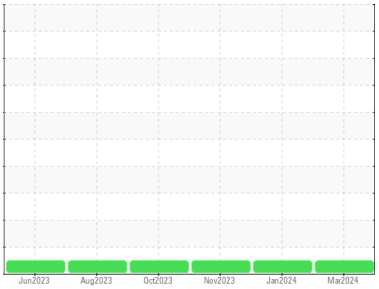
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
## CATERPILLAR 320 118
Component
**Diesel Engine**
Fluid
**PETRO CANADA 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor.

**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 | | **WC0893827** | WC0878761 | WC0868060 |
| Sample Date | | Client Info | | **07 Mar 2024** | 18 Jan 2024 | 29 Nov 2023 |
| Machine Age | hrs | Client Info | | **4662** | 4391 | 4149 |
| Oil Age | hrs | Client Info | | **271** | 242 | 240 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

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

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **22** | 18 | 14 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **3** | 2 | 5 |
| Lead | ppm | ASTM D5185m | >40 | **<1** | <1 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **2** | 2 | 2 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | <1 | 0 |

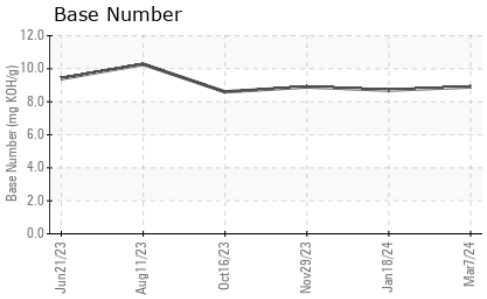
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **1** | 2 | 3 |
| Barium | ppm | ASTM D5185m | | **2** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **66** | 62 | 61 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **967** | 999 | 980 |
| Calcium | ppm | ASTM D5185m | | **1135** | 981 | 1056 |
| Phosphorus | ppm | ASTM D5185m | | **912** | 906 | 1095 |
| Zinc | ppm | ASTM D5185m | | **1224** | 1253 | 1326 |
| Sulfur | ppm | ASTM D5185m | | **3063** | 2923 | 3240 |

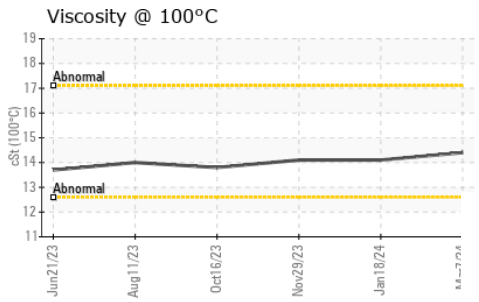
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **4** | 4 | 3 |
| Sodium | ppm | ASTM D5185m | | **5** | 1 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **3** | 2 | 1 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.3** | 0.2 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.4** | 6.0 | 5.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **18.0** | 17.9 | 18.0 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **13.9** | 13.6 | 13.7 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **8.9** | 8.7 | 8.9 |

# OIL ANALYSIS REPORT

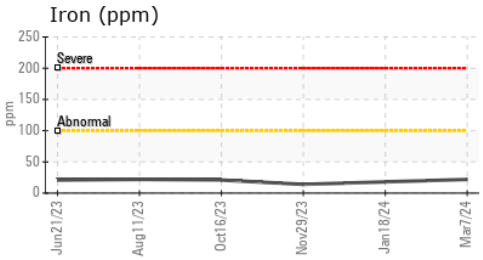


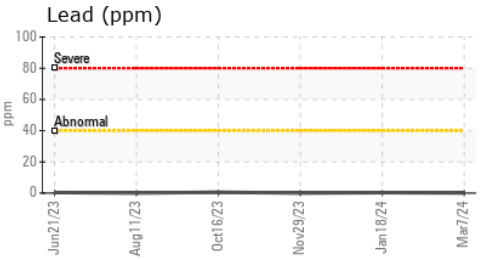



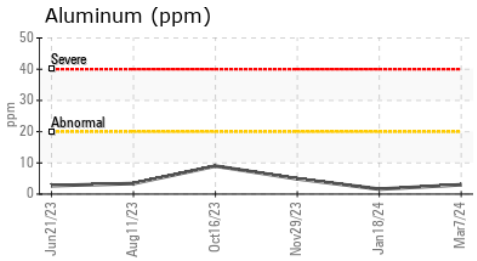

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

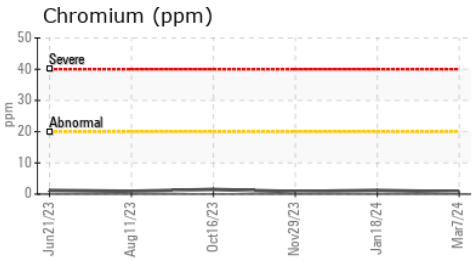
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **14.4** | 14.1 | 14.1 |

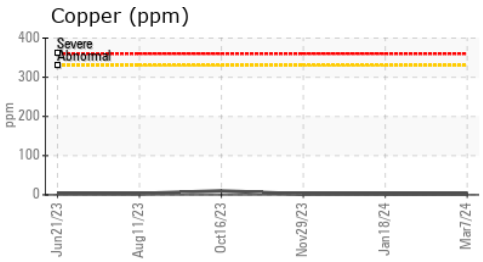
## GRAPHS

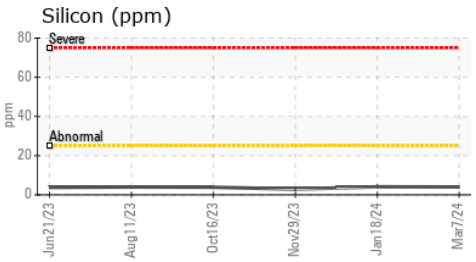


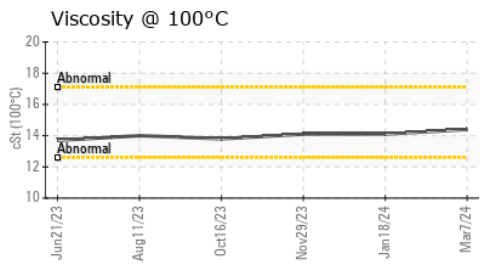



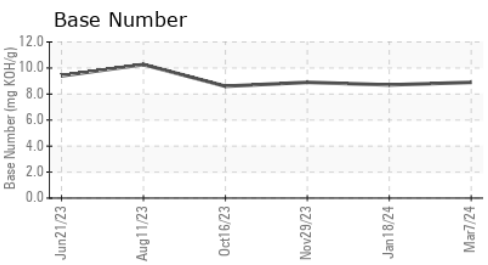




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0893827 **Received** : 21 Mar 2024
**Lab Number** : 06125413 **Tested** : 22 Mar 2024
**Unique Number** : 10939564 **Diagnosed** : 22 Mar 2024 - Wes Davis
**Test Package** : MOB 1 ( Additional Tests: TBN )

*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)*

**C.L. BENTON & SONS INC**
706 38TH AVE N
MYRTLE BEACH, SC
US 29577
Contact: NEIL
neil@clbenton.com
T:
F: