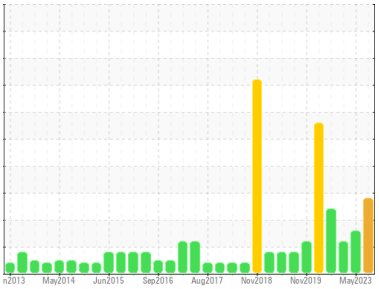
# PROBLEM SUMMARY

Sample Rating Trend

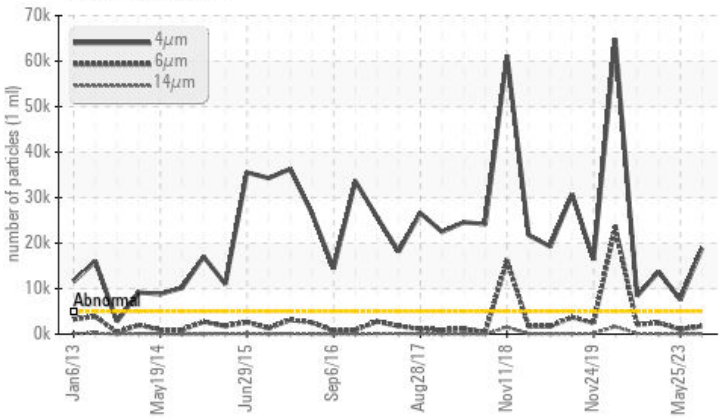


**WEAR**

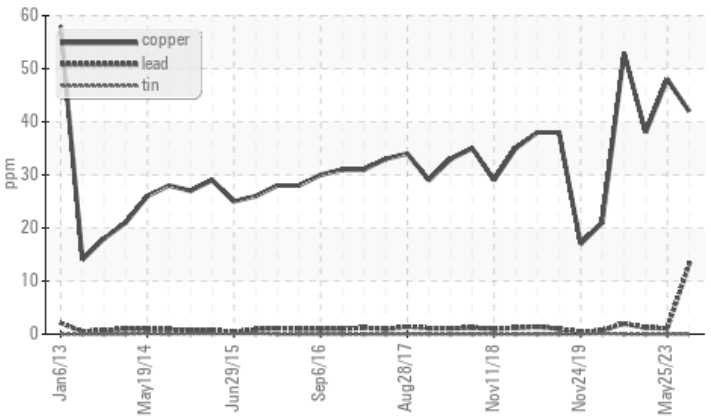
Machine Id
## C3-C8 HPU HYD. TESTER CONV. HPU
Component
**Hydraulic System**
Fluid
**FORSYTHE TURBO HYDRAULIC AW 32 (400 LTR)**

## COMPONENT CONDITION SUMMARY

▲ Particle Trend




▲ Non-ferrous Metals




## RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | **ABNORMAL** | ATTENTION | ABNORMAL |
|---|---|---|---|---|---|---|
| Lead | ppm | ASTM D5185(m) | >20 | ▲ **13** | 1 | 1 |
| Copper | ppm | ASTM D5185(m) | >20 | ▲ **42** | ▲ 48 | 38 |
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **18883** | ▲ 7540 | ▲ 13740 |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **1763** | 1059 | ▲ 2470 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **21/18/13** | ▲ 20/17/13 | ▲ 21/18/13 |


**Customer Id:** WEL191WEL
**Sample No.:** WC0851657
**Lab Number:** 02577489
**Test Package:** IND 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
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Kevin.Marson@wearcheck.com

*To change component or sample information:*
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gloria.gonzalez@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Filter | --- | --- | ? | We recommend you service the filters on this component. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |
| Contact Required | --- | --- | ? | Please contact your representative for information regarding the proper sampling kits for your service. |
| Alert | --- | --- | ? | NOTE:  We recommend using IND 3 test kits, |

## HISTORICAL DIAGNOSIS

**25 May 2023 Diag: Kevin Marson**

**WEAR**

We recommend you service the filters on this component. Resample at the next service interval to monitor.Copper ppm levels are noted. All other 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**

**08 Jan 2023 Diag: Kevin Marson**

**ISO**

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.All component wear rates are normal. Particles >4µm and oil cleanliness are abnormally high. Particles >6µm are notably high. The oil viscosity is higher than typical. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

**view report**

**19 Sep 2022 Diag: Kevin Marson**

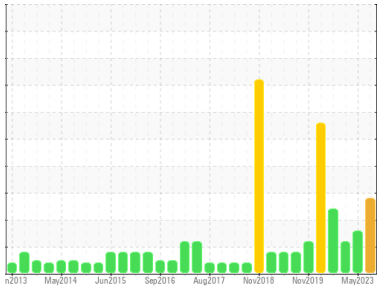
**WEAR**

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.Copper ppm levels are noted. All other component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. Viscosity of sample indicates oil is within ISO 46 range, advise investigate. 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



**WEAR**

Machine Id
## C3-C8 HPU HYD. TESTER CONV. HPU
Component
**Hydraulic System**
Fluid
**FORSYTHE TURBO HYDRAULIC AW 32 (400 LTR)**

## DIAGNOSIS

**Recommendation**

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

**Wear**

Copper ppm levels are noted. Lead ppm levels are marginal. All other 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 oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0851657** | WC0822499 | WC0777250 |
| Sample Date | | Client Info | | **21 Aug 2023** | 25 May 2023 | 08 Jan 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** | ATTENTION | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >20 | **6** | 6 | 3 |
| Chromium | ppm | ASTM D5185(m) | >20 | **2** | 2 | 2 |
| Nickel | ppm | ASTM D5185(m) | >20 | **<1** | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | **<1** | <1 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **<1** | 0 | 0 |
| Lead | ppm | ASTM D5185(m) | >20 | ▲ **13** | 1 | 1 |
| Copper | ppm | ASTM D5185(m) | >20 | ▲ **42** | ▲ 48 | 38 |
| Tin | ppm | ASTM D5185(m) | >20 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **0** | 0 | <1 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | | **<1** | 1 | <1 |
| Barium | ppm | ASTM D5185(m) | | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |
| Manganese | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | | **2** | 2 | 3 |
| Calcium | ppm | ASTM D5185(m) | | **23** | 25 | 28 |
| Phosphorus | ppm | ASTM D5185(m) | | **394** | 419 | 402 |
| Zinc | ppm | ASTM D5185(m) | | **406** | 411 | 416 |
| Sulfur | ppm | ASTM D5185(m) | | **945** | 1015 | 1014 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

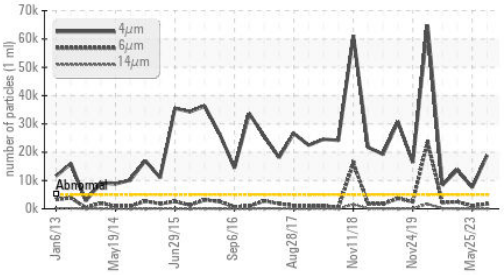
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >15 | **<1** | <1 | 0 |
| Sodium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | <1 | 0 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **18883** | ▲ 7540 | ▲ 13740 |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **1763** | 1059 | ▲ 2470 |
| Particles >14µm | | ASTM D7647 | >160 | **80** | 50 | 69 |
| Particles >21µm | | ASTM D7647 | >40 | **23** | 11 | 14 |
| Particles >38µm | | ASTM D7647 | >10 | **1** | 1 | 1 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **21/18/13** | ▲ 20/17/13 | ▲ 21/18/13 |

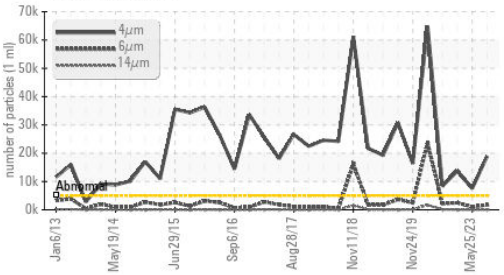
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | | **0.59** | 0.63 | 0.60 |

# OIL ANALYSIS REPORT

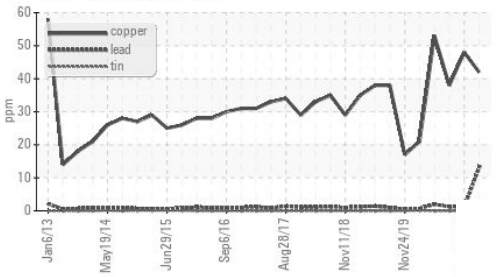
Particle Trend



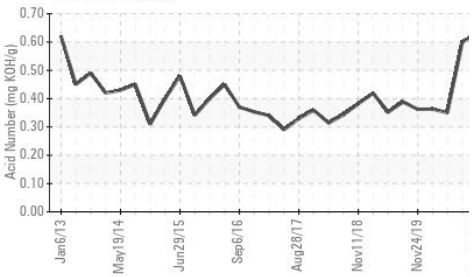

Particle Trend



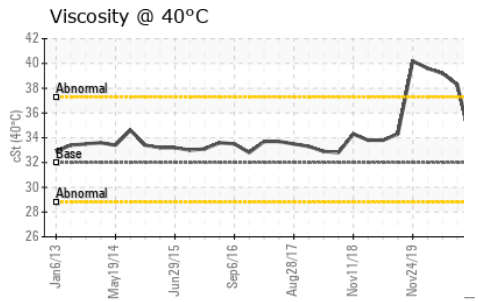

Non-ferrous Metals




Acid Number

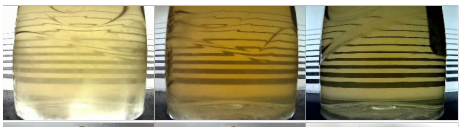



Viscosity @ 40°C



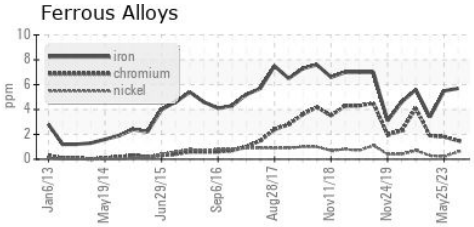

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | Visual* | NONE | **NONE** | NONE | NONE |
|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

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 32 | **34.9** | 33.2 | 38.3 |

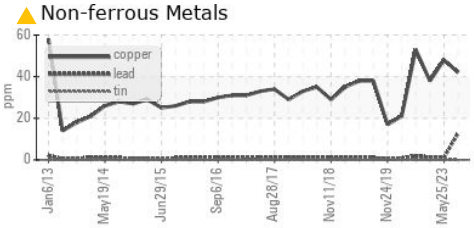
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

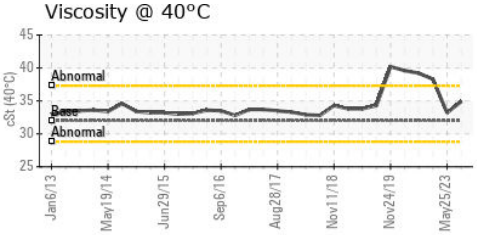
Ferrous Alloys



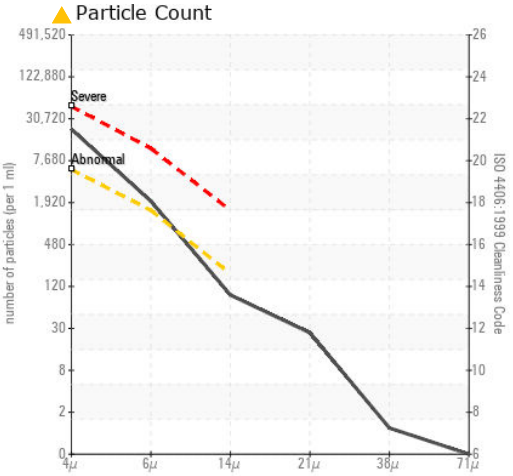

Non-ferrous Metals



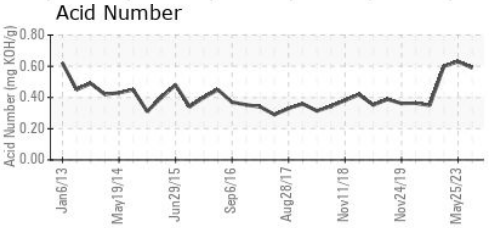

Viscosity @ 40°C




Particle Count




Acid Number




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0851657 **Received** : 22 Aug 2023
**Lab Number** : 02577489 **Diagnosed** : 23 Aug 2023
**Unique Number** : 5630549 **Diagnostician** : Kevin Marson
**Test Package** : IND 2 ( Additional Tests: TAN Man )

*To discuss this sample report, contact Customer Service at 1-800-268-2131.*
*Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.*
*Validity of results and interpretation are based on the sample and information as supplied.*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