



|                 |                 |
|-----------------|-----------------|
| WEAR            | <b>NORMAL</b>   |
| CONTAMINATION   | <b>ABNORMAL</b> |
| FLUID CONDITION | <b>NORMAL</b>   |

Area

**[W45922]**

Machine Id

**JOHN DEERE 304L 1LU304LCHZB066095**

Component

**Diesel Engine**

Fluid

**JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- 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 |           | <b>JR0225706</b>   | ---      | ---      |
| Sample Date    |     | Client Info |           | <b>27 Jun 2024</b> | ---      | ---      |
| Machine Age    | hrs | Client Info |           | <b>555</b>         | ---      | ---      |
| Oil Age        | hrs | Client Info |           | <b>555</b>         | ---      | ---      |
| Filter Age     | hrs | Client Info |           | <b>555</b>         | ---      | ---      |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | ---      | ---      |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | ---      | ---      |
| Sample Status  |     |             |           | <b>ABNORMAL</b>    | ---      | ---      |

### WEAR

All component wear rates are normal.

|              |        |             |      |              |     |     |
|--------------|--------|-------------|------|--------------|-----|-----|
| Iron         | ppm    | ASTM D5185m | >51  | <b>35</b>    | --- | --- |
| Chromium     | ppm    | ASTM D5185m | >11  | <b>1</b>     | --- | --- |
| Nickel       | ppm    | ASTM D5185m | >5   | <b>0</b>     | --- | --- |
| Titanium     | ppm    | ASTM D5185m |      | <b>&lt;1</b> | --- | --- |
| Silver       | ppm    | ASTM D5185m | >3   | <b>0</b>     | --- | --- |
| Aluminum     | ppm    | ASTM D5185m | >31  | <b>5</b>     | --- | --- |
| Lead         | ppm    | ASTM D5185m | >26  | <b>0</b>     | --- | --- |
| Copper       | ppm    | ASTM D5185m | >26  | <b>9</b>     | --- | --- |
| Tin          | ppm    | ASTM D5185m | >4   | <b>0</b>     | --- | --- |
| Vanadium     | ppm    | ASTM D5185m |      | <b>&lt;1</b> | --- | --- |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | --- | --- |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | --- | --- |

### CONTAMINATION

Elemental level of silicon (Si) above normal indicating ingress of seal material.

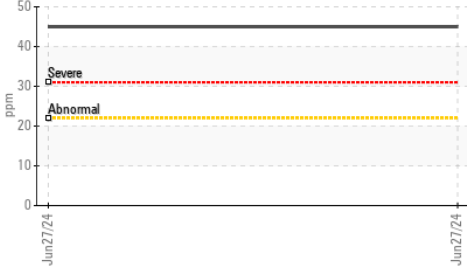
|                  |          |             |       |                |     |     |
|------------------|----------|-------------|-------|----------------|-----|-----|
| Silicon          | ppm      | ASTM D5185m | >22   | <b>▲ 45</b>    | --- | --- |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>3</b>       | --- | --- |
| Fuel             | %        | ASTM D3524  | >2.1  | <b>&lt;1.0</b> | --- | --- |
| Water            |          | WC Method   | >0.21 | <b>NEG</b>     | --- | --- |
| Glycol           |          | WC Method   |       | <b>NEG</b>     | --- | --- |
| Soot %           | %        | *ASTM D7844 | >3    | <b>0.3</b>     | --- | --- |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>10.9</b>    | --- | --- |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>20.9</b>    | --- | --- |
| Silt             | scalar   | *Visual     | NONE  | <b>NONE</b>    | --- | --- |
| Debris           | scalar   | *Visual     | NONE  | <b>NONE</b>    | --- | --- |
| Sand/Dirt        | scalar   | *Visual     | NONE  | <b>NONE</b>    | --- | --- |
| Appearance       | scalar   | *Visual     | NORML | <b>NORML</b>   | --- | --- |
| Odor             | scalar   | *Visual     | NORML | <b>NORML</b>   | --- | --- |
| Emulsified Water | scalar   | *Visual     | >0.21 | <b>NEG</b>     | --- | --- |

### FLUID CONDITION

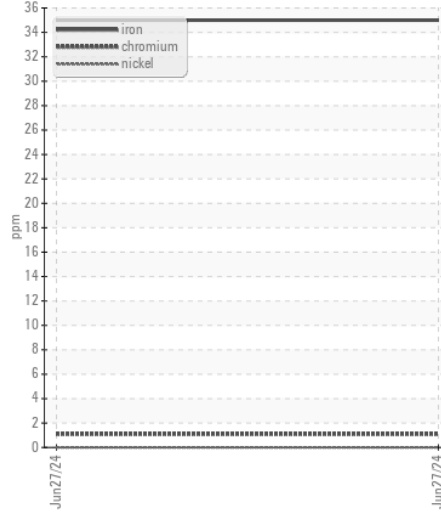
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

|                  |          |             |      |             |     |     |
|------------------|----------|-------------|------|-------------|-----|-----|
| Sodium           | ppm      | ASTM D5185m | >31  | <b>9</b>    | --- | --- |
| Boron            | ppm      | ASTM D5185m |      | <b>91</b>   | --- | --- |
| Barium           | ppm      | ASTM D5185m |      | <b>2</b>    | --- | --- |
| Molybdenum       | ppm      | ASTM D5185m |      | <b>27</b>   | --- | --- |
| Manganese        | ppm      | ASTM D5185m |      | <b>1</b>    | --- | --- |
| Magnesium        | ppm      | ASTM D5185m |      | <b>827</b>  | --- | --- |
| Calcium          | ppm      | ASTM D5185m |      | <b>1692</b> | --- | --- |
| Phosphorus       | ppm      | ASTM D5185m |      | <b>845</b>  | --- | --- |
| Zinc             | ppm      | ASTM D5185m |      | <b>1041</b> | --- | --- |
| Sulfur           | ppm      | ASTM D5185m |      | <b>4690</b> | --- | --- |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>20.1</b> | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 13.6 | <b>6.6</b>  | --- | --- |
| Visc @ 100°C     | cSt      | ASTM D445   | 15.4 | <b>12.8</b> | --- | --- |

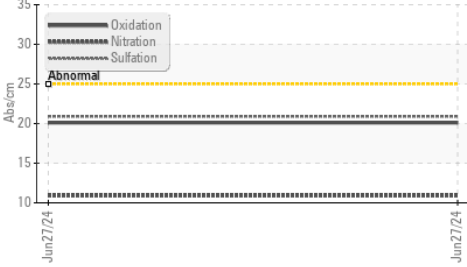
▲ Silicon (ppm)



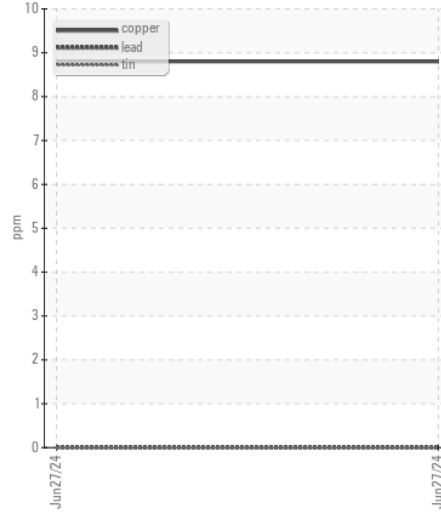
Ferrous Alloys



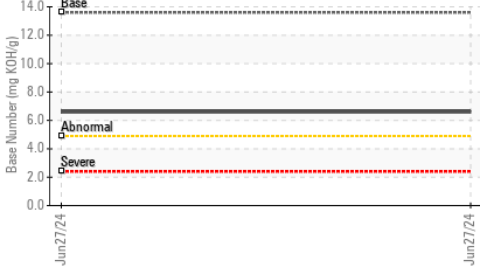
FT-IR (Direct Trend)



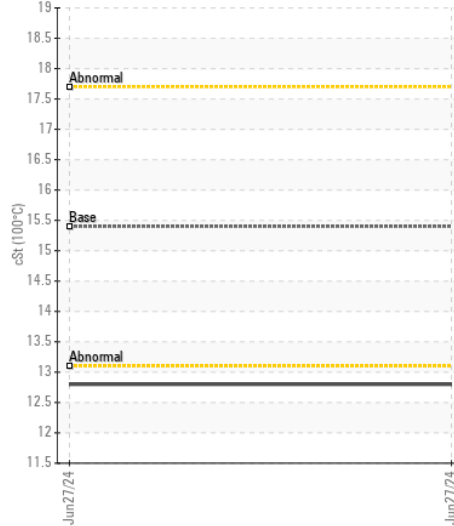
Non-ferrous Metals



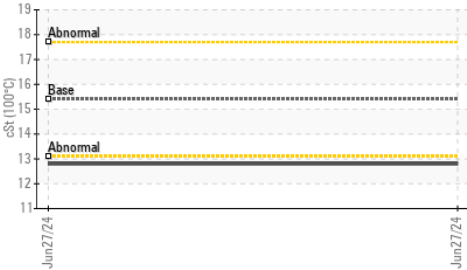
Base Number



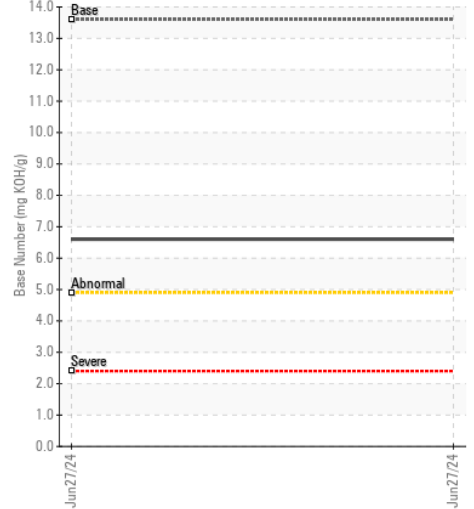
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : JR0225706

Lab Number : 06223316

Unique Number : 11101513

Test Package : CONST ( Additional Tests: FuelDilution, KV40, TBN )

Received : 28 Jun 2024

Tested : 01 Jul 2024

Diagnosed : 01 Jul 2024 - Don Baldrige

JRE - MANASSAS PARK

9107 OWENS DRIVE

MANASSAS PARK, VA

US 20111

Contact: DON VEST

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F: (703)631-4715

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)