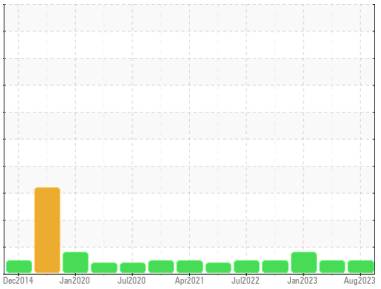
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
## BT-FOR-A3 (S/N TANK FT3 AGITATOR)
Component
**Gearbox**
Fluid
**SHELL OMALA S2 GX 220 (--- GAL)**

## DIAGNOSIS

**Recommendation**
No action required at this time. Resample at next normal interval.

**Wear**
Wear particles are low and acceptable.

**Contamination**
Contamination is on par with new unfiltered oil. Filtration can help to extend machine life.

**Fluid Condition**
Fluid health indicators are acceptable for continued use.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PLS0000564** | PLS0000703 | PLS0000484 |
| Sample Date | | Client Info | | **09 Aug 2023** | 01 May 2023 | 26 Jan 2023 |
| Machine Age | mths | Client Info | | **0** | 0 | 0 |
| Oil Age | mths | Client Info | | **0** | 3 | 3 |
| Oil Changed | | Client Info | | **N/A** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| PQ | | ASTM D8184 | | **11** | 15 | 10 |
| Iron | ppm | ASTM D5185m | >200 | **50** | 46 | 36 |
| Chromium | ppm | ASTM D5185m | >15 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >15 | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **0** | <1 | 0 |
| Lead | ppm | ASTM D5185m | >100 | **<1** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >200 | **<1** | 0 | 0 |
| Tin | ppm | ASTM D5185m | >25 | **0** | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 6.2 | **1** | <1 | 0 |
| Barium | ppm | ASTM D5185m | 0.0 | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 0 | **2** | 0 | 2 |
| Calcium | ppm | ASTM D5185m | 0.0 | **3** | <1 | 4 |
| Phosphorus | ppm | ASTM D5185m | 290 | **279** | 319 | 285 |
| Zinc | ppm | ASTM D5185m | 3.8 | **18** | 0 | 11 |
| Sulfur | ppm | ASTM D5185m | 8167 | **10595** | 13561 | 9332 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | **1** | <1 | <1 |
| Sodium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0** | 0 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | | **2.9** | 3.3 | 3.2 |
| Sulfation | Abs/.1mm | *ASTM D7415 | | **12.1** | 12.6 | 12.4 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >20000 | **8042** | 8489 | ▲ 32764 |
| Particles >6µm | | ASTM D7647 | >5000 | **757** | 1039 | 4344 |
| Particles >14µm | | ASTM D7647 | >640 | **25** | 17 | 212 |
| Particles >21µm | | ASTM D7647 | >160 | **7** | 3 | 48 |
| Particles >38µm | | ASTM D7647 | >40 | **1** | 0 | 4 |
| Particles >71µm | | ASTM D7647 | >10 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | **20/17/12** | 20/17/11 | ▲ 22/19/15 |

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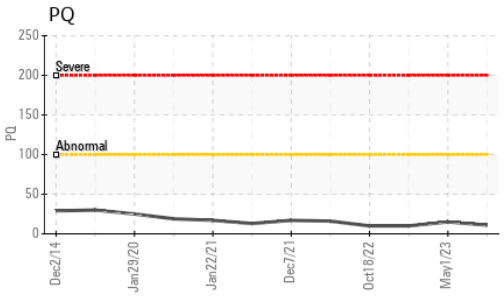
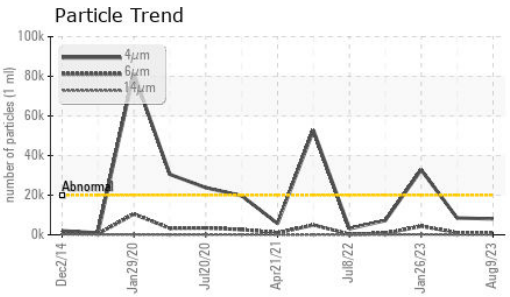
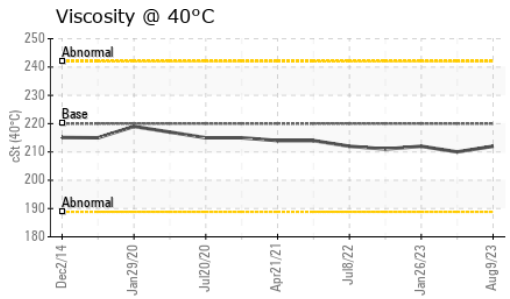
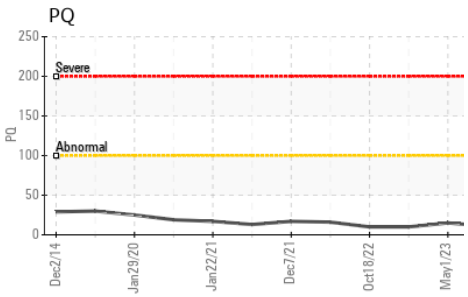
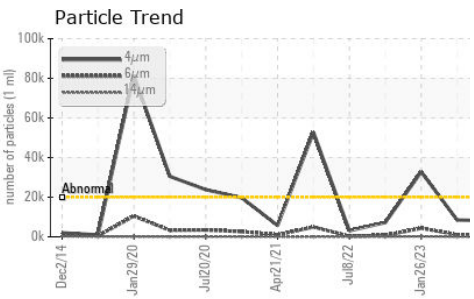


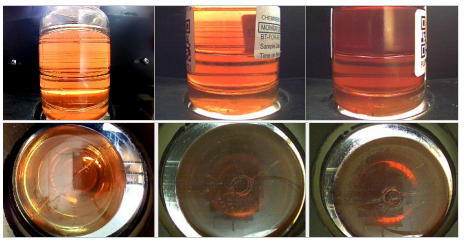




| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | | **3.0** | 3.1 | 3.0 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.60** | 0.60 | 0.63 |

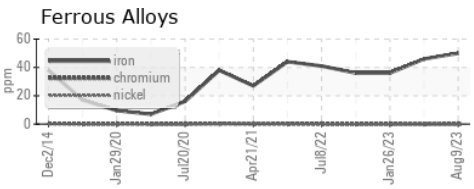
| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | LIGHT |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

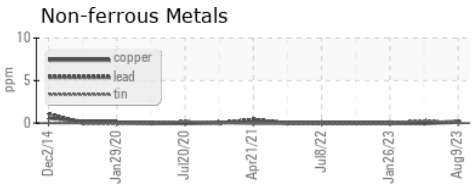
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 220 | **212** | 210 | 212 |

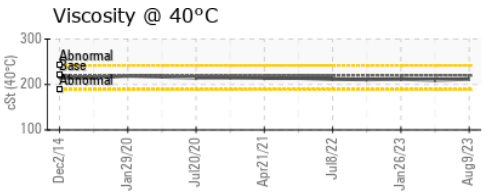
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | | | |
| Bottom | | | | | |

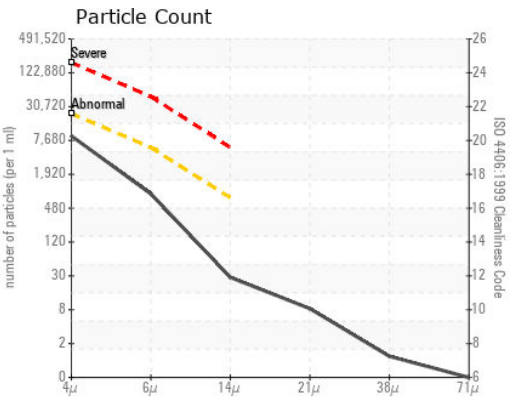


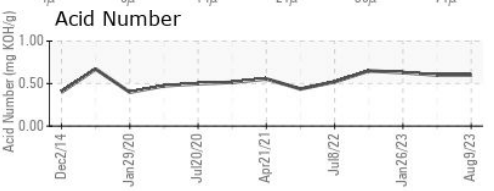
## GRAPHS




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PLS0000564 **Received** : 16 Aug 2023
**Lab Number** : 05925998 **Diagnosed** : 23 Aug 2023
**Unique Number** : 10605945 **Diagnostician** : Mike Johnson
**Test Package** : PLANT ( Additional Tests: FT-IR, PrtCount )

*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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