls  | Client Info   |  | 83694   |                            |                                     |
| Oil Age   | mls  | Client Info   |  | 0   |                            |                                     |
| Oil Changed   |  | Client Info   |  | Changed   |                            |                                     |
| Sample Status   |  |   |  | NORMAL  |                            |                                     |
| CONTAMINATION   | V  | method  | limit/base   | current   | history1                   | history2                            |
| Fuel  |  | WC Method   | >5   | <1.0  |                            |                                     |
| Glycol  |  | WC Method   |  | NEG   |                            |                                     |
| WEAR METALS   |  | method  | limit/base   | current   | history1                   | history2                            |
| Iron  | nnm  | ASTM D5185m   | >100   | 26  |                            |                                     |
| Chromium  | ppm  | ASTM D5185m   | >20  | 3   |                            |                                     |
| Nickel  | ppm  | ASTM D5185m   | >4   | ง<br><1   |                            |                                     |
| Titanium  | ppm  | ASTM D5185m   | <b>/</b> 4   | <1  |                            |                                     |
| Silver  | ppm  | ASTM D5185m   | >3   | 0   |                            |                                     |
| Aluminum  | ppm  | ASTM D5185m   | >20  | 23  |                            |                                     |
| Lead  | ppm  | ASTM D5185m   | >40  | 1   |                            |                                     |
| Copper  | ppm  | ASTM D5185m   | >330   | 2   |                            |                                     |
| Tin   | ppm  | ASTM D5185m   | >15  | <1  |                            |                                     |
| Vanadium  | ppm  | ASTM D5185m   | 710  | <1  |                            |                                     |
|   |  |   |  |   |                            |                                     |
| Cadmillim   | nnm  | AS HVI US LASIM   |  | ()  |                            |                                     |
| Cadmium   | ppm  | ASTM D5185m   |  | 0   |                            |                                     |
| ADDITIVES   | ppm  | method  | limit/base   | current   | history1                   | history2                            |
|   | ppm  |   | limit/base   |   |                            |                                     |
| ADDITIVES   |  | method  |  | current   | history1                   | history2                            |
| ADDITIVES<br>Boron  | ppm  | method<br>ASTM D5185m   | 250  | current<br>0  | history1                   | history2                            |
| ADDITIVES Boron Barium  | ppm  | method ASTM D5185m ASTM D5185m  | 250<br>10  | current<br>0<br>0   | history1                   | history2                            |
| ADDITIVES Boron Barium Molybdenum   | ppm<br>ppm   | method ASTM D5185m ASTM D5185m ASTM D5185m  | 250<br>10  | current 0 0 4   | history1<br><br>           | history2                            |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese   | ppm<br>ppm<br>ppm  | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  | 250<br>10<br>100   | current 0 0 4 <1  | history1                   | history2<br><br><br>                |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  | ppm<br>ppm<br>ppm<br>ppm   | method  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m   | 250<br>10<br>100<br>450  | current 0 0 4 <1 57   | history1                   | history2<br><br><br>                |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc   | ppm<br>ppm<br>ppm<br>ppm<br>ppm                                    | method  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m   | 250<br>10<br>100<br>450<br>3000  | current 0 0 4 <1 57 2414  | history1                   | history2                            |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | method  ASTM D5185m   | 250<br>10<br>100<br>450<br>3000<br>1150  | current 0 0 4 <1 57 2414 898  | history1                   | history2                            |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur  CONTAMINANTS   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm               | method  ASTM D5185m   | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br>limit/base            | current 0 0 4 <1 57 2414 898 1083 4242 current  | history1                   | history2                            |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur  CONTAMINANTS  Silicon  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method  ASTM D5185m   | 250<br>10<br>100<br>450<br>3000<br>1150<br>1350<br>4250<br>limit/base<br>>25     | current 0 0 4 <1 57 2414 898 1083 4242 current 8  | history1                   | history2                            |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur  CONTAMINANTS  Silicon  Sodium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm               | method  ASTM D5185m   | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158                           | current 0 0 4 <1 57 2414 898 1083 4242 current 8 3  | history1                   | history2                            |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur  CONTAMINANTS  Silicon  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method  ASTM D5185m   | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158                           | current 0 0 4 <1 57 2414 898 1083 4242 current 8  | history1 history1          | history2 history2                   |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur  CONTAMINANTS  Silicon  Sodium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method  ASTM D5185m   | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158                           | current 0 0 4 <1 57 2414 898 1083 4242 current 8 3  | history1 history1          | history2 history2                   |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur  CONTAMINANTS  Silicon  Sodium  Potassium                               | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method  ASTM D5185m   | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20                       | current 0 0 4 <1 57 2414 898 1083 4242 current 8 3 50                                       | history1 history1          | history2 history2                   |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur  CONTAMINANTS  Silicon  Sodium  Potassium  INFRA-RED                    | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method  ASTM D5185m  method  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base            | current  0  0 4 <1 57 2414 898 1083 4242 current 8 3 50 current                             | history1 history1 history1 | history2 history2 history2 history2 |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur  CONTAMINANTS  Silicon  Sodium  Potassium  INFRA-RED  Soot %            | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method  ASTM D5185m  method  ASTM D5185m  | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3         | current 0 0 4 <1 57 2414 898 1083 4242 current 8 3 50 current 0.3                           | history1 history1 history1 | history2 history2 history2 history2 |
| ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur  CONTAMINANTS  Silicon  Sodium  Potassium  INFRA-RED  Soot %  Nitration | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method  ASTM D5185m method  ASTM D5185m   | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base            | current  0 0 4 <1 57 2414 898 1083 4242 current 8 3 50 current 0.3 8.7                      | history1 history1 history1 | history2 history2 history2 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation       | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method  ASTM D5185m  method  *ASTM D5185m  *ASTM D5185m  ASTM D5185m  *ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D7844  *ASTM D7624  *ASTM D7415 | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 >20 >30 | current  0  0  4  <1  57  2414  898  1083  4242  current  8  3  50  current  0.3  8.7  22.9 | history1 history1 history1 | history2 history2 history2 history2 |



## **OIL ANALYSIS REPORT**







Certificate L2367

Laboratory Sample No. Lab Number Unique Number

: WC0804175 : 05905133 : 10566489

Received : 24 Jul 2023 Diagnosed

: 24 Jul 2023 Diagnostician : Wes Davis Test Package : CONST ( Additional Tests: TBN )

24024 FREDERICK ROAD CLARKSBURG, MD

US 20871

Contact: Service Manager

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)

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