James River Equipment

OIL ANALYSIS REPORT

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

Machine Id
## HITACHI 190W-6 HCMLBH60V00005009
Component
## Diesel Engine
Fluid
## JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- GAL)

## RECOMMENDATION

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

## WEAR

The aluminum level is abnormal. All other component wear rates are normal.

## CONTAMINATION

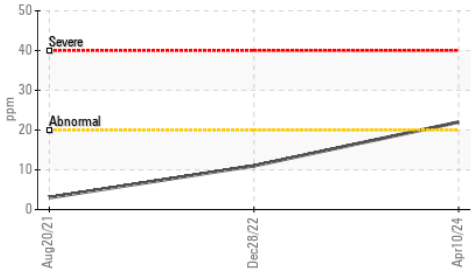
There is no indication of any contamination in the oil.

## FLUID CONDITION

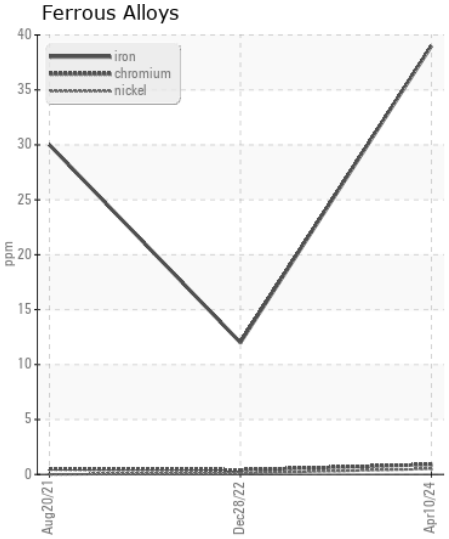
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | JR0209228 | JR0156698 | JR0094630 |
| Sample Date | | Client Info | | 10 Apr 2024 | 28 Dec 2022 | 20 Aug 2021 |
| Machine Age | hrs | Client Info | | 5019 | 2553 | 489 |
| Oil Age | hrs | Client Info | | 2466 | 2553 | 489 |
| Filter Age | hrs | Client Info | | 0 | 0 | 489 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | ABNORMAL | NORMAL | NORMAL |
| Iron | ppm | ASTM D5185m | >100 | 39 | 12 | 30 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | <1 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | 8 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | ▲ 22 | 11 | 3 |
| Lead | ppm | ASTM D5185m | >40 | 2 | 1 | <1 |
| Copper | ppm | ASTM D5185m | >330 | 5 | 21 | 18 |
| Tin | ppm | ASTM D5185m | >15 | 2 | 1 | 5 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silicon | ppm | ASTM D5185m | >25 | 24 | 11 | 26 |
| Potassium | ppm | ASTM D5185m | >20 | 3 | 0 | 3 |
| Fuel | % | ASTM D3524 | >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 | 1 | 0.4 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 10.9 | 8.4 | 6.6 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 27.8 | 21.2 | 15 |
| 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 |
| Sodium | ppm | ASTM D5185m | | 4 | 2 | 2 |
| Boron | ppm | ASTM D5185m | | 37 | 212 | 314 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 1 |
| Molybdenum | ppm | ASTM D5185m | | 229 | 252 | 4 |
| Manganese | ppm | ASTM D5185m | | 1 | <1 | 4 |
| Magnesium | ppm | ASTM D5185m | | 804 | 808 | 23 |
| Calcium | ppm | ASTM D5185m | | 1575 | 1597 | 2089 |
| Phosphorus | ppm | ASTM D5185m | | 920 | 918 | 945 |
| Zinc | ppm | ASTM D5185m | | 1105 | 1160 | 1123 |
| Sulfur | ppm | ASTM D5185m | | 3605 | 3481 | 2476 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 22.6 | 15.6 | 8.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 13.6 | 7.6 | 8.9 | 7.3 |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 12.9 | 13.5 | 12.9 |

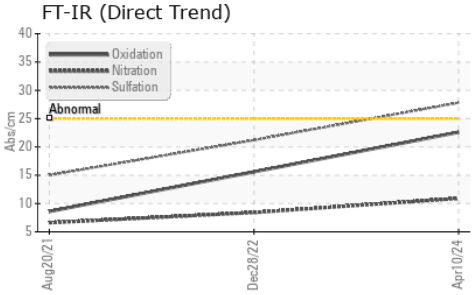
Aluminum (ppm)



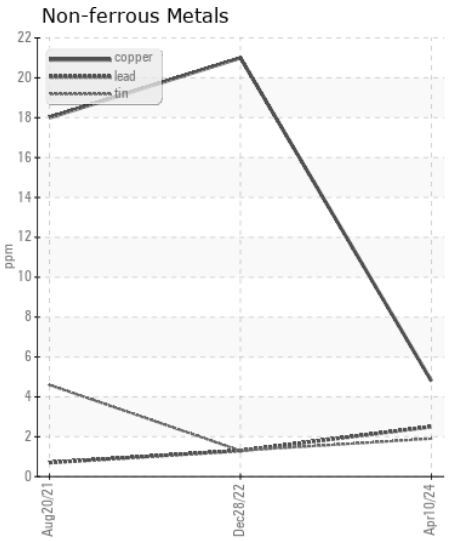

Ferrous Alloys



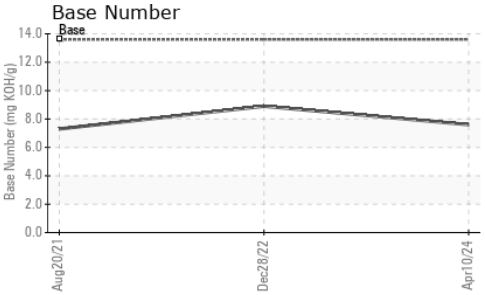

FT-IR (Direct Trend)



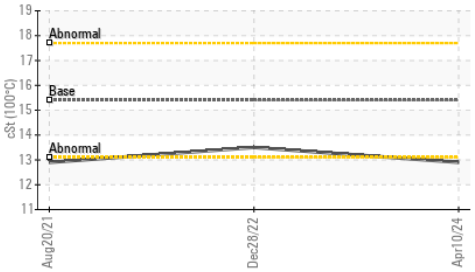

Non-ferrous Metals



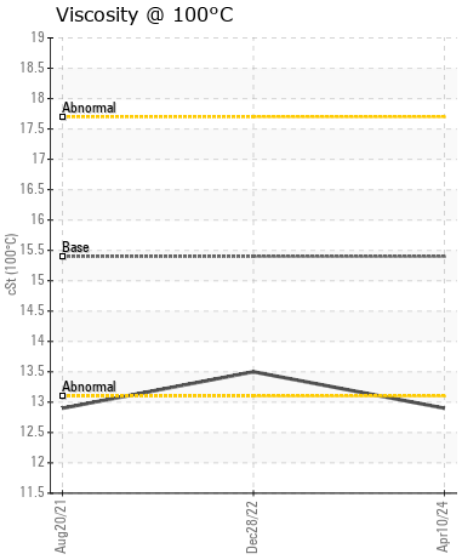

Base Number



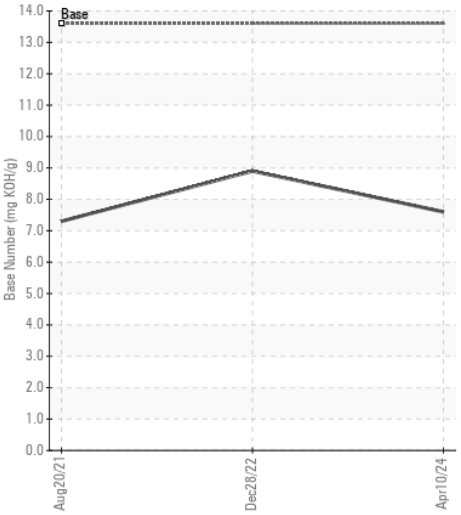

Viscosity @ 100°C




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : JR0209228
**Lab Number** : 06145219
**Unique Number** : 10970027
**Test Package** : CONST ( Additional Tests: FuelDilution, TBN )

**Received** : 10 Apr 2024
**Tested** : 11 Apr 2024
**Diagnosed** : 13 Apr 2024 - Don Baldridge

*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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