



OIL ANALYSIS REPORT

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

Area
Store 9 - Marietta

Machine Id
KENWORTH 1026

Component
Diesel Engine

Fluid
SHELL ROTELLA T 15W40 (10 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | LEC0050203 | LEC0048347 | LEC0048079 |
| Sample Date | | Client Info | | 14 May 2024 | 22 Mar 2024 | 12 Feb 2024 |
| Machine Age | hrs | Client Info | | 51110 | 50625 | 50176 |
| Oil Age | hrs | Client Info | | 400 | 400 | 400 |
| Filter Age | hrs | Client Info | | 400 | 400 | 400 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | SEVERE |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|-------|
| Iron | ppm | ASTM D5185m | >100 | 13 | 13 | 17 |
| Chromium | ppm | ASTM D5185m | >20 | 1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | <1 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | 2 | 2 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 1 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 3 | 3 | 4 |
| Lead | ppm | ASTM D5185m | >40 | 6 | 27 | ▲ 156 |
| Copper | ppm | ASTM D5185m | >330 | 2 | 2 | 3 |
| Tin | ppm | ASTM D5185m | >15 | 1 | 1 | 2 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

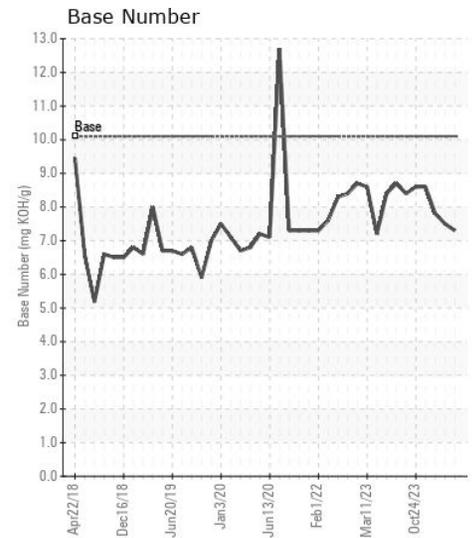
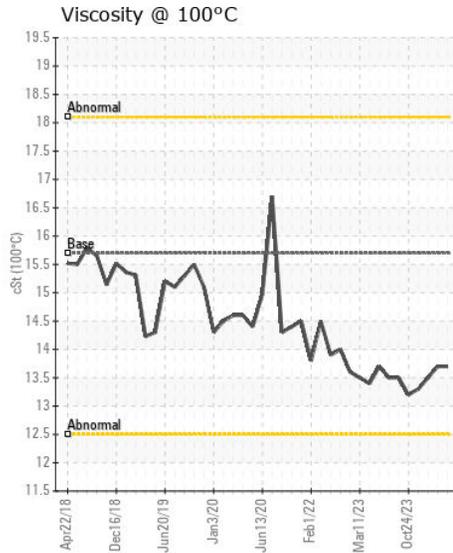
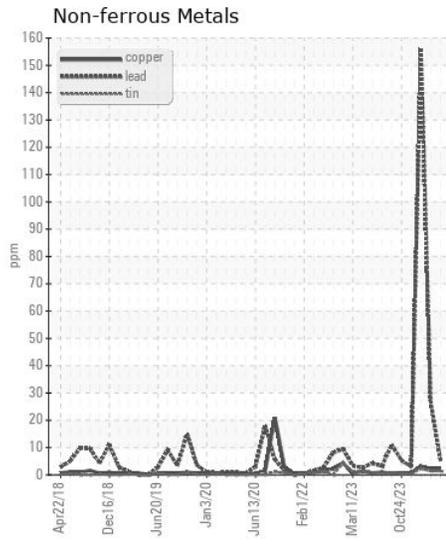
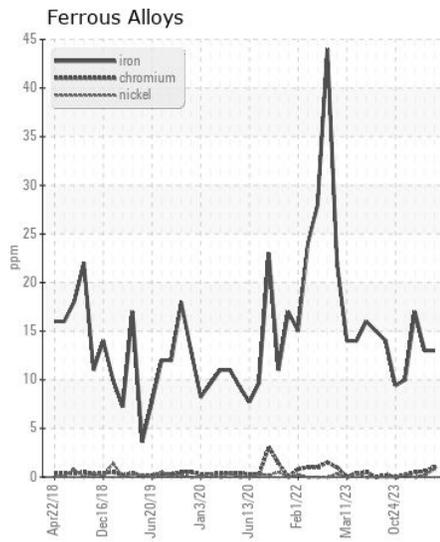
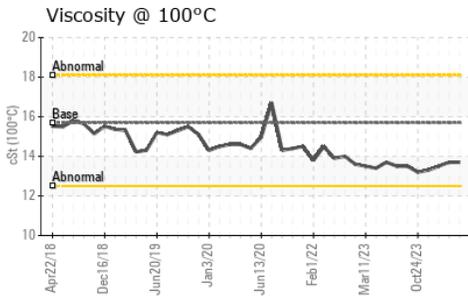
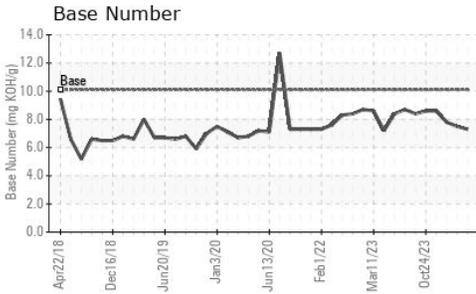
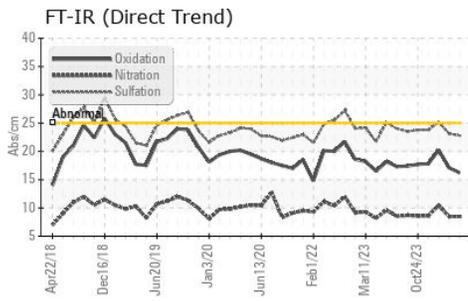
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >120 | 7 | 8 | 6 |
| Potassium | ppm | ASTM D5185m | >20 | 2 | 2 | 1 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.5 | 0.4 | 0.7 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 8.5 | 8.5 | 10.4 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 22.8 | 23.1 | 25.2 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | 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 | | 2 | <1 | 2 |
| Boron | ppm | ASTM D5185m | 316 | 348 | 301 | 187 |
| Barium | ppm | ASTM D5185m | 0.0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 1.2 | 92 | 108 | 125 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 24 | 470 | 570 | 641 |
| Calcium | ppm | ASTM D5185m | 2292 | 1439 | 1518 | 1490 |
| Phosphorus | ppm | ASTM D5185m | 1064 | 961 | 872 | 699 |
| Zinc | ppm | ASTM D5185m | 1160 | 1162 | 1063 | 875 |
| Sulfur | ppm | ASTM D5185m | 4996 | 3547 | 3026 | 2336 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 16.2 | 17.1 | 20.2 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.1 | 7.3 | 7.5 | 7.8 |
| Visc @ 100°C | cSt | ASTM D445 | 15.7 | 13.7 | 13.7 | 13.5 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LEC0050203
Lab Number : 06193643
Unique Number : 11050395
Test Package : CONST (Additional Tests: TBN)

Received : 29 May 2024
Tested : 30 May 2024
Diagnosed : 30 May 2024 - Sean Felton

HALL DRILLING LLC
 PO BOX 249
 ELLENBORO, WV
 US 26346

Contact: CHRIS PETROVICH
 chrispetrovich@halldrilling.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)

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