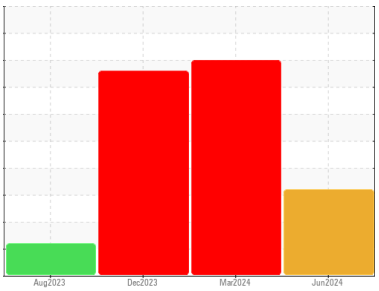
KIMBRO FLUID SOLUTIONS

# OIL ANALYSIS REPORT

Area
## ROLL SHOP
Machine Id
## 28S Farrel Spindle lube 8100-28S-SPINDLE
Component
**Hydraulic System**
Fluid
**AW HYDRAULIC OIL ISO 32 (--- GAL)**

Sample Rating Trend




**WEAR**

## DIAGNOSIS

**Recommendation**
We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

**Wear**
The copper level is abnormal. All other component wear rates are normal.

**Contamination**
There is a high amount of particulates present in the oil.

**Fluid Condition**
Viscosity of sample indicates oil is within ISO 46 range, advise investigate. Confirm oil type. The AN level is acceptable for this fluid.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **KFS0004586** | KFS0004783 | KFS0004895 |
| Sample Date | | Client Info | | **04 Jun 2024** | 26 Mar 2024 | 19 Dec 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** | SEVERE | SEVERE |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.05 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | **4** | <1 | 0 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >20 | **0** | 1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **2** | <1 | 0 |
| Lead | ppm | ASTM D5185m | >20 | **4** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >20 | ▲ **77** | <1 | 0 |
| Tin | ppm | ASTM D5185m | >20 | **<1** | <1 | 0 |
| 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 | **8** | 0 | 0 |
| Barium | ppm | ASTM D5185m | 5 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 5 | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | 25 | **1** | 1 | 0 |
| Calcium | ppm | ASTM D5185m | 200 | **72** | 44 | 42 |
| Phosphorus | ppm | ASTM D5185m | 300 | **206** | 247 | 268 |
| Zinc | ppm | ASTM D5185m | 370 | **215** | 397 | 385 |
| Sulfur | ppm | ASTM D5185m | 2500 | **1420** | 947 | 1057 |

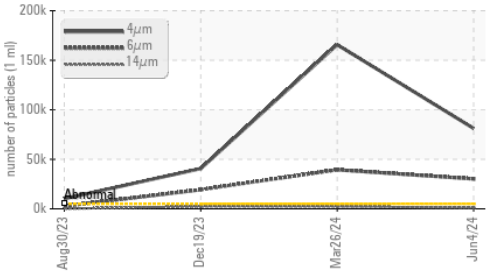
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **<1** | 0 | <1 |
| Sodium | ppm | ASTM D5185m | | **0** | 15 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **1** | 1 | 0 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **81164** | ▲ 165702 | ▲ 40639 |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **30207** | ▲ 39412 | ▲ 19322 |
| Particles >14µm | | ASTM D7647 | >160 | ▲ **910** | ▲ 2329 | ▲ 2330 |
| Particles >21µm | | ASTM D7647 | >40 | ▲ **102** | ▲ 620 | ▲ 450 |
| Particles >38µm | | ASTM D7647 | >10 | **3** | ▲ 27 | 11 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 1 | 1 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **24/22/17** | ▲ 25/22/18 | ▲ 23/21/18 |

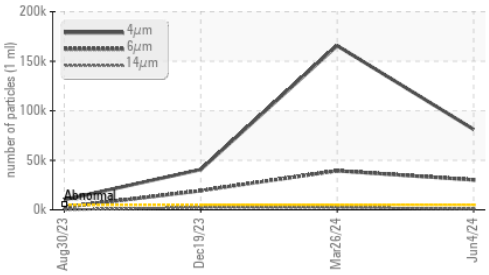
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.57 | **0.47** | 0.23 | 0.46 |

# OIL ANALYSIS REPORT

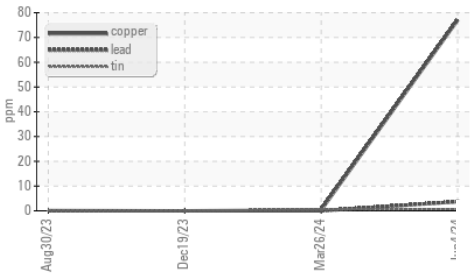
Particle Trend



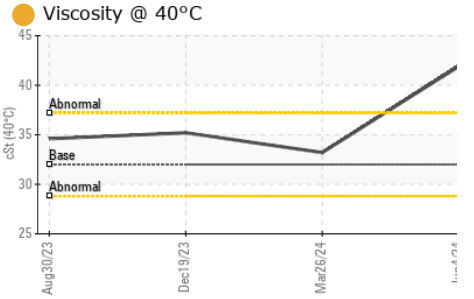

Particle Trend



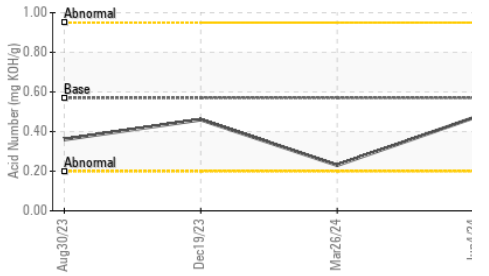

Non-ferrous Metals




Viscosity @ 40°C




Acid Number



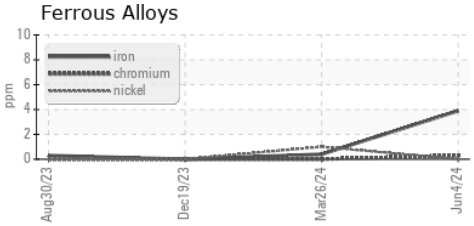

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **LIGHT** | LIGHT | LIGHT |
| 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 | >0.05 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 32 | **41.9** | 33.2 | 35.2 |

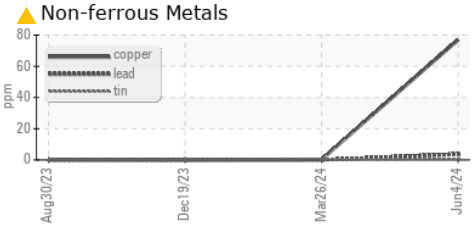
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

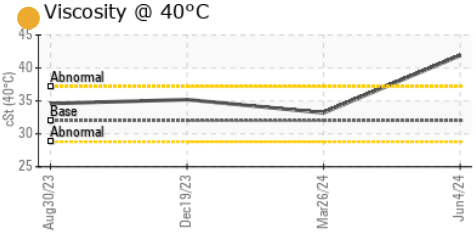
Ferrous Alloys



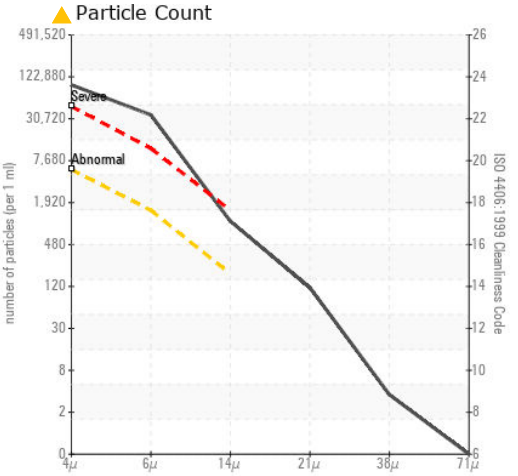

Non-ferrous Metals



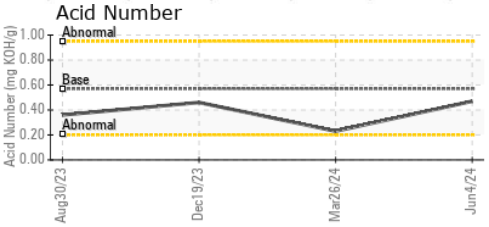

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : KFS0004586
**Lab Number** : 06214616
**Unique Number** : 11087480
**Test Package** : IND 2

**Received** : 19 Jun 2024
**Tested** : 25 Jun 2024
**Diagnosed** : 25 Jun 2024 - Jonathan Hester

*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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