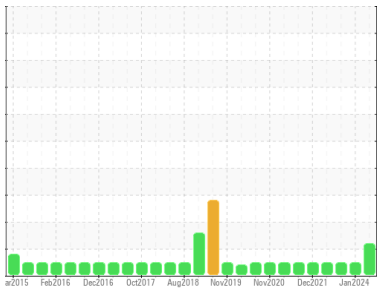
# OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
## CATERPILLAR 336F 8394 (S/N RKB00528)
Component
**Hydraulic System**
Fluid
**TDH FLUID SAE 70W80 (--- GAL)**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. The filter change at the time of sampling has been noted. 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 | | **WC0913360** | WC0879322 | WC0755195 |
| Sample Date | | Client Info | | **29 May 2024** | 02 Jan 2024 | 21 Nov 2022 |
| Machine Age | hrs | Client Info | | **12719** | 12312 | 11778 |
| Oil Age | hrs | Client Info | | **12719** | 12312 | 11778 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **ATTENTION** | NORMAL | NORMAL |

| 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 | **6** | 4 | 3 |
| Chromium | ppm | ASTM D5185m | >10 | **0** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >10 | **1** | 1 | <1 |
| Lead | ppm | ASTM D5185m | >10 | **1** | <1 | <1 |
| Copper | ppm | ASTM D5185m | >75 | **3** | 3 | 1 |
| Tin | ppm | ASTM D5185m | >10 | **0** | <1 | 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 | 10 | **20** | 20 | 24 |
| Barium | ppm | ASTM D5185m | 10 | **0** | 10 | 0 |
| Molybdenum | ppm | ASTM D5185m | 10 | **1** | 2 | 2 |
| Manganese | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 100 | **29** | 26 | 28 |
| Calcium | ppm | ASTM D5185m | 3500 | **3313** | 3277 | 3395 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **944** | 916 | 943 |
| Zinc | ppm | ASTM D5185m | 1150 | **1115** | 1091 | 1147 |
| Sulfur | ppm | ASTM D5185m | 5000 | **7527** | 7253 | 9578 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **12** | 10 | 13 |
| Sodium | ppm | ASTM D5185m | | **2** | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **1** | 3 | 1 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | **5139** | 3517 | 1480 |
| Particles >6µm | | ASTM D7647 | >1300 | **1556** | 324 | 156 |
| Particles >14µm | | ASTM D7647 | >160 | **118** | 18 | 11 |
| Particles >21µm | | ASTM D7647 | >40 | **30** | 5 | 3 |
| Particles >38µm | | ASTM D7647 | >10 | **1** | 1 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | **20/18/14** | 19/16/11 | 18/14/11 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 2.25 | **0.99** | 1.07 | 1.17 |

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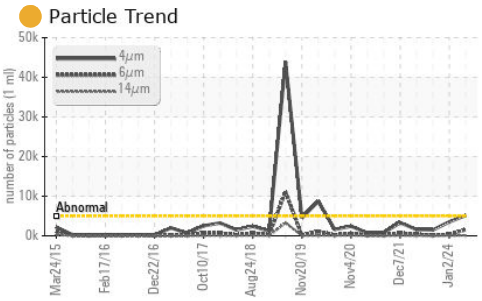
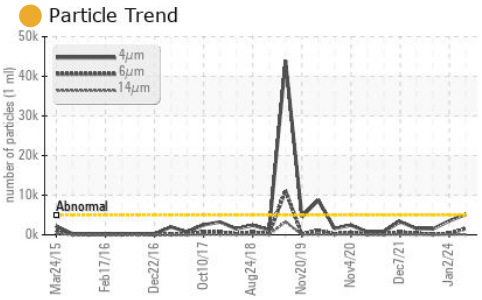
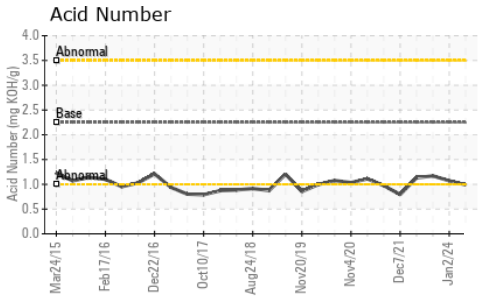
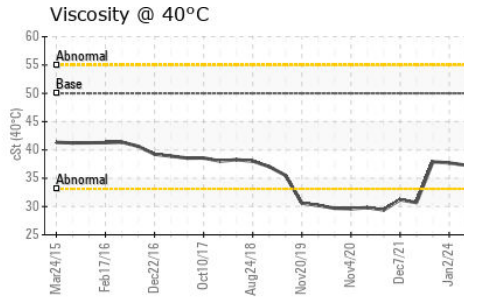


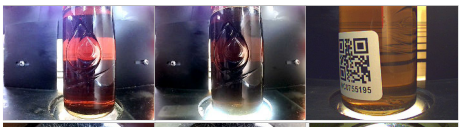



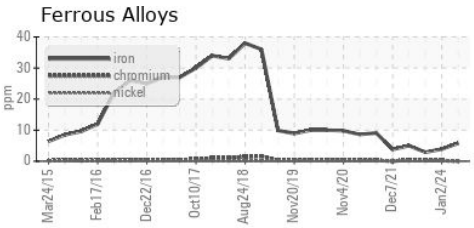



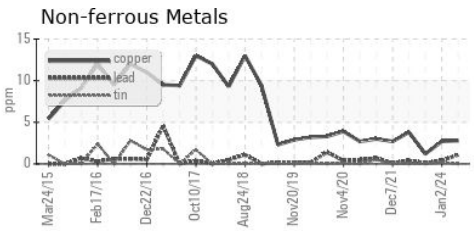

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

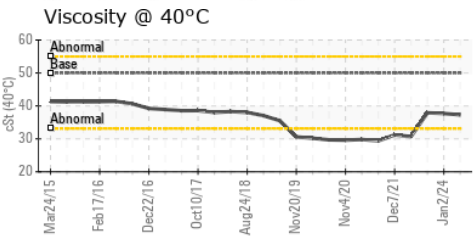
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 50 | **37.3** | 37.7 | 37.9 |

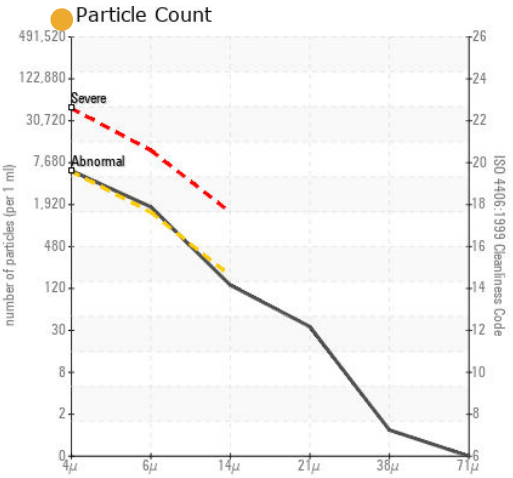
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

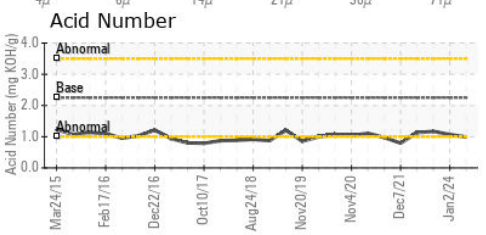
## GRAPHS




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0913360
**Lab Number** : 06196611
**Unique Number** : 11058734
**Test Package** : CONST

**Received** : 31 May 2024
**Tested** : 03 Jun 2024
**Diagnosed** : 03 Jun 2024 - 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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