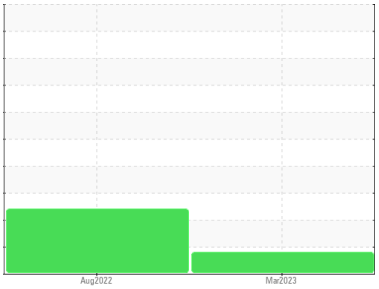
# PROBLEM SUMMARY

Sample Rating Trend

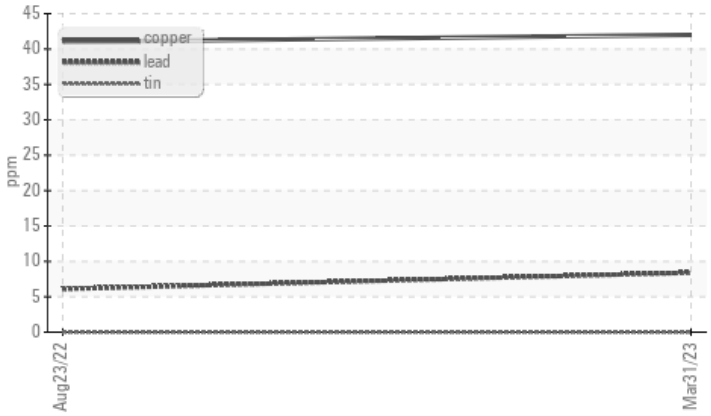



**WEAR**

Machine Id
## FULL FLIGHT SIMULATO L3 EMZK 561 (FAA 1617)
Component
**Hydraulic System**
Fluid
**SHELL NATURELLE HF-E ISO 68 (190 LTR)**

## COMPONENT CONDITION SUMMARY

▲ Non-ferrous Metals




## RECOMMENDATION

Resample at the next service interval to monitor. Due to an abnormal test result it is recommended to contact Stauff Corp at (201)-444-7800 for help resolving the issue.

## PROBLEMATIC TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Status | | | | **ABNORMAL** | ABNORMAL | --- |
| Copper | ppm | ASTM D5185m | >20 | ▲ **42** | ▲ 41 | --- |

**Customer Id:** AIRAURCO
**Sample No.:** ST36976
**Lab Number:** 05812183
**Test Package:** IND 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Jonathan Hester +1 919-379-4092 x4092
jhester@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 |
|---|---|---|---|---|
| Contact Required | --- | --- | ? | Due to an abnormal test result it is recommended to contact Stauff Corp at (201)-444-7800 for help resolving the issue. |

## HISTORICAL DIAGNOSIS

**23 Aug 2022 Diag: Angela Borella**

**WATER**

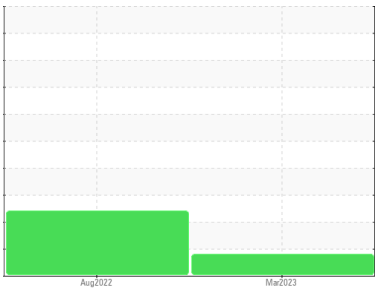
We advise that you check for the source of water entry. We recommend an early resample to monitor this condition. Due to an abnormal test result it is recommended to contact Stauff Corp at (201)-444-7800 for help resolving the issue.The copper level is abnormal. All other component wear rates are normal. There is a light concentration of water present in the oil. The amount and size of particulates present in the system are acceptable. The condition of the oil is acceptable for the time in service.

**view report**

STAUFF FILTRATION TECHNOLOGY

# OIL ANALYSIS REPORT

Sample Rating Trend




**WEAR**

Machine Id
## FULL FLIGHT SIMULATO L3 EMZK 561 (FAA 1617)
Component
**Hydraulic System**
Fluid
**SHELL NATURELLE HF-E ISO 68 (190 LTR)**

## DIAGNOSIS

**▲ Recommendation**

Resample at the next service interval to monitor. Due to an abnormal test result it is recommended to contact Stauff Corp at (201)-444-7800 for help resolving the issue.

**▲ Wear**

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

**Contamination**

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

**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 | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **ST36976** | ST36939 | --- |
| Sample Date | | Client Info | | **31 Mar 2023** | 23 Aug 2022 | --- |
| Machine Age | hrs | Client Info | | **0** | 0 | --- |
| Oil Age | hrs | Client Info | | **20234** | 16731 | --- |
| Oil Changed | | Client Info | | **N/A** | N/A | --- |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | --- |

| WEAR METALS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | **4** | 4 | --- |
| Chromium | ppm | ASTM D5185m | >20 | **0** | <1 | --- |
| Nickel | ppm | ASTM D5185m | >20 | **0** | 0 | --- |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Silver | ppm | ASTM D5185m | | **0** | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **4** | 5 | --- |
| Lead | ppm | ASTM D5185m | >20 | **8** | 6 | --- |
| Copper | ppm | ASTM D5185m | >20 | ▲ **42** | ▲ 41 | --- |
| Tin | ppm | ASTM D5185m | >20 | **0** | 0 | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | --- |

| ADDITIVES | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **1** | 0 | --- |
| Barium | ppm | ASTM D5185m | | **0** | 1 | --- |
| Molybdenum | ppm | ASTM D5185m | | **0** | 0 | --- |
| Manganese | ppm | ASTM D5185m | | **6** | 5 | --- |
| Magnesium | ppm | ASTM D5185m | | **9** | 0 | --- |
| Calcium | ppm | ASTM D5185m | | **<1** | 4 | --- |
| Phosphorus | ppm | ASTM D5185m | | **217** | 197 | --- |
| Zinc | ppm | ASTM D5185m | | **27** | 23 | --- |
| Sulfur | ppm | ASTM D5185m | | **2565** | 1874 | --- |

| CONTAMINANTS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **<1** | <1 | --- |
| Sodium | ppm | ASTM D5185m | | **<1** | 2 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 0 | --- |
| Water | % | ASTM D6304 | >0.05 | **0.014** | ▲ 0.054 | --- |
| ppm Water | ppm | ASTM D6304 | >500 | **147.1** | ▲ 545.4 | --- |

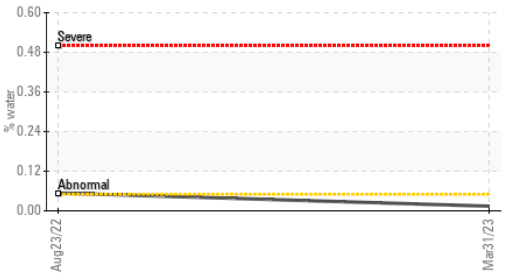
| FLUID CLEANLINESS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | **656** | 3023 | --- |
| Particles >6µm | | ASTM D7647 | >1300 | **71** | 56 | --- |
| Particles >14µm | | ASTM D7647 | >160 | **3** | 4 | --- |
| Particles >21µm | | ASTM D7647 | >40 | **1** | 2 | --- |
| Particles >38µm | | ASTM D7647 | >10 | **0** | 0 | --- |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | --- |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | **17/13/9** | 19/13/9 | --- |

| FLUID DEGRADATION | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **2.85** | 2.55 | --- |

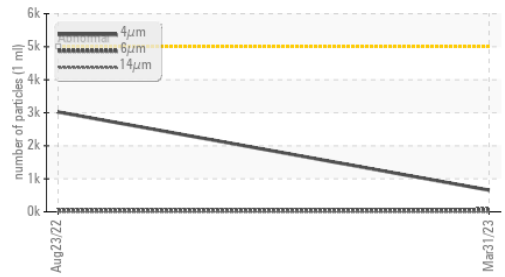
# OIL ANALYSIS REPORT

STAUFF FILTRATION TECHNOLOGY

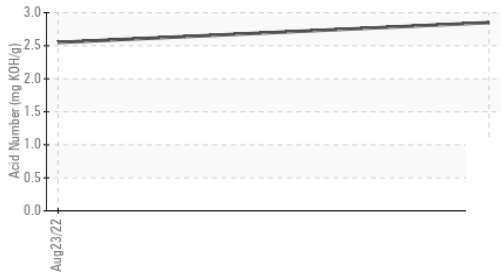
Water



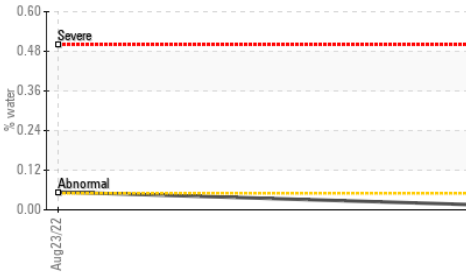

Particle Trend



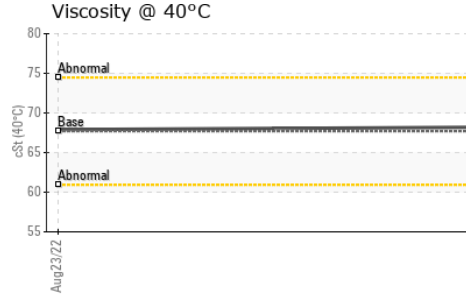

Acid Number




Water

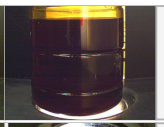
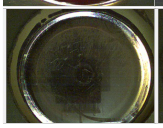



Viscosity @ 40°C



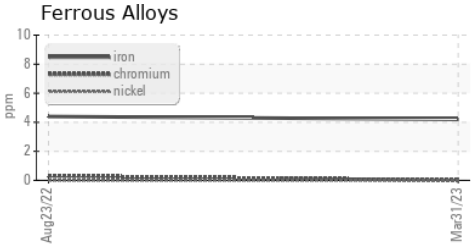

| VISUAL | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt | 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 | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 67.7 | **68.2** | 67.9 | --- |

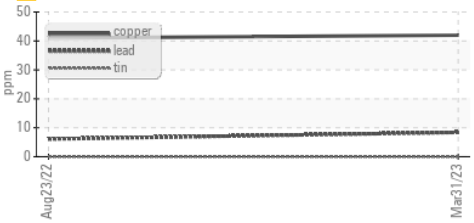
| SAMPLE IMAGES | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|
| Color | | |  |  | *no image* |
| Bottom | | |  |  | *no image* |

## GRAPHS

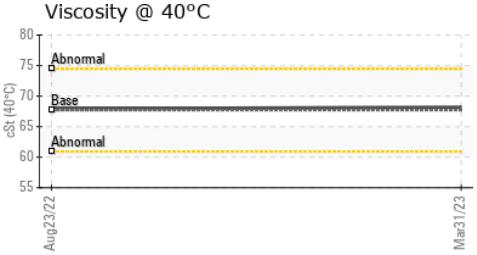
Ferrous Alloys



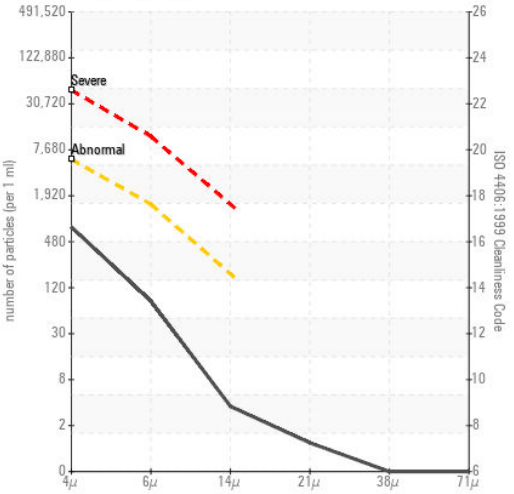

Non-ferrous Metals



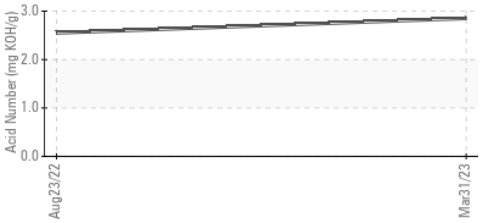

Viscosity @ 40°C




Particle Count




Acid Number




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : ST36976 **Received** : 05 Apr 2023
**Lab Number** : 05812183 **Diagnosed** : 12 Apr 2023
**Unique Number** : 10414975 **Diagnostician** : Jonathan Hester
**Test Package** : IND 2 ( Additional Tests: KF )

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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