



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

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

Machine Id
JOHN DEERE 4130

Component
Diesel Engine

Fluid
TRC PRO-SPEC III SYNTHETIC BLEND 15W40 (4 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | TR06062972 | TR05719515 | TR05191568 |
| Sample Date | | Client Info | | 08 Nov 2023 | 14 Dec 2022 | 21 Dec 2020 |
| Machine Age | hrs | Client Info | | 2064 | 1516 | 972 |
| Oil Age | hrs | Client Info | | 548 | 544 | 148 |
| Filter Age | hrs | Client Info | | 548 | 544 | 148 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | ABNORMAL | ABNORMAL | NORMAL |

WEAR

The copper level has decreased, but is still abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|--------------|------|
| Iron | ppm | ASTM D5185m | >51 | 17 | 19 | 8 |
| Chromium | ppm | ASTM D5185m | >11 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | 0 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | 0 | <1 | 1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >31 | 2 | 3 | 2 |
| Lead | ppm | ASTM D5185m | >26 | 2 | 5 | 3 |
| Copper | ppm | ASTM D5185m | >26 | ▲ 53 | ▲ 382 | <1 |
| Tin | ppm | ASTM D5185m | >4 | <1 | 1 | 0 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | 1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

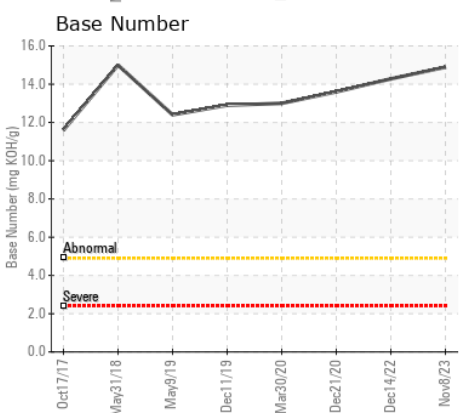
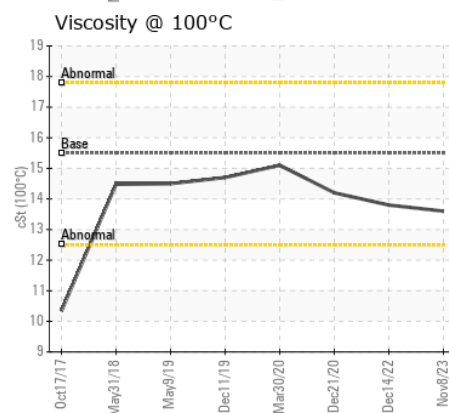
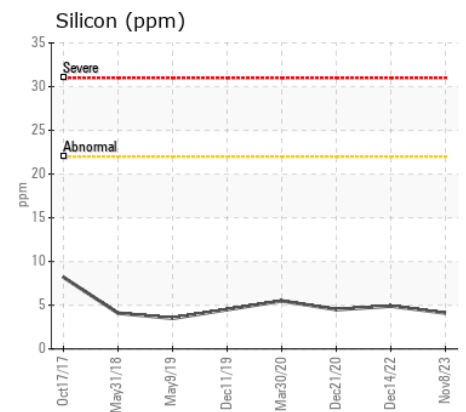
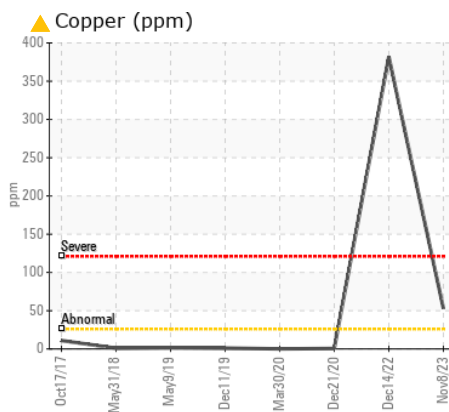
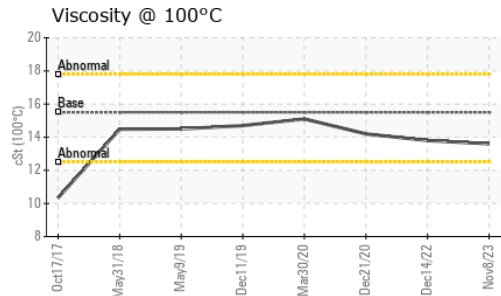
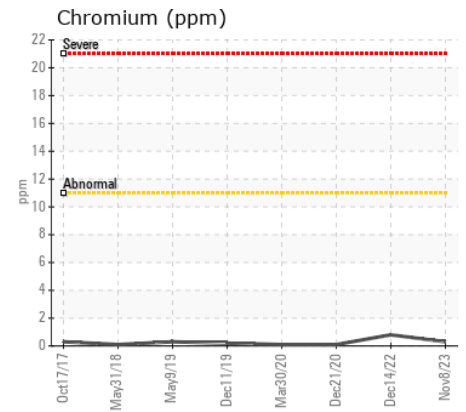
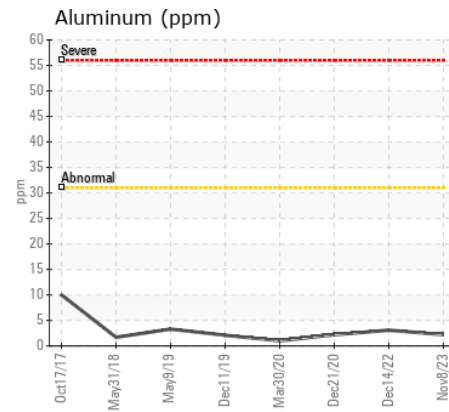
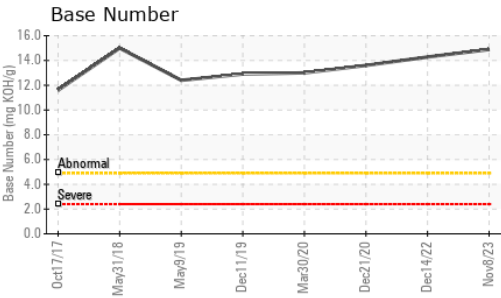
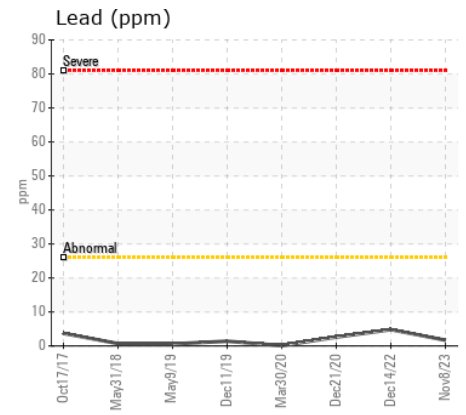
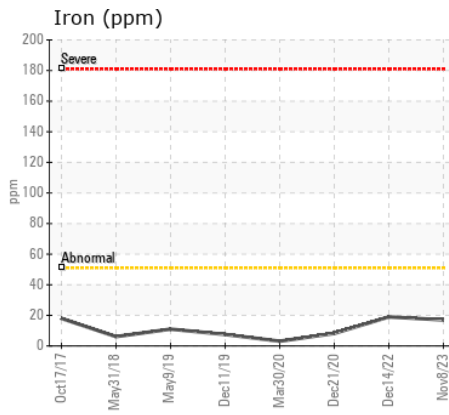
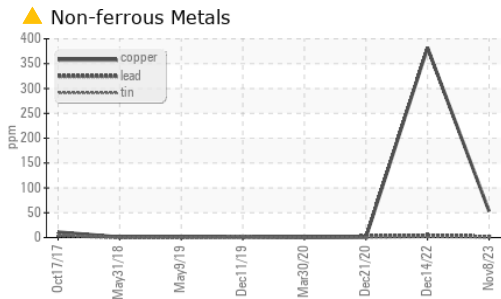
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >22 | 4 | 5 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | <1 | 0 | 0 |
| Fuel | | WC Method | >2.1 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.21 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.1 | 0.1 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 6.2 | 7.7 | 5.4 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 18.2 | 20.1 | 18.8 |
| 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 | >0.21 | NEG | 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 | >31 | 2 | 4 | 4 |
| Boron | ppm | ASTM D5185m | | 0 | 2 | 1 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 3 | <1 | <1 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | 7 | 24 | 18 |
| Calcium | ppm | ASTM D5185m | | 4989 | 5056 | 5075 |
| Phosphorus | ppm | ASTM D5185m | | 902 | 998 | 1058 |
| Zinc | ppm | ASTM D5185m | | 1187 | 1205 | 1226 |
| Sulfur | ppm | ASTM D5185m | | 4212 | 4944 | 4121 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 10.1 | 12.3 | 12 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | 14.89 | 14.28 | 13.6 |
| Visc @ 100°C | cSt | ASTM D445 | 15.5 | 13.6 | 13.8 | 14.2 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06062972 **Received** : 17 Jan 2024
Lab Number : 06062972 **Diagnosed** : 18 Jan 2024
Unique Number : 10834354 **Diagnostician** : Sean Felton
Test Package : MOB 2

RANDALL COUNTY ROAD DEPT.
 301 WEST HIGHWAY 60
 CANYON, TX
 US 79015
 Contact: MIKE LEWIS

To discuss this sample report, contact Customer Service at 1-800-827-0711.

* - 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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F: