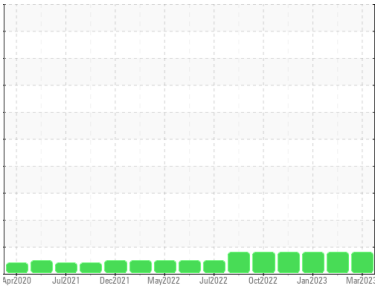
# OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
**RIG 3**
Machine Id
**R3-TD-HYD**
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**

All component wear rates are normal.

**Contamination**

There is a moderate amount of silt (particulates < 14 microns in size) present 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 | | **KL0009763** | KL0008959 | KL0009716 |
| Sample Date | | Client Info | | **30 Mar 2023** | 24 Feb 2023 | 12 Jan 2023 |
| Machine Age | days | Client Info | | **45010** | 44976 | 44933 |
| Oil Age | days | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **ATTENTION** | ABNORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | **3** | 2 | 3 |
| Chromium | ppm | ASTM D5185m | >10 | **0** | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >10 | **0** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >10 | **0** | <1 | <1 |
| Lead | ppm | ASTM D5185m | >10 | **0** | 0 | <1 |
| Copper | ppm | ASTM D5185m | >75 | **2** | 2 | 2 |
| Tin | ppm | ASTM D5185m | >10 | **0** | 0 | <1 |
| 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 | **6** | 0 | <1 |
| Barium | ppm | ASTM D5185m | 5 | **0** | 0 | 3 |
| Molybdenum | ppm | ASTM D5185m | 5 | **4** | <1 | <1 |
| Manganese | ppm | ASTM D5185m | | **<1** | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | 25 | **19** | 3 | 2 |
| Calcium | ppm | ASTM D5185m | 200 | **60** | 34 | 41 |
| Phosphorus | ppm | ASTM D5185m | 300 | **335** | 301 | 348 |
| Zinc | ppm | ASTM D5185m | 370 | **396** | 368 | 421 |
| Sulfur | ppm | ASTM D5185m | 2500 | **599** | 582 | 1003 |

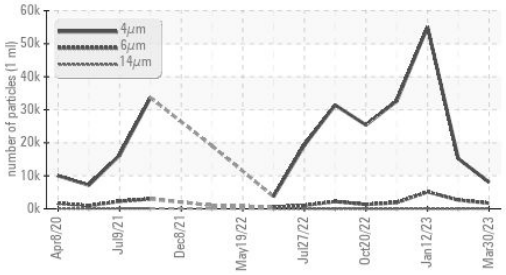
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **<1** | 1 | <1 |
| Sodium | ppm | ASTM D5185m | | **1** | 1 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | <1 | 2 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | | **8037** | 15184 | 55023 |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **1700** | ▲ 2638 | ▲ 5139 |
| Particles >14µm | | ASTM D7647 | >160 | **75** | 61 | 37 |
| Particles >21µm | | ASTM D7647 | >40 | **10** | 10 | 5 |
| Particles >38µm | | ASTM D7647 | >10 | **1** | 1 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >17/14 | ▲ **18/13** | ▲ 19/13 | ▲ 20/12 |

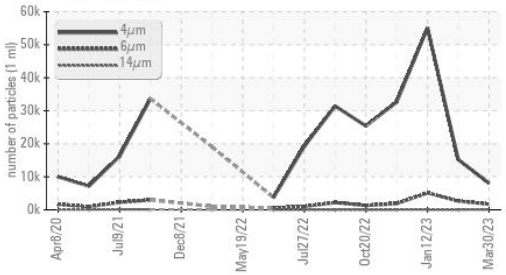
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.57 | **0.42** | 0.41 | 0.40 |

# OIL ANALYSIS REPORT

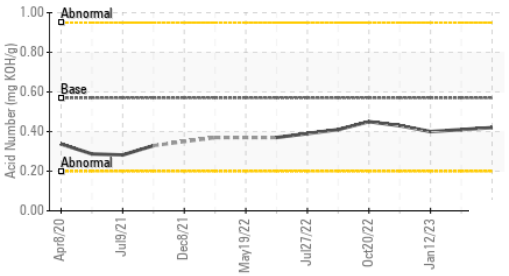
Particle Trend



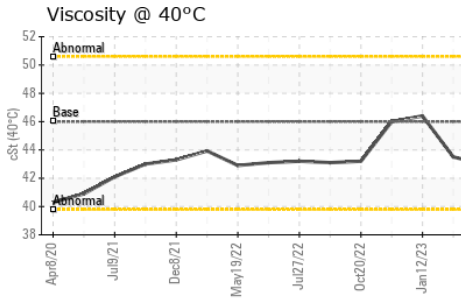

Particle Trend




Acid Number



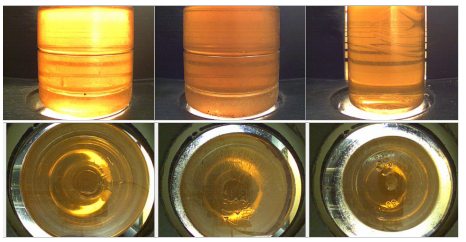

Viscosity @ 40°C




| 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 | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

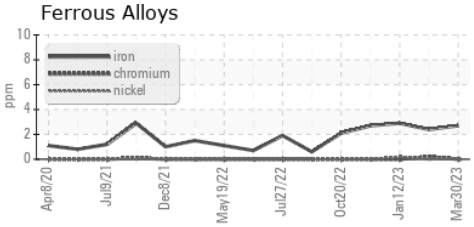
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 46 | **43.0** | 43.5 | 46.4 |

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

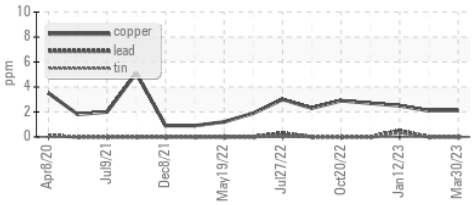


## GRAPHS

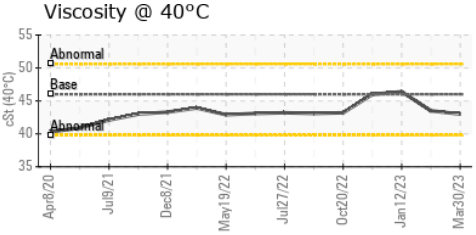
Ferrous Alloys



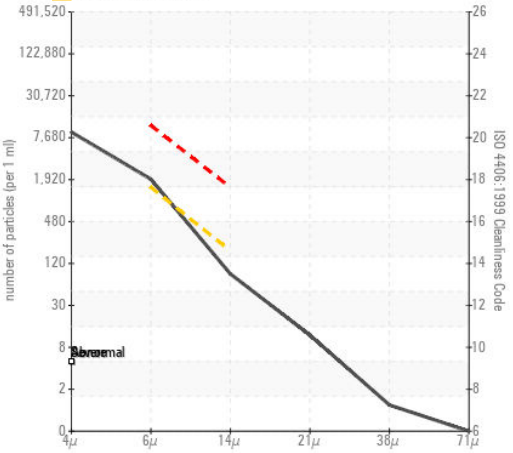

Non-ferrous Metals



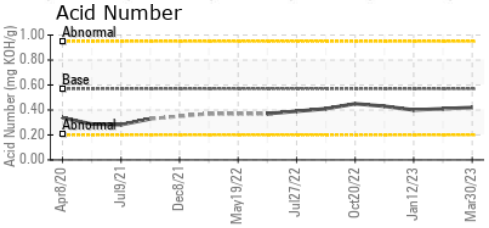

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : KL0009763
**Lab Number** : 05821509
**Unique Number** : 10429592
**Test Package** : MOB 2

**Received** : 17 Apr 2023
**Diagnosed** : 18 Apr 2023
**Diagnostician** : Don Baldridge

*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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