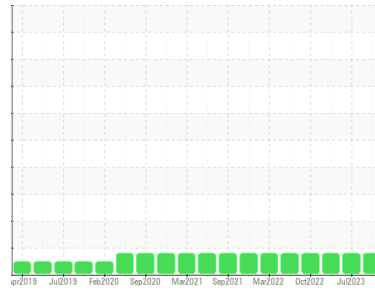




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
TUMBLER 93
 Component
Hydraulic System
 Fluid
AW HYDRAULIC OIL ISO 46 (--- GAL)

DIAGNOSIS

▲ Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

▲ Wear

The copper level is abnormal. All other component wear rates are normal.

Contamination

The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

| SAMPLE INFORMATION | method | limit/base | current | history1 | history2 |
|--------------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | | PTK0002496 | PTK0004452 | PTK0003876 |
| Sample Date | Client Info | | 23 May 2024 | 17 Jul 2023 | 03 Mar 2023 |
| Machine Age | mths | Client Info | 0 | 0 | 0 |
| Oil Age | mths | Client Info | 0 | 0 | 0 |
| Oil Changed | Client Info | | N/A | Not Changd | Not Changd |
| Sample Status | | | ABNORMAL | ABNORMAL | ABNORMAL |

| CONTAMINATION | method | limit/base | current | history1 | history2 |
|---------------|-----------|------------|------------|----------|----------|
| Water | WC Method | >0.1 | NEG | NEG | NEG |

| WEAR METALS | method | limit/base | current | history1 | history2 |
|-------------|--------|-----------------|-------------|----------|----------|
| Iron | ppm | ASTM D5185m >20 | 0 | 3 | 2 |
| Chromium | ppm | ASTM D5185m >10 | 0 | <1 | <1 |
| Nickel | ppm | ASTM D5185m >10 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m >10 | 0 | <1 | <1 |
| Lead | ppm | ASTM D5185m >10 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m >75 | ▲ 85 | ▲ 79 | ▲ 76 |
| Tin | ppm | ASTM D5185m >10 | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | 0 | 0 | 0 |

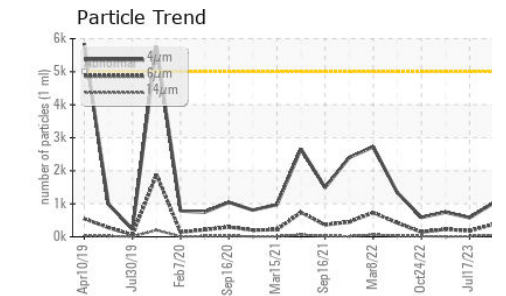
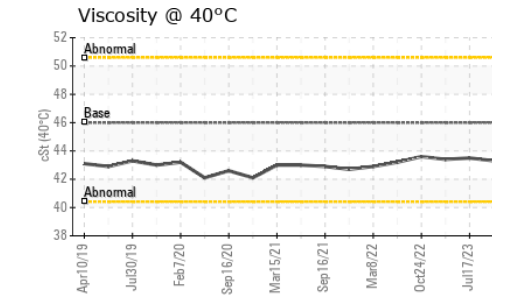
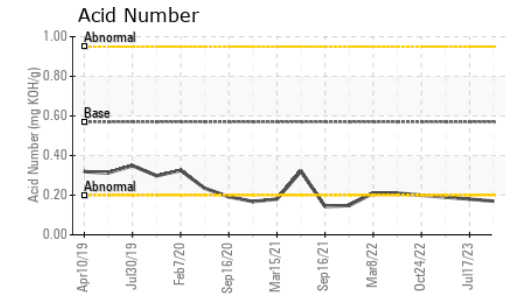
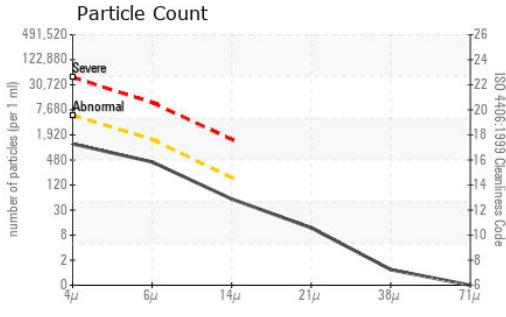
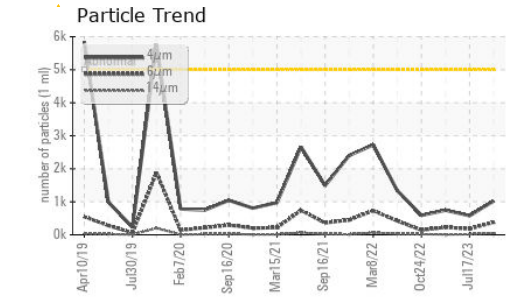
| ADDITIVES | method | limit/base | current | history1 | history2 |
|------------|--------|------------------|-------------|----------|----------|
| Boron | ppm | ASTM D5185m 5 | 0 | 0 | 0 |
| Barium | ppm | ASTM D5185m 5 | 0 | 2 | 2 |
| Molybdenum | ppm | ASTM D5185m 5 | 12 | 11 | 11 |
| Manganese | ppm | ASTM D5185m | 0 | 0 | 0 |
| Magnesium | ppm | ASTM D5185m 25 | 1 | 5 | 6 |
| Calcium | ppm | ASTM D5185m 200 | 57 | 57 | 57 |
| Phosphorus | ppm | ASTM D5185m 300 | 261 | 259 | 247 |
| Zinc | ppm | ASTM D5185m 370 | 241 | 260 | 256 |
| Sulfur | ppm | ASTM D5185m 2500 | 1721 | 1642 | 1426 |

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

| FLUID CLEANLINESS | method | limit/base | current | history1 | history2 |
|-------------------|--------------|------------|-----------------|----------|----------|
| Particles >4µm | ASTM D7647 | >5000 | 1024 | 578 | 746 |
| Particles >6µm | ASTM D7647 | >1300 | 378 | 179 | 229 |
| Particles >14µm | ASTM D7647 | >160 | 49 | 17 | 11 |
| Particles >21µm | ASTM D7647 | >40 | 10 | 5 | 2 |
| Particles >38µm | ASTM D7647 | >10 | 1 | 0 | 0 |
| Particles >71µm | ASTM D7647 | >3 | 0 | 0 | 0 |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14 | 17/16/13 | 16/15/11 | 17/15/11 |

| FLUID DEGRADATION | method | limit/base | current | history1 | history2 |
|-------------------|----------|-----------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 0.57 | 0.17 | 0.18 | 0.19 |

OIL ANALYSIS REPORT



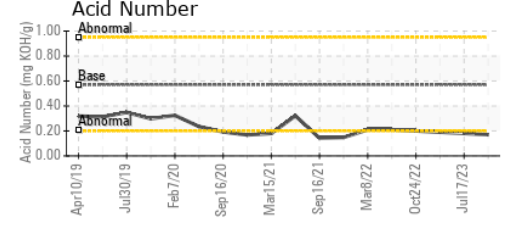
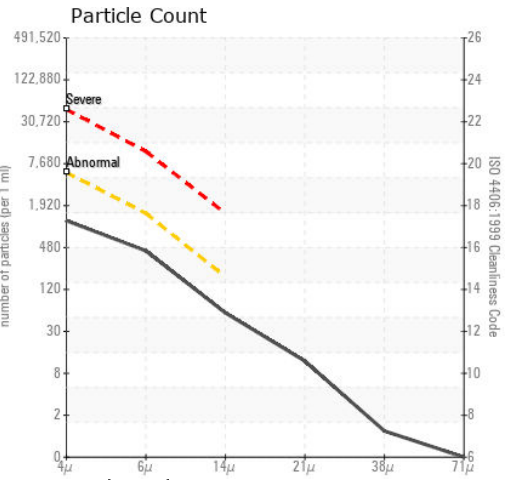
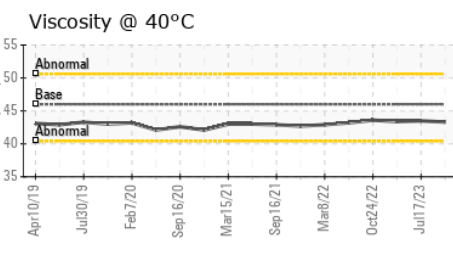
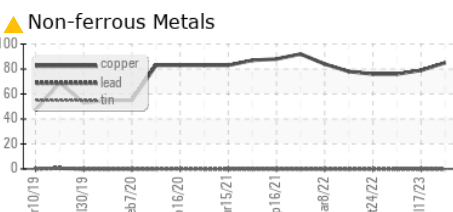
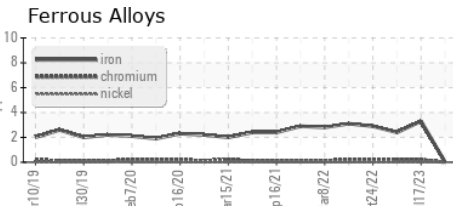
| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | 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 | >0.1 | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|--------------|---------|----------|----------|
| Visc @ 40°C | cSt | ASTM D445 46 | 43.3 | 43.5 | 43.4 |

SAMPLE IMAGES

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

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PTK0002496
Lab Number : 06197589
Unique Number : 11059712
Test Package : MOB 2
Received : 03 Jun 2024
Tested : 04 Jun 2024
Diagnosed : 04 Jun 2024 - Don Baldrige

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 US 98466
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 F:

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)