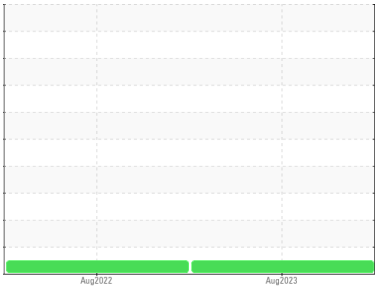
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**BT6**
Component
**Diesel Engine**
Fluid
**SHELL ROTELLA T 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

**Wear**
All component wear rates are normal.

**Contamination**
Test for glycol is negative. 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 | | **WC0751181** | WC0623131 | --- |
| Sample Date | | Client Info | | **15 Aug 2023** | 24 Aug 2022 | --- |
| Machine Age | mls | Client Info | | **94703** | 94346 | --- |
| Oil Age | mls | Client Info | | **350** | 0 | --- |
| Oil Changed | | Client Info | | **Changed** | Changed | --- |
| Sample Status | | | | **NORMAL** | NORMAL | --- |

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

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **6** | 14 | --- |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | --- |
| Nickel | ppm | ASTM D5185m | >4 | **0** | <1 | --- |
| Titanium | ppm | ASTM D5185m | | **<1** | 2 | --- |
| Silver | ppm | ASTM D5185m | >3 | **0** | <1 | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **<1** | 4 | --- |
| Lead | ppm | ASTM D5185m | >40 | **1** | <1 | --- |
| Copper | ppm | ASTM D5185m | >330 | **<1** | 2 | --- |
| Tin | ppm | ASTM D5185m | >15 | **0** | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | <1 | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 316 | **183** | 94 | --- |
| Barium | ppm | ASTM D5185m | 0.0 | **0** | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | 1.2 | **15** | 88 | --- |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | --- |
| Magnesium | ppm | ASTM D5185m | 24 | **41** | 91 | --- |
| Calcium | ppm | ASTM D5185m | 2292 | **2128** | 2061 | --- |
| Phosphorus | ppm | ASTM D5185m | 1064 | **969** | 1023 | --- |
| Zinc | ppm | ASTM D5185m | 1160 | **1199** | 1205 | --- |
| Sulfur | ppm | ASTM D5185m | 4996 | **4173** | 3770 | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **3** | 6 | --- |
| Sodium | ppm | ASTM D5185m | | **37** | 6 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **47** | 8 | --- |
| Glycol | % | *ASTM D2982 | | **NEG** | NEG | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | 0.2 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **5.9** | 7.9 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **19.4** | 18.7 | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **15.5** | 13.5 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.1 | **10.73** | 7.59 | --- |

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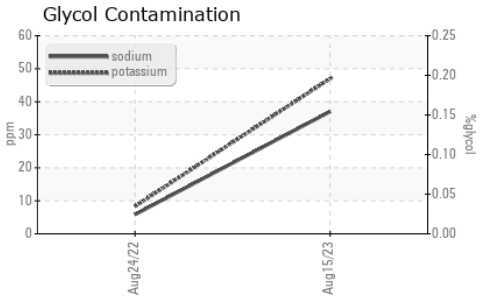
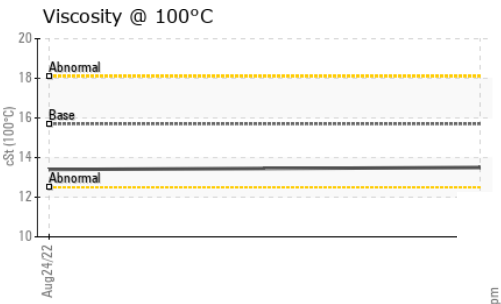
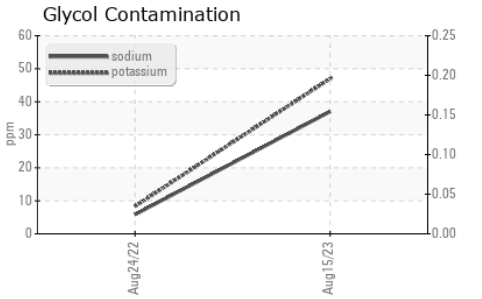


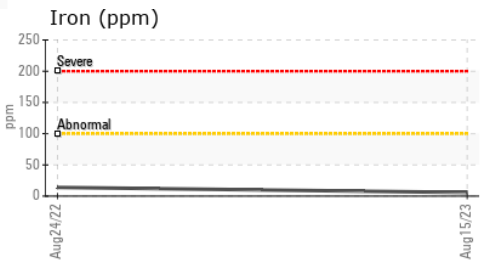



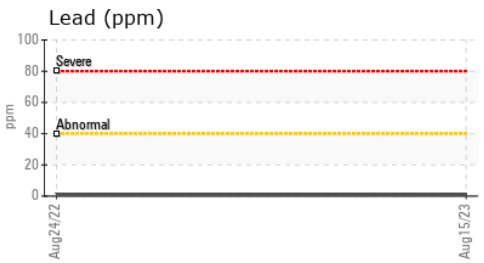



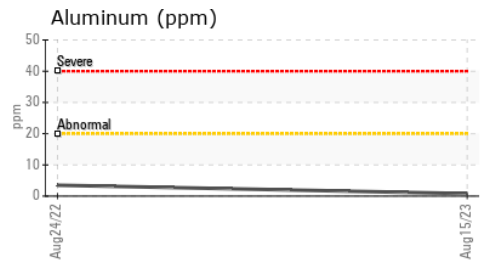

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt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

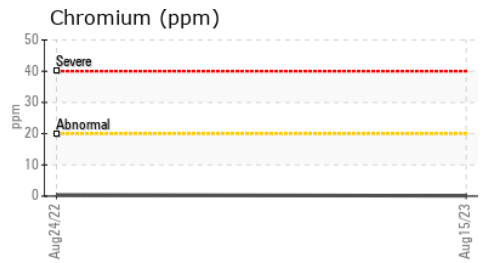
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.7 | **13.5** | 13.4 | --- |

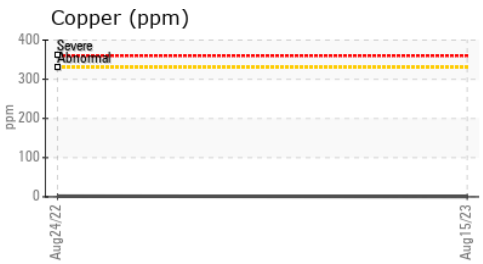
## GRAPHS

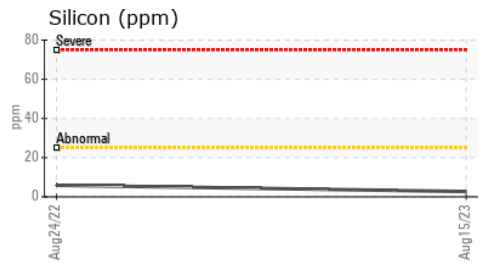


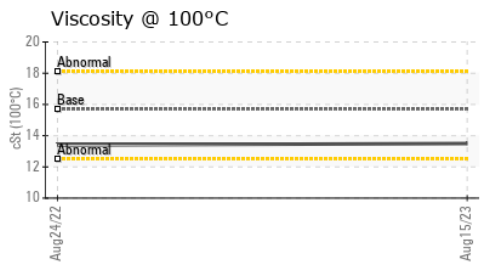



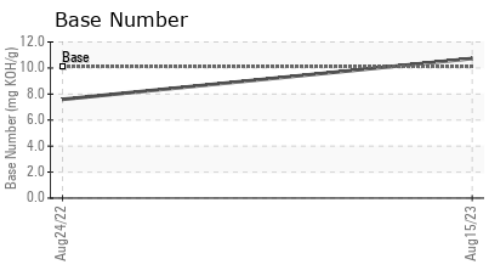




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0751181 **Received** : 17 Aug 2023
**Lab Number** : 05927925 **Diagnosed** : 18 Aug 2023
**Unique Number** : 10607872 **Diagnostician** : Doug Bogart
**Test Package** : MOB 2 ( Additional Tests: Glycol )

*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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