

PROBLEM SUMMARY

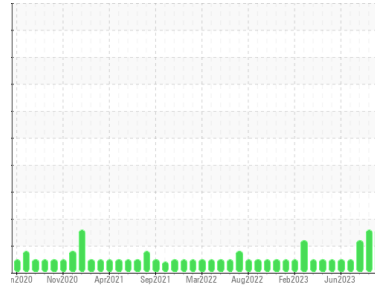
Sample Rating Trend

ISO



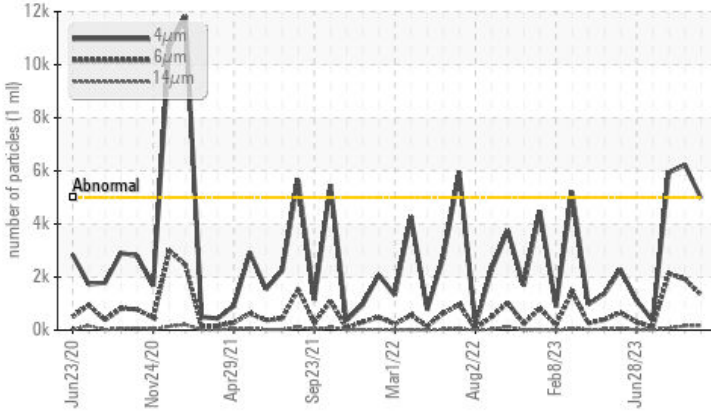
Area
CONNECTION BAY
Machine Id
HBB HYDRAULIC

Component
Hydraulic System
Fluid
AW HYDRAULIC OIL ISO 46 (--- QTS)



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

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

PROBLEMATIC TEST RESULTS

| Sample Status | | | ATTENTION | ATTENTION | ATTENTION |
|-----------------|--------------|-----------|------------|------------|------------|
| Particles >6µm | ASTM D7647 | >1300 | ▲ 1329 | ▲ 1922 | ▲ 2136 |
| Particles >14µm | ASTM D7647 | >160 | ▲ 166 | ▲ 162 | 70 |
| Particles >21µm | ASTM D7647 | >40 | ▲ 64 | 34 | 16 |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14 | ▲ 19/18/15 | ▲ 20/18/15 | ▲ 20/18/13 |

Customer Id: OUTCALAL
Sample No.: RP0038617
Lab Number: 05968991
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|----------------------|--------|-------------|---------|---|
| Change Filter | MISSED | Oct 31 2023 | ? | We recommend you service the filters on this component. |
| Alert | MISSED | Oct 31 2023 | ? | Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. |
| Information Required | MISSED | Oct 31 2023 | ? | Please specify the brand, type, and viscosity of the oil on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. |

HISTORICAL DIAGNOSIS

27 Sep 2023 Diag: Wes Davis

ISO



Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



29 Aug 2023 Diag: Wes Davis

ISO



Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



26 Jul 2023 Diag: Wes Davis

NORMAL



Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

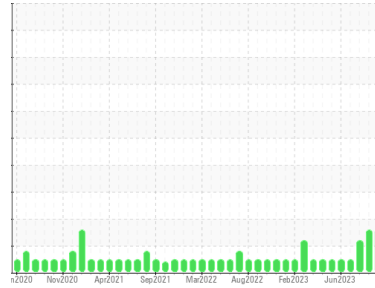
view report





OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
CONNECTION BAY
Machine Id
HBB HYDRAULIC
Component
Hydraulic System
Fluid
AW HYDRAULIC OIL ISO 46 (--- 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 moderate amount of particulates present in the oil. The water content is negligible.

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 | | RP0038617 | RP0035344 | RP0038423 |
| Sample Date | Client Info | | 03 Oct 2023 | 27 Sep 2023 | 29 Aug 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 | | | ATTENTION | ATTENTION | ATTENTION |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|--------|-----------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185m >20 | 1 | 0 | 0 |
| Chromium | ppm | ASTM D5185m >20 | <1 | 0 | 0 |
| Nickel | ppm | ASTM D5185m >20 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | <1 | 0 | 0 |
| Silver | ppm | ASTM D5185m | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m >20 | 0 | 0 | <1 |
| Lead | ppm | ASTM D5185m >20 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m >20 | 4 | 3 | 4 |
| Tin | ppm | ASTM D5185m >20 | <1 | 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 5 | 0 | 0 | 0 |
| Barium | ppm | ASTM D5185m 5 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m 5 | 8 | 0 | 0 |
| Manganese | ppm | ASTM D5185m | <1 | 0 | 0 |
| Magnesium | ppm | ASTM D5185m 25 | 0 | 3 | <1 |
| Calcium | ppm | ASTM D5185m 200 | 57 | 50 | 46 |
| Phosphorus | ppm | ASTM D5185m 300 | 336 | 346 | 337 |
| Zinc | ppm | ASTM D5185m 370 | 389 | 421 | 402 |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|------------------|--------------|----------|----------|
| Silicon | ppm | ASTM D5185m >15 | 2 | 2 | 1 |
| Sodium | ppm | ASTM D5185m | <1 | <1 | <1 |
| Potassium | ppm | ASTM D5185m >20 | <1 | 0 | 0 |
| Water | % | ASTM D6304 >0.05 | 0.005 | 0.003 | 0.002 |
| ppm Water | ppm | ASTM D6304 >500 | 59.7 | 33.9 | 22.3 |

FLUID CLEANLINESS

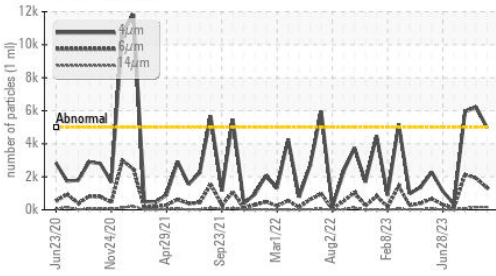
| | method | limit/base | current | history1 | history2 |
|-----------------|--------------|------------|-------------------|------------|------------|
| Particles >4µm | ASTM D7647 | >5000 | 4974 | ▲ 6227 | ▲ 5939 |
| Particles >6µm | ASTM D7647 | >1300 | ▲ 1329 | ▲ 1922 | ▲ 2136 |
| Particles >14µm | ASTM D7647 | >160 | ▲ 166 | ▲ 162 | 70 |
| Particles >21µm | ASTM D7647 | >40 | ▲ 64 | 34 | 16 |
| Particles >38µm | ASTM D7647 | >10 | 3 | 0 | 1 |
| Particles >71µm | ASTM D7647 | >3 | 0 | 0 | 0 |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14 | ▲ 19/18/15 | ▲ 20/18/15 | ▲ 20/18/13 |

FLUID DEGRADATION

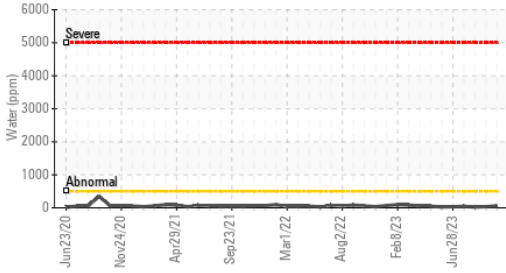
| | method | limit/base | current | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 0.57 | 0.27 | 0.25 | 0.26 |

OIL ANALYSIS REPORT

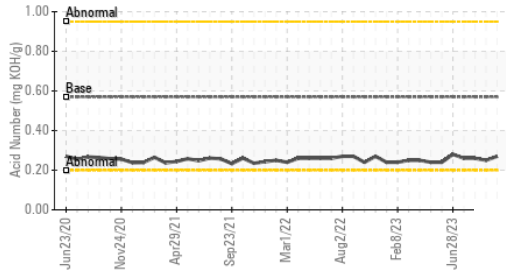
▲ Particle Trend



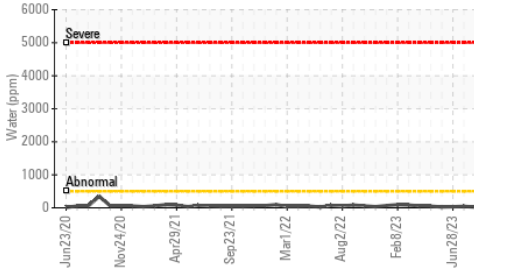
Water (KF)



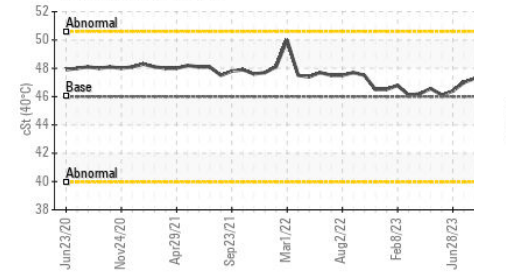
Acid Number



Water (KF)



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 | >0.05 | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG |

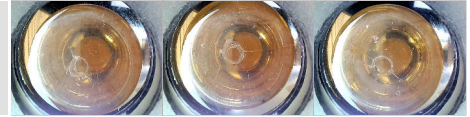
| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|--------------|---------|----------|----------|
| Visc @ 40°C | cSt | ASTM D445 46 | 50.4 | 47.3 | 47.3 |

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

Color

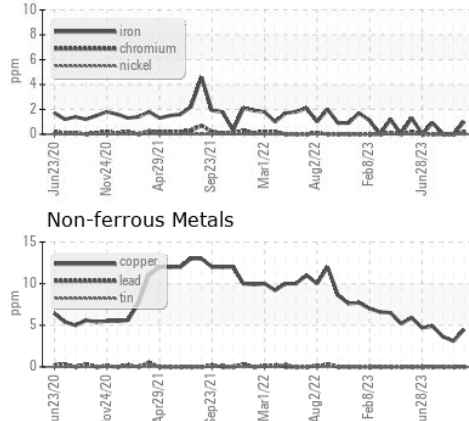


Bottom

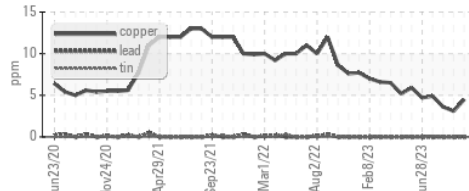


GRAPHS

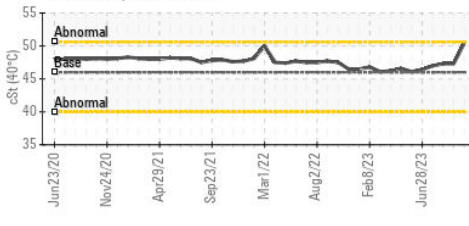
Ferrous Alloys



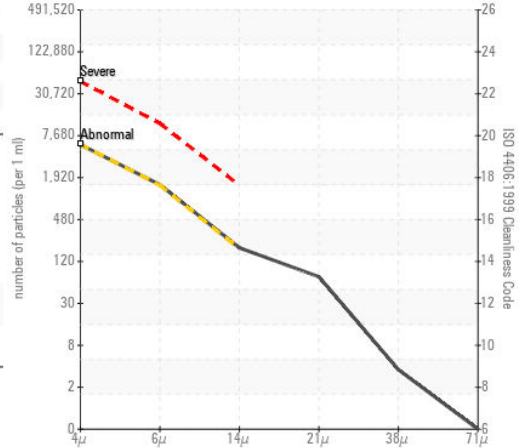
Non-ferrous Metals



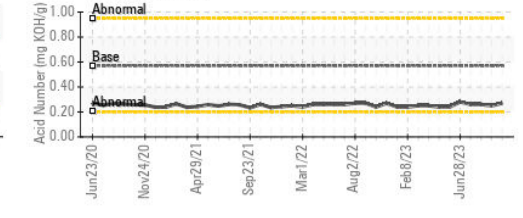
Viscosity @ 40°C



▲ Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RP0038617 **Received** : 04 Oct 2023
Lab Number : 05968991 **Diagnosed** : 11 Oct 2023
Unique Number : 10675542 **Diagnostician** : Doug Bogart
Test Package : IND 2

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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