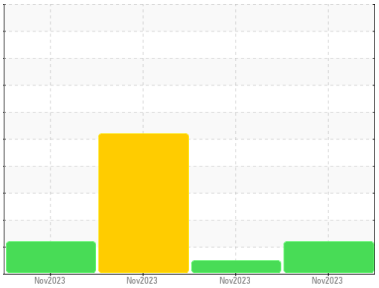
# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Area
**RIG 816**
Machine Id
**R816-MP-02**
Component
**Gearbox**
Fluid
**NOT GIVEN (--- GAL)**

## DIAGNOSIS

**▲ Recommendation**

No corrective action is recommended at this time. Resample at the next service interval to monitor. Please note that this is a corrected copy for diagnostic comment updates.

**Wear**

All component wear rates are normal.

**▲ Contamination**

There is a high 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 | | **KL0013028** | KL0013023 | KL0012971 |
| Sample Date | | Client Info | | **14 Nov 2023** | 10 Nov 2023 | 05 Nov 2023 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **ABNORMAL** | --- | ABNORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >200 | **36** | 30 | ▲ 256 |
| Chromium | ppm | ASTM D5185m | >10 | **<1** | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | 3 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **2** | 2 | ▲ 10 |
| Lead | ppm | ASTM D5185m | >50 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >200 | **23** | 21 | 36 |
| Tin | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **<1** | <1 | 8 |
| Barium | ppm | ASTM D5185m | | **0** | <1 | 30 |
| Molybdenum | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | 2 |
| Magnesium | ppm | ASTM D5185m | | **0** | 0 | 8 |
| Calcium | ppm | ASTM D5185m | | **12** | 16 | 61 |
| Phosphorus | ppm | ASTM D5185m | | **124** | 123 | 151 |
| Zinc | ppm | ASTM D5185m | | **31** | 40 | 61 |
| Sulfur | ppm | ASTM D5185m | | **7162** | 7527 | 6986 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | **10** | 14 | ▲ 46 |
| Sodium | ppm | ASTM D5185m | | **15** | 12 | 83 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | <1 | 6 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >20000 | ▲ **176787** | ▲ 156542 | ▲ 268480 |
| Particles >6µm | | ASTM D7647 | >5000 | ▲ **45122** | ▲ 61493 | ▲ 195185 |
| Particles >14µm | | ASTM D7647 | >640 | **350** | ▲ 2321 | ▲ 11053 |
| Particles >21µm | | ASTM D7647 | >160 | **25** | ▲ 266 | ▲ 559 |
| Particles >38µm | | ASTM D7647 | >40 | **0** | 3 | 1 |
| Particles >71µm | | ASTM D7647 | >10 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | ▲ **25/23/16** | ▲ 24/23/18 | ▲ 25/25/21 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.32** | 0.30 | 0.37 |

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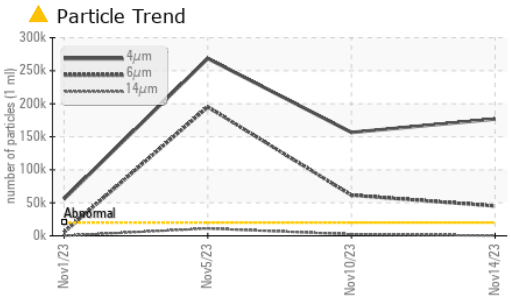
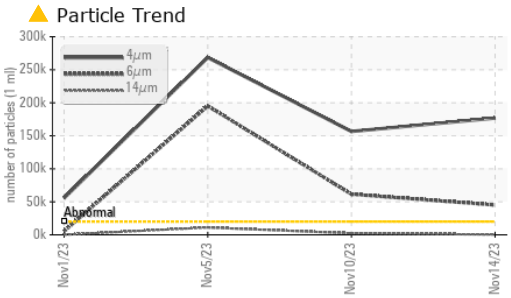
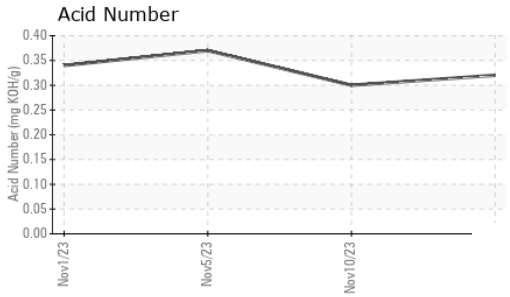
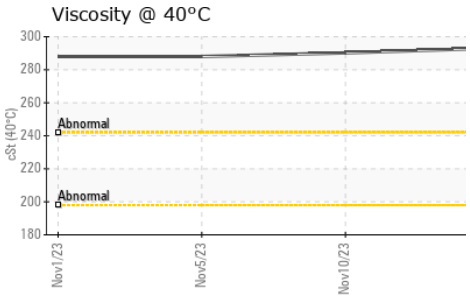


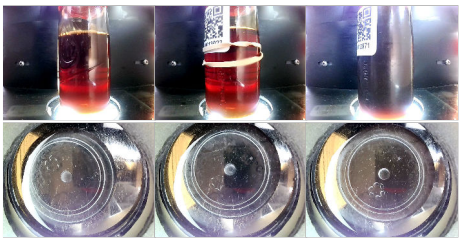



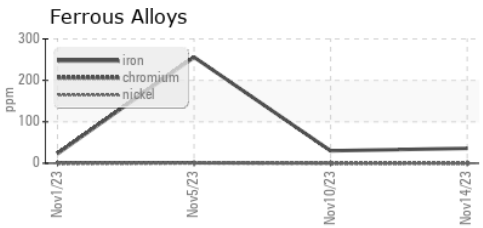

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

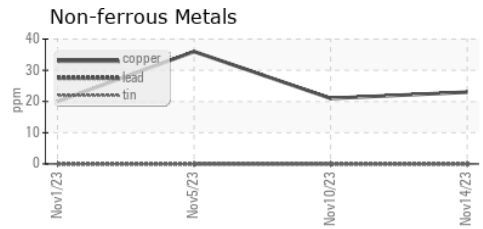
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | | **293** | 290.2 | 288 |

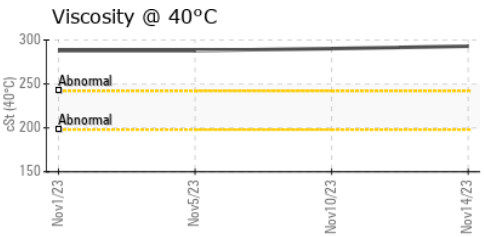
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | | | |
| Bottom | | | | | |

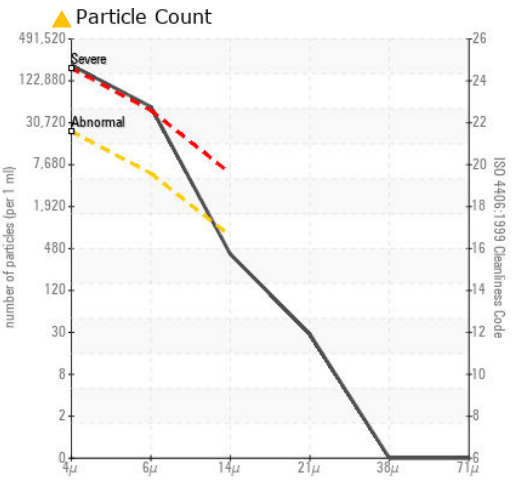


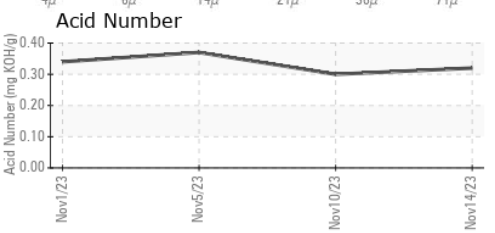
## GRAPHS




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : KL0013028 **Received** : 20 Nov 2023
**Lab Number** : 06012383 **Diagnosed** : 30 Nov 2023
**Unique Number** : 10751527 **Diagnostician** : Doug Bogart
**Test Package** : MOB 2 ( Additional Tests: PrtCount )

Certificate L2367

*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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