



# OIL ANALYSIS REPORT

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

Machine Id  
**44759**  
Component  
**Diesel Engine**  
Fluid  
**MOBIL 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>WC0829905</b>   | WC0829615   | WC0829411   |
| Sample Date    |     | Client Info |           | <b>30 Jan 2024</b> | 31 Oct 2023 | 17 Aug 2023 |
| Machine Age    | mls | Client Info |           | <b>158793</b>      | 121321      | 117799      |
| Oil Age        | mls | Client Info |           | <b>0</b>           | 0           | 0           |
| Filter Age     | mls | Client Info |           | <b>0</b>           | 0           | 0           |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Sample Status  |     |             |           | <b>ABNORMAL</b>    | NORMAL      | NORMAL      |

## WEAR

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

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >100 | <b>29</b>    | 6    | 12   |
| Chromium     | ppm    | ASTM D5185m | >20  | <b>3</b>     | <1   | 1    |
| Nickel       | ppm    | ASTM D5185m | >4   | <b>2</b>     | <1   | <1   |
| Titanium     | ppm    | ASTM D5185m |      | <b>&lt;1</b> | <1   | 0    |
| Silver       | ppm    | ASTM D5185m | >3   | <b>0</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >20  | <b>▲ 32</b>  | 3    | 9    |
| Lead         | ppm    | ASTM D5185m | >40  | <b>1</b>     | <1   | <1   |
| Copper       | ppm    | ASTM D5185m | >330 | <b>5</b>     | 3    | 7    |
| Tin          | ppm    | ASTM D5185m | >15  | <b>&lt;1</b> | 0    | 0    |
| Vanadium     | ppm    | ASTM D5185m |      | <b>0</b>     | 0    | 0    |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |

## CONTAMINATION

There is no indication of any contamination in the oil.

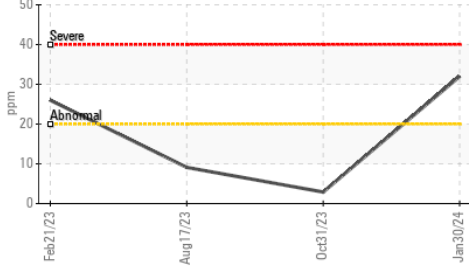
|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >25   | <b>13</b>      | 11    | 7     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>16</b>      | 4     | 8     |
| Fuel             |          | WC Method   | >5    | <b>&lt;1.0</b> | <1.0  | <1.0  |
| Water            |          | WC Method   | >0.2  | <b>NEG</b>     | NEG   | NEG   |
| Glycol           | %        | *ASTM D2982 |       | <b>NEG</b>     | NEG   | NEG   |
| Soot %           | %        | *ASTM D7844 | >3    | <b>0.4</b>     | 0.1   | 0.3   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>9.2</b>     | 5.2   | 8.0   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>22.2</b>    | 18.3  | 20.4  |
| Silt             | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Debris           | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Sand/Dirt        | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Appearance       | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | NORML |
| Odor             | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | NORML |
| Emulsified Water | scalar   | *Visual     | >0.2  | <b>NEG</b>     | NEG   | NEG   |

## FLUID CONDITION

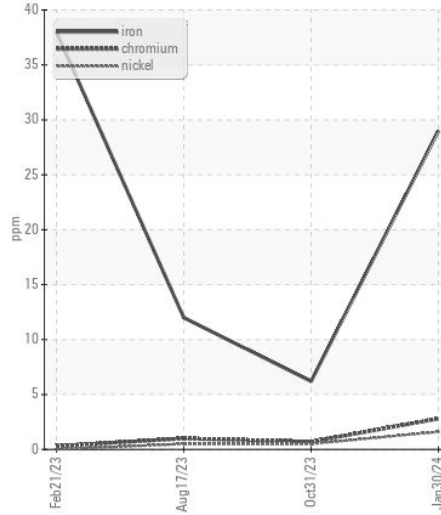
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

|                  |          |             |      |             |      |      |
|------------------|----------|-------------|------|-------------|------|------|
| Sodium           | ppm      | ASTM D5185m | >118 | <b>0</b>    | <1   | <1   |
| Boron            | ppm      | ASTM D5185m |      | <b>3</b>    | 4    | 2    |
| Barium           | ppm      | ASTM D5185m |      | <b>13</b>   | 5    | 2    |
| Molybdenum       | ppm      | ASTM D5185m |      | <b>72</b>   | 57   | 67   |
| Manganese        | ppm      | ASTM D5185m |      | <b>1</b>    | <1   | <1   |
| Magnesium        | ppm      | ASTM D5185m |      | <b>1029</b> | 869  | 1002 |
| Calcium          | ppm      | ASTM D5185m |      | <b>1118</b> | 986  | 1181 |
| Phosphorus       | ppm      | ASTM D5185m |      | <b>1009</b> | 1025 | 1034 |
| Zinc             | ppm      | ASTM D5185m |      | <b>1300</b> | 1120 | 1248 |
| Sulfur           | ppm      | ASTM D5185m |      | <b>3255</b> | 3389 | 3053 |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>18.4</b> | 13.7 | 16.5 |
| Base Number (BN) | mg KOH/g | ASTM D2896  |      | <b>7.1</b>  | 9.9  | 8.5  |
| Visc @ 100°C     | cSt      | ASTM D445   |      | <b>13.4</b> | 13.1 | 13.7 |

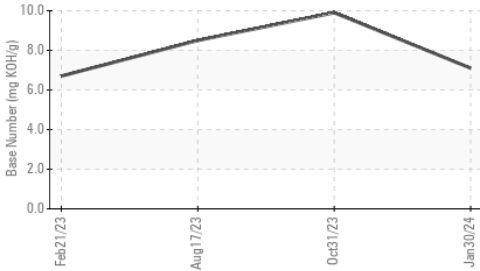
▲ Aluminum (ppm)



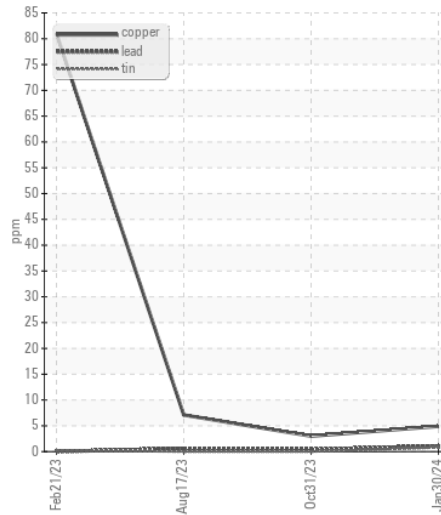
Ferrous Alloys



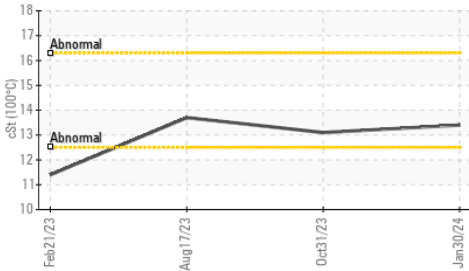
Base Number



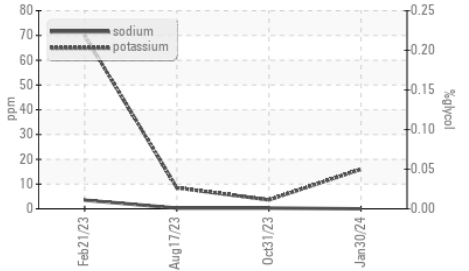
Non-ferrous Metals



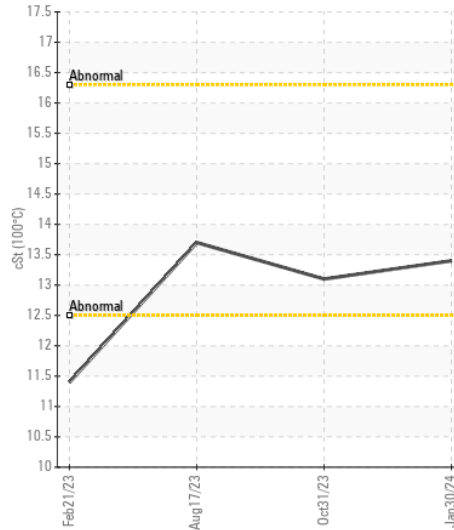
Viscosity @ 100°C



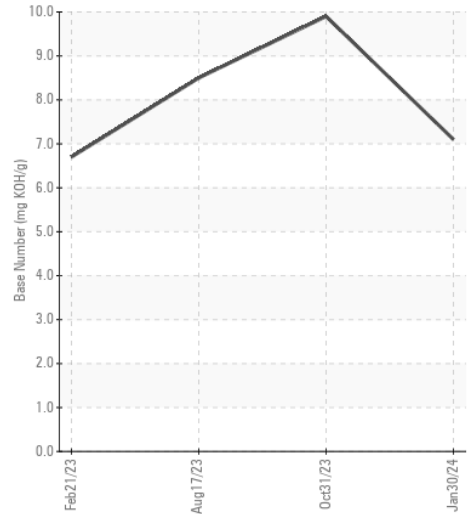
Glycol Contamination



Viscosity @ 100°C



Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0829905 **Received** : 12 Feb 2024  
**Lab Number** : 06086585 **Tested** : 13 Feb 2024  
**Unique Number** : 10874030 **Diagnosed** : 13 Feb 2024 - Don Baldrige  
**Test Package** : FLEET ( Additional Tests: Glycol )

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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)