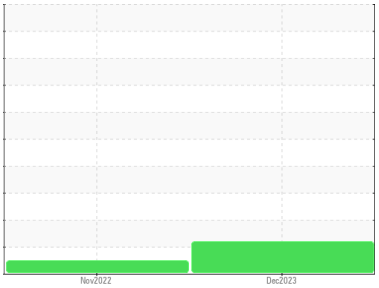
# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Machine Id
## HIAB KB21937
Component
**Hydraulic System**
Fluid
**AW HYDRAULIC OIL ISO 32 (--- QTS)**

## 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 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 | | **WC0735086** | WC0698815 | --- |
| Sample Date | | Client Info | | **06 Dec 2023** | 17 Nov 2022 | --- |
| Machine Age | yrs | Client Info | | **0** | 0 | --- |
| Oil Age | yrs | Client Info | | **0** | 0 | --- |
| Oil Changed | | Client Info | | **N/A** | Not Changd | --- |
| Sample Status | | | | **ABNORMAL** | NORMAL | --- |

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

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

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 5 | **0** | 0 | --- |
| Barium | ppm | ASTM D5185m | 5 | **0** | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | 5 | **0** | 0 | --- |
| Manganese | ppm | ASTM D5185m | | **0** | 0 | --- |
| Magnesium | ppm | ASTM D5185m | 25 | **0** | 0 | --- |
| Calcium | ppm | ASTM D5185m | 200 | **52** | 46 | --- |
| Phosphorus | ppm | ASTM D5185m | 300 | **387** | 334 | --- |
| Zinc | ppm | ASTM D5185m | 370 | **447** | 452 | --- |
| Sulfur | ppm | ASTM D5185m | 2500 | **4520** | 4273 | --- |

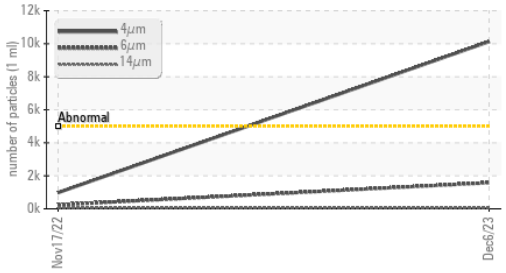
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **<1** | <1 | --- |
| Sodium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | 1 | --- |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **10131** | 980 | --- |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **1579** | 242 | --- |
| Particles >14µm | | ASTM D7647 | >160 | **49** | 55 | --- |
| Particles >21µm | | ASTM D7647 | >40 | **9** | 20 | --- |
| Particles >38µm | | ASTM D7647 | >10 | **0** | 2 | --- |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | --- |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **21/18/13** | 17/15/13 | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.57 | **0.35** | 0.36 | --- |

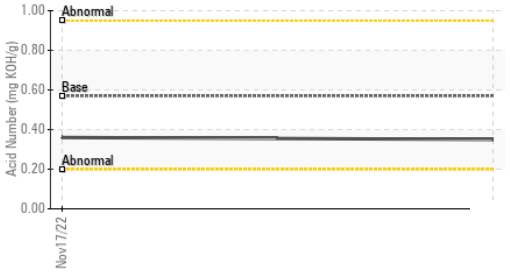
# OIL ANALYSIS REPORT

Particle Trend

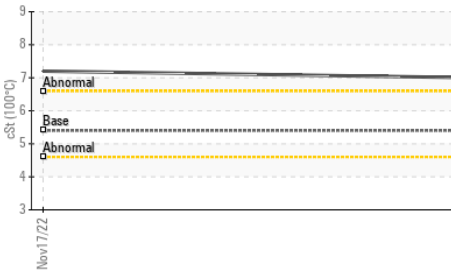



Viscosity @ 100°C

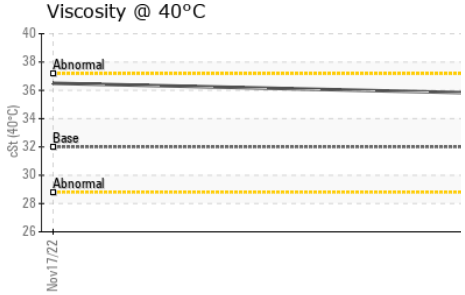

Acid Number




Viscosity @ 100°C

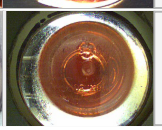



Viscosity @ 40°C



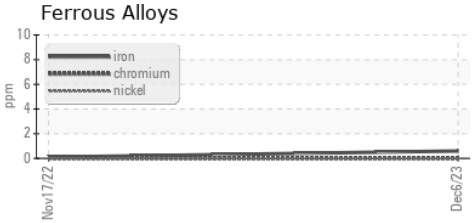

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt | 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 | 32 | **35.8** | 36.5 | --- |
| Visc @ 100°C | cSt | ASTM D445 | 5.4 | **7** | 7.2 | --- |
| Viscosity Index (VI) | Scale | ASTM D2270 | 102 | **160** | 165 | --- |

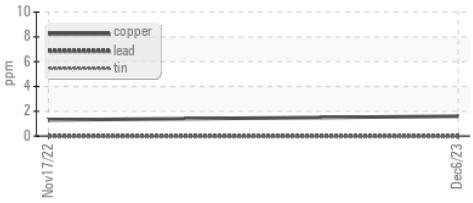
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  |  | *no image* |
| Bottom | | |  |  | *no image* |

## GRAPHS

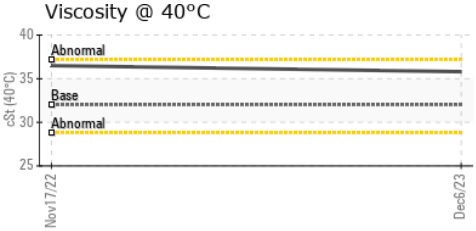
Ferrous Alloys



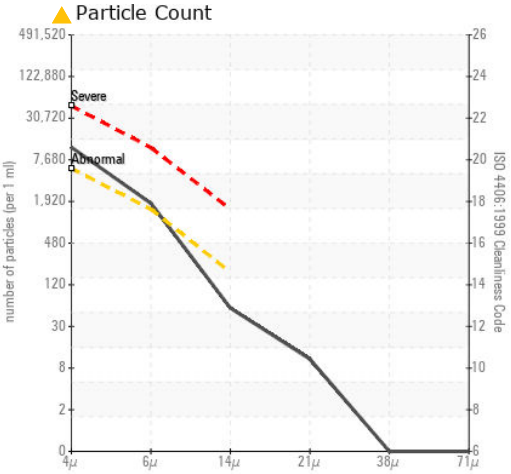

Non-ferrous Metals



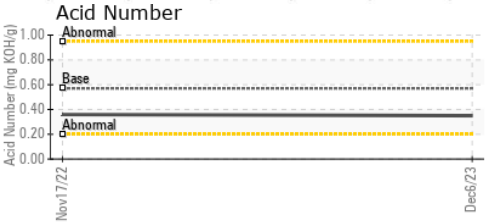

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0735086 **Recieved** : 17 Jan 2024
**Lab Number** : 06062649 **Diagnosed** : 19 Jan 2024
**Unique Number** : 10834031 **Diagnostician** : Jonathan Hester
**Test Package** : MOB 2 ( Additional Tests: KV100, VI )

*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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