



OIL ANALYSIS REPORT

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



Area
DE Samples - CAT LAB
Machine Id
CATERPILLAR 980K LOADER 6775 (S/N W7K01443)
Component
Diesel Engine
Fluid
TULCO LUBSOIL DIESEL TURBO CJ4 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | TO10003075 | TO10002814 | TO10002800 |
| Sample Date | | Client Info | | 08 Jan 2024 | 04 Dec 2023 | 02 Nov 2023 |
| Machine Age | hrs | Client Info | | 27690 | 27433 | 27194 |
| Oil Age | hrs | Client Info | | 257 | 571 | 332 |
| Filter Age | hrs | Client Info | | 257 | 571 | 332 |
| Oil Changed | | Client Info | | Not Chngd | Changed | Not Chngd |
| Filter Changed | | Client Info | | Not Chngd | Changed | Not Chngd |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|-------------|------|------|
| Iron | ppm | ASTM D5185m | >100 | 1 | 11 | 4 |
| Chromium | ppm | ASTM D5185m | >20 | 0 | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | 0 | <1 | 0 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | 1 | <1 | 0 |
| Lead | ppm | ASTM D5185m | >40 | 0 | <1 | 0 |
| Copper | ppm | ASTM D5185m | >330 | 2 | 6 | 2 |
| Tin | ppm | ASTM D5185m | >15 | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | <1 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

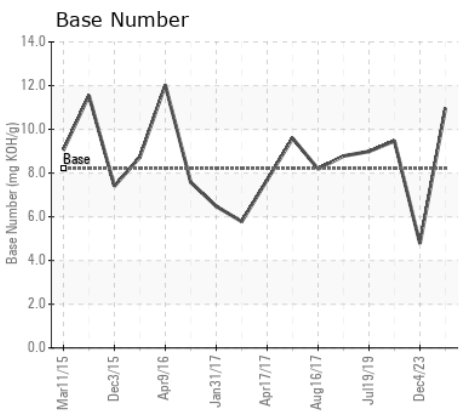
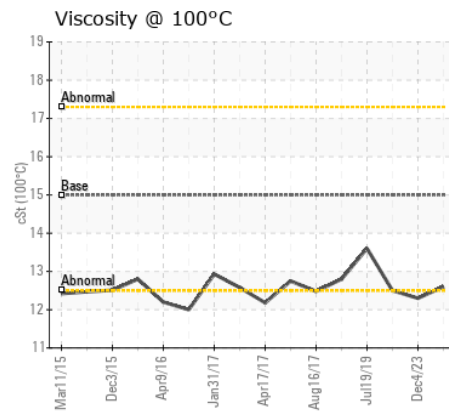
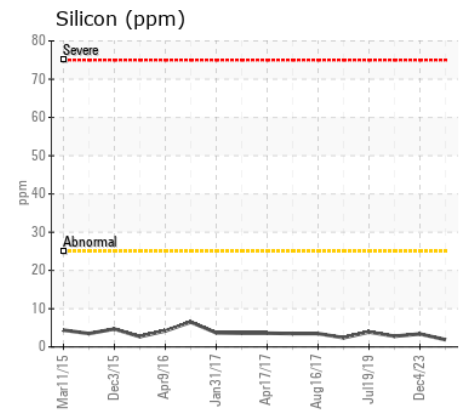
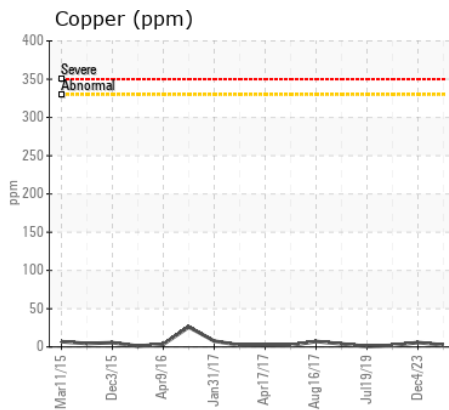
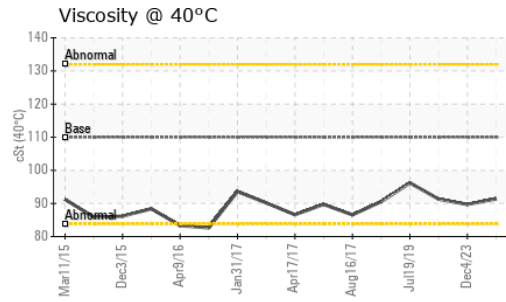
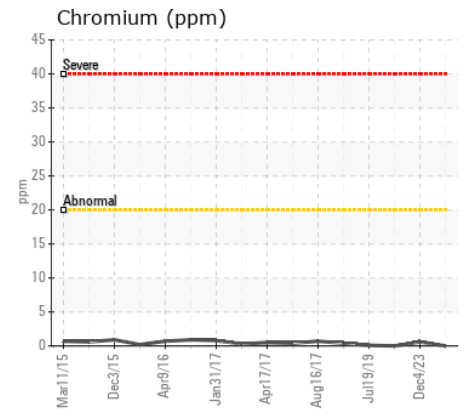
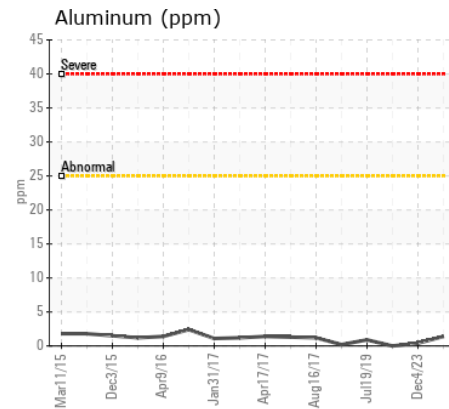
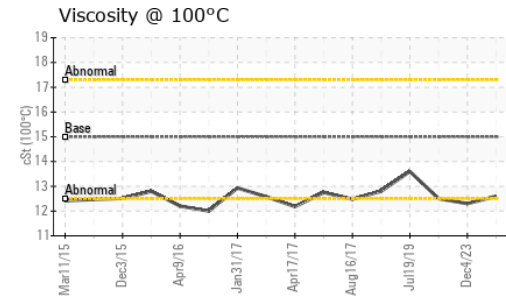
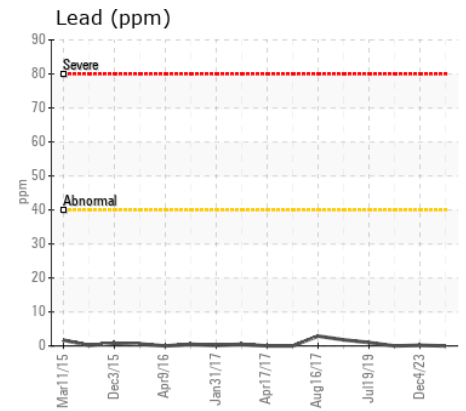
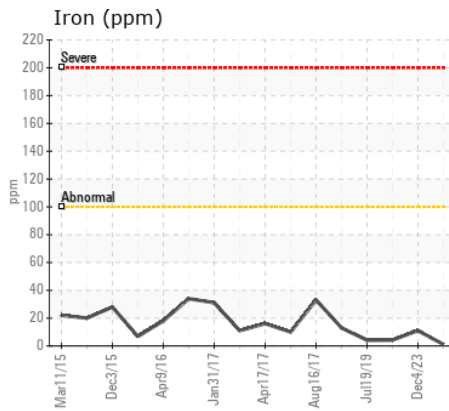
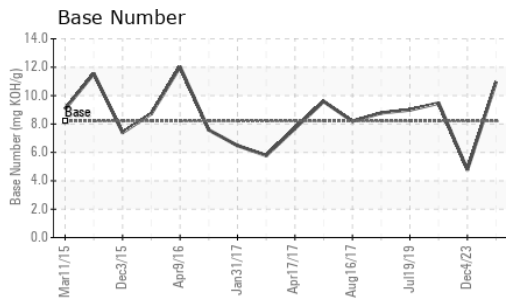
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 2 | 3 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | 0 | 0 | <1 |
| Fuel | | WC Method | >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 | 0.2 | 0.5 | 0.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 7.5 | 9.7 | 7.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 19.4 | 20.9 | 19.4 |
| 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 |

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 | | <1 | 4 | 4 |
| Boron | ppm | ASTM D5185m | 1 | <1 | 7 | 8 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 40 | 56 | 53 | 55 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | 935 | 864 | 862 | 878 |
| Calcium | ppm | ASTM D5185m | 1234 | 1114 | 1255 | 1215 |
| Phosphorus | ppm | ASTM D5185m | 1089 | 1028 | 921 | 1043 |
| Zinc | ppm | ASTM D5185m | 1090 | 1237 | 1256 | 1311 |
| Sulfur | ppm | ASTM D5185m | 3700 | 3208 | 3423 | 3381 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 15.0 | 16.8 | 14.5 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.21 | 10.97 | 4.78 | 9.47 |
| Visc @ 40°C | cSt | ASTM D445 | 110 | 91.4 | 89.7 | 91.3 |
| Visc @ 100°C | cSt | ASTM D445 | 15 | 12.6 | 12.3 | 12.5 |
| Viscosity Index (VI) | Scale | ASTM D2270 | 143 | 133 | 131 | 132 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10003075 **Received** : 16 Jan 2024
Lab Number : 06061375 **Diagnosed** : 17 Jan 2024
Unique Number : 10832757 **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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