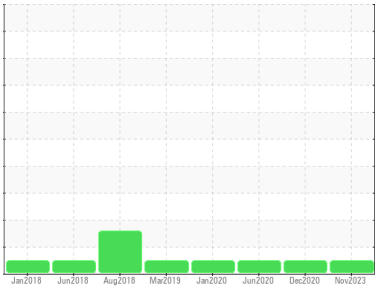
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




**NORMAL**

Machine Id
## KOMATSU WA500 3LK WA500 (S/N A72093)
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON HP 15W40 (8 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 | | **PCA0109611** | PCA0023176 | PCA0023078 |
| Sample Date | | Client Info | | **01 Nov 2023** | 21 Dec 2020 | 01 Jun 2020 |
| Machine Age | hrs | Client Info | | **23033** | 21907 | 21707 |
| Oil Age | hrs | Client Info | | **553** | 200 | 250 |
| 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 | **6** | 4 | 6 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **0** | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | **0** | 1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **<1** | 1 | 1 |
| Lead | ppm | ASTM D5185m | >40 | **7** | 3 | 3 |
| Copper | ppm | ASTM D5185m | >330 | **0** | 1 | 1 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | 0 |
| Antimony | ppm | ASTM D5185m | | **---** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | <1 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **18** | 10 | 5 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **70** | 59 | 57 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **972** | 969 | 1041 |
| Calcium | ppm | ASTM D5185m | | **1161** | 1121 | 1096 |
| Phosphorus | ppm | ASTM D5185m | | **1132** | 1069 | 1045 |
| Zinc | ppm | ASTM D5185m | | **1348** | 1275 | 1168 |
| Sulfur | ppm | ASTM D5185m | | **3547** | 2697 | 2614 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **3** | 5 | 5 |
| Sodium | ppm | ASTM D5185m | | **2** | 4 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 0 | <1 |

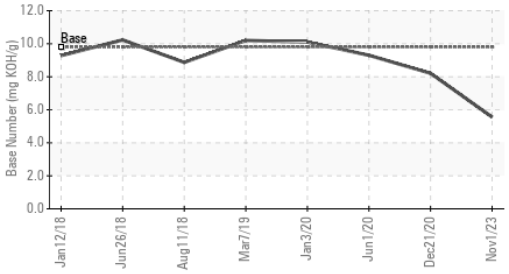
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.8** | 0.2 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.3** | 8.3 | 8.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **21.9** | 20.5 | 21.3 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **18.0** | 16.6 | 17.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **5.56** | 8.21 | 9.3 |

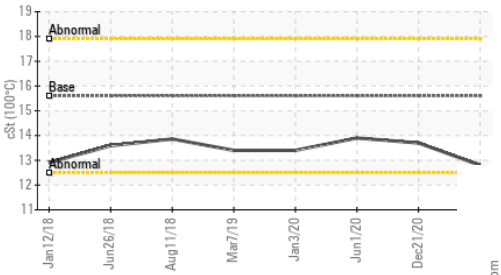
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Base Number




Viscosity @ 100°C

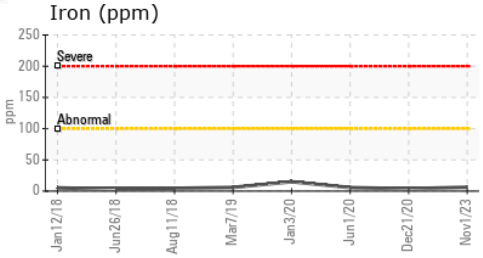



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

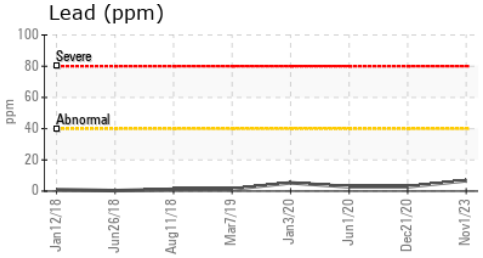
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.6 | **12.8** | 13.7 | 13.9 |

## GRAPHS

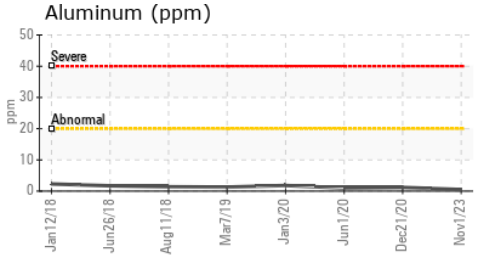
Iron (ppm)



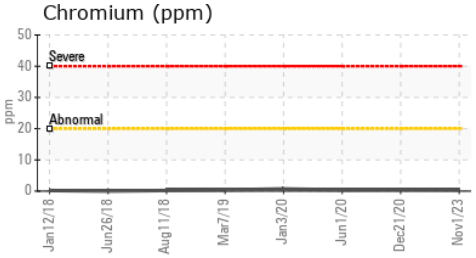

Lead (ppm)



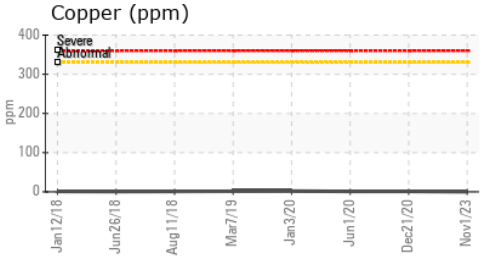

Aluminum (ppm)



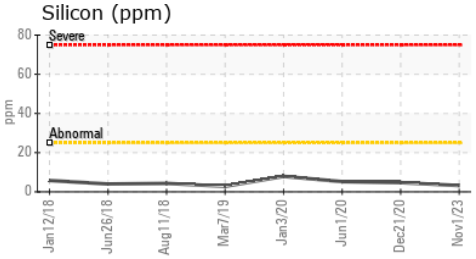

Chromium (ppm)



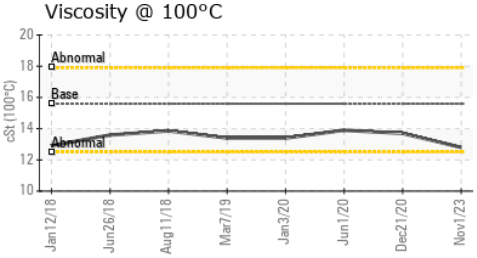

Copper (ppm)



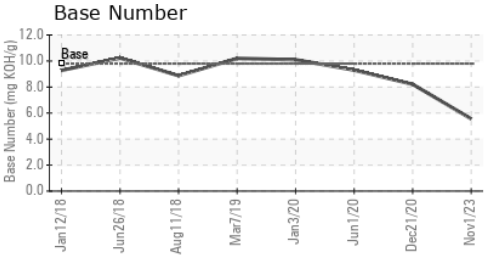

Silicon (ppm)




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0109611
**Lab Number** : 06031801
**Unique Number** : 10781592
**Test Package** : MOB 2

**Received** : 11 Dec 2023
**Diagnosed** : 13 Dec 2023
**Diagnostician** : Wes Davis

*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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