



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

Area
CAROLINE
 Machine Id
JOHN DEERE 460E M01-0327 1DW460ETLLF705142
 Component
Diesel Engine
 Fluid
CASTROL 15W40 (--- QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | JR0164423 | JR0165763 | JR0164717 |
| Sample Date | | Client Info | | 22 Dec 2023 | 20 Sep 2023 | 31 May 2023 |
| Machine Age | hrs | Client Info | | 4220 | 3902 | 3604 |
| Oil Age | hrs | Client Info | | 318 | 298 | 303 |
| Filter Age | hrs | Client Info | | 318 | 298 | 303 |
| 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 | >51 | 9 | 11 | 9 |
| Chromium | ppm | ASTM D5185m | >11 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | <1 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >31 | 7 | 7 | 3 |
| Lead | ppm | ASTM D5185m | >26 | 0 | 2 | 2 |
| Copper | ppm | ASTM D5185m | >26 | 6 | 9 | 9 |
| Tin | ppm | ASTM D5185m | >4 | <1 | 2 | 2 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

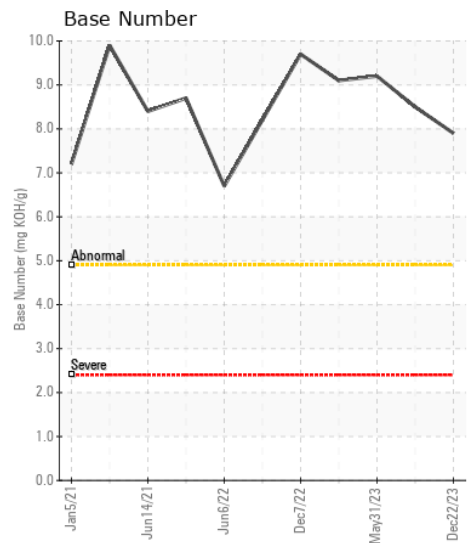
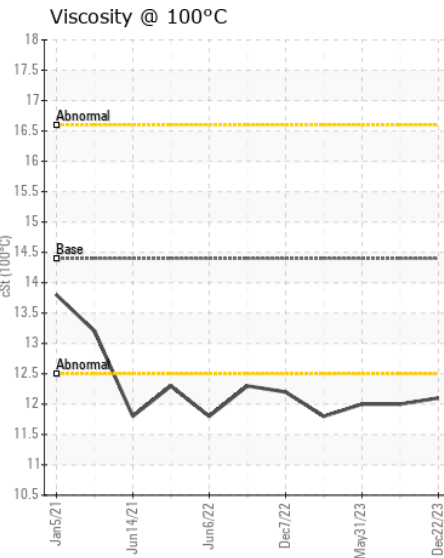
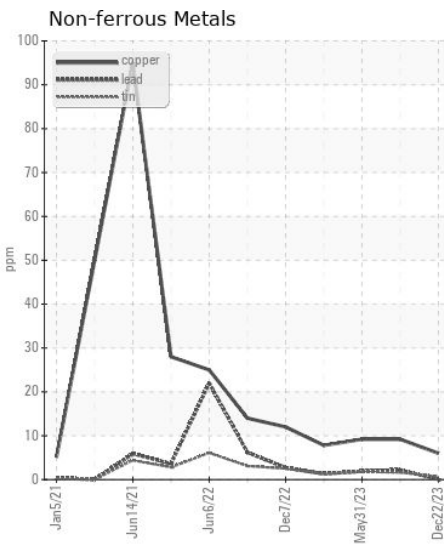
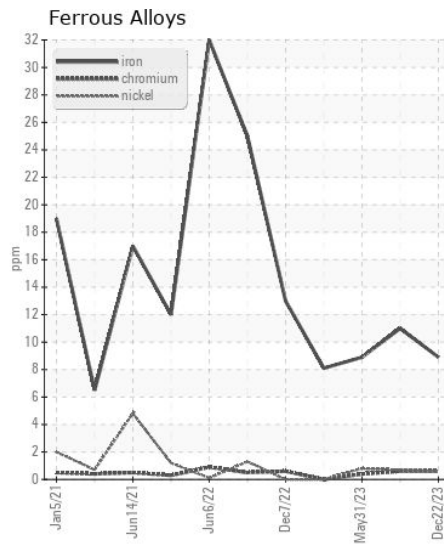
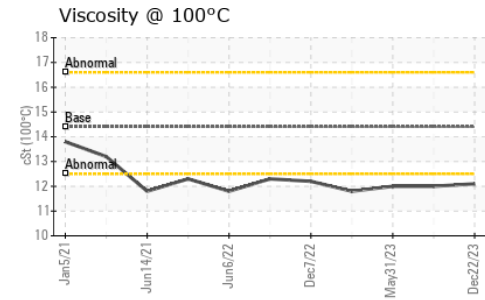
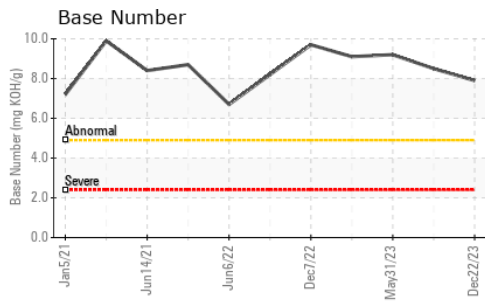
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >22 | 5 | 6 | 5 |
| Potassium | ppm | ASTM D5185m | >20 | 11 | 14 | 5 |
| Fuel | | WC Method | >2.1 | <1.0 | 2.8 | 3.1 |
| Water | | WC Method | >0.21 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.2 | 0.3 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 6.3 | 7.7 | 8.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 17.8 | 18.5 | 19.9 |
| 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 | >406 | 7 | 7 | 2 |
| Boron | ppm | ASTM D5185m | | 60 | 55 | 54 |
| Barium | ppm | ASTM D5185m | | <1 | 0 | 2 |
| Molybdenum | ppm | ASTM D5185m | | 65 | 68 | 71 |
| Manganese | ppm | ASTM D5185m | | <1 | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | | 1026 | 1068 | 1032 |
| Calcium | ppm | ASTM D5185m | | 960 | 984 | 1024 |
| Phosphorus | ppm | ASTM D5185m | | 1057 | 1039 | 1039 |
| Zinc | ppm | ASTM D5185m | | 1243 | 1280 | 1247 |
| Sulfur | ppm | ASTM D5185m | | 3148 | 3422 | 3615 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 13.3 | 14.1 | 15.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | 7.9 | 8.5 | 9.2 |
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 12.1 | 12.0 | 12.0 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0164423 **Received** : 26 Dec 2023
Lab Number : 06044370 **Tested** : 27 Dec 2023
Unique Number : 10804978 **Diagnosed** : 27 Dec 2023 - Wes Davis
Test Package : CONST (Additional Tests: TBN)

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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)