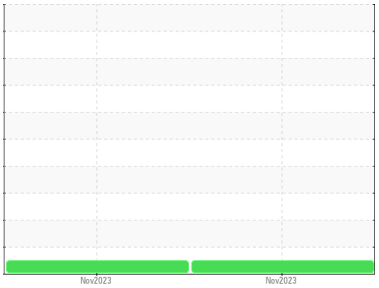
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
## CATERPILLAR 980M 6141 (S/N KRS00885)
Component
**Diesel Engine**
Fluid
**NOT GIVEN (--- GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

**Wear**
All 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.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **TO10002868** | TO10002809 | --- |
| Sample Date | | Client Info | | **13 Nov 2023** | 02 Nov 2023 | --- |
| Machine Age | hrs | Client Info | | **12419** | 12384 | --- |
| Oil Age | hrs | Client Info | | **35** | 529 | --- |
| Oil Changed | | Client Info | | **Not Changd** | Changed | --- |
| Sample Status | | | | **NORMAL** | NORMAL | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | --- |
| Water | | WC Method | >0.2 | **NEG** | NEG | --- |
| Glycol | | WC Method | | **NEG** | NEG | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **<1** | 18 | --- |
| Chromium | ppm | ASTM D5185m | >20 | **0** | 0 | --- |
| Nickel | ppm | ASTM D5185m | >2 | **0** | 0 | --- |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | --- |
| Silver | ppm | ASTM D5185m | >2 | **<1** | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >25 | **<1** | <1 | --- |
| Lead | ppm | ASTM D5185m | >40 | **0** | 2 | --- |
| Copper | ppm | ASTM D5185m | >330 | **<1** | 4 | --- |
| Tin | ppm | ASTM D5185m | >15 | **0** | 0 | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **3** | 2 | --- |
| Barium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | | **57** | 61 | --- |
| Manganese | ppm | ASTM D5185m | | **<1** | 0 | --- |
| Magnesium | ppm | ASTM D5185m | | **944** | 1033 | --- |
| Calcium | ppm | ASTM D5185m | | **1007** | 1131 | --- |
| Phosphorus | ppm | ASTM D5185m | | **1051** | 1126 | --- |
| Zinc | ppm | ASTM D5185m | | **1248** | 1402 | --- |
| Sulfur | ppm | ASTM D5185m | | **3189** | 3383 | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **2** | 3 | --- |
| Sodium | ppm | ASTM D5185m | | **<1** | 5 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | 2 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | 0.5 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **5.5** | 11.2 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **18.2** | 23.0 | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **14.2** | 21.2 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **8.71** | 8.67 | --- |

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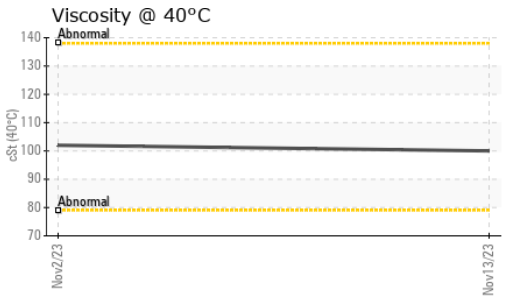
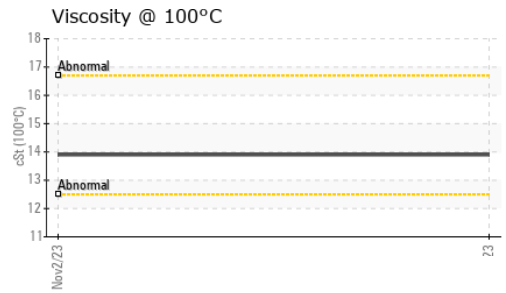
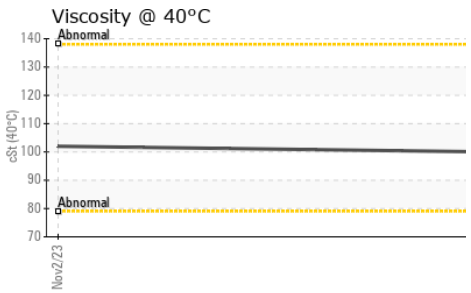


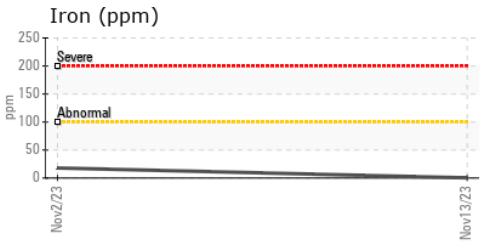



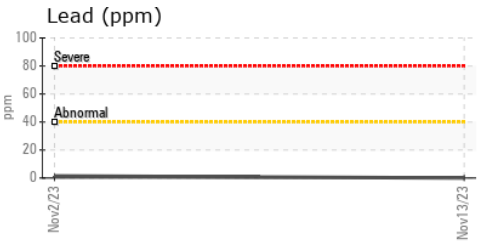



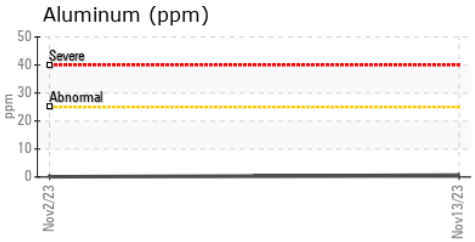

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | NEG | --- |
| Free Water | scalar | *Visual | | **NEG** | NEG | --- |

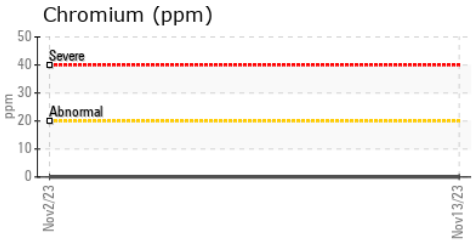
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | | **100** | 102 | --- |
| Visc @ 100°C | cSt | ASTM D445 | | **13.9** | 13.9 | --- |
| Viscosity Index (VI) | Scale | ASTM D2270 | | **140** | 137 | --- |

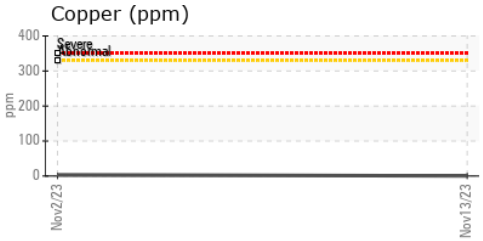
## GRAPHS

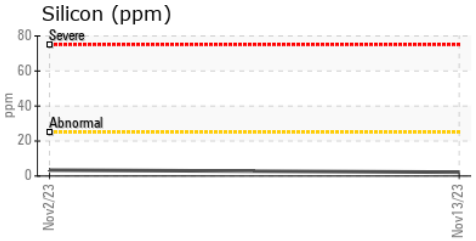


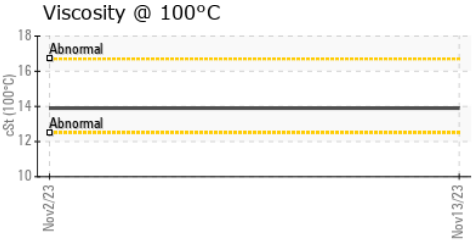



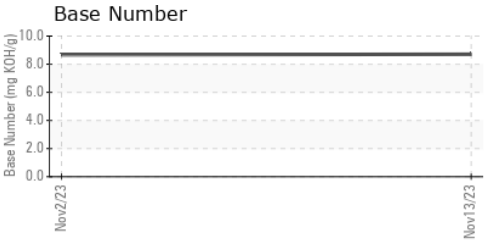




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : TO10002868 **Received** : 17 Nov 2023
**Lab Number** : 06011636 **Diagnosed** : 20 Nov 2023
**Unique Number** : 10750780 **Diagnostician** : Wes Davis
**Test Package** : MOB 2 ( Additional Tests: KV40, VI )

*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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