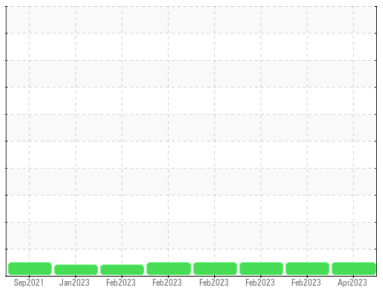
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
**PU**
Machine Id
**[PU] 03**
Component
**Supply Oil**
Fluid
**SHELL AEROSHELL 41 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. ( Customer Sample Comment: Possibly contaminated with Nuto-H-32 )

**Wear**
All component wear rates are normal.

**Contamination**
The water content is negligible. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. There is no indication of any contamination in the oil. The system and fluid cleanliness is acceptable.

**Fluid Condition**
Additive levels indicate the addition of a different brand, or type of oil. 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 | | **WC0741644** | WC0741642 | WC0741649 |
| Sample Date | | Client Info | | **20 Apr 2023** | 21 Feb 2023 | 17 Feb 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 | | | | **NORMAL** | NORMAL | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >20 | **0** | 0 | 0 |
| Chromium | ppm | ASTM D5185(m) | >20 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >20 | **0** | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **0** | <1 | 0 |
| Lead | ppm | ASTM D5185(m) | >20 | **0** | 0 | <1 |
| Copper | ppm | ASTM D5185(m) | >20 | **0** | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >20 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| 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) | 0 | **1** | 2 | 2 |
| Molybdenum | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Calcium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Phosphorus | ppm | ASTM D5185(m) | | **465** | 441 | 449 |
| Zinc | ppm | ASTM D5185(m) | | **4** | <1 | <1 |
| Sulfur | ppm | ASTM D5185(m) | | **127** | 94 | 92 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >15 | **<1** | 1 | 1 |
| Sodium | ppm | ASTM D5185(m) | | **0** | <1 | 0 |
| Potassium | ppm | ASTM D5185(m) | >20 | **0** | 0 | <1 |
| Water | % | ASTM D6304* | >0.45 | **0.003** | 0.001 | 0.001 |
| ppm Water | ppm | ASTM D6304* | >4500 | **29.2** | 7.4 | 1.2 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles 5-15µm | count | NAS 1638 | >32000 | **8188** | 4121 | 3080 |
| Particles 15-25µm | count | NAS 1638 | >5700 | **618** | 327 | 426 |
| Particles 25-50µm | count | NAS 1638 | >1012 | **245** | 80 | 207 |
| Particles 50-100µm | count | NAS 1638 | >180 | **17** | 33 | 26 |
| Particles >100µm | count | NAS 1638 | >32 | **0** | 0 | 7 |
| NAS 1638 | Class | NAS 1638 | >7 | **6** | 5 | 5 |

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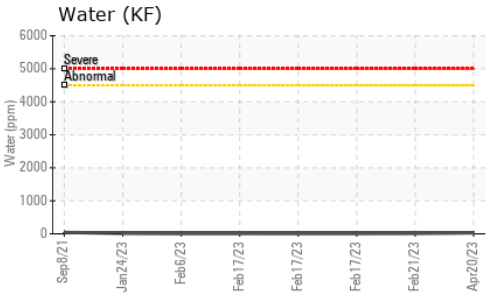
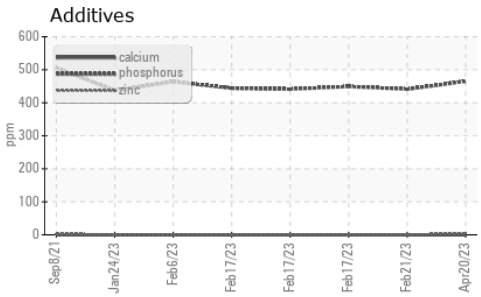
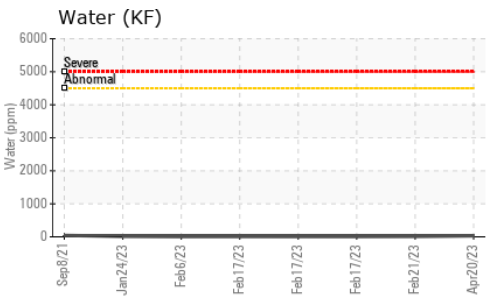
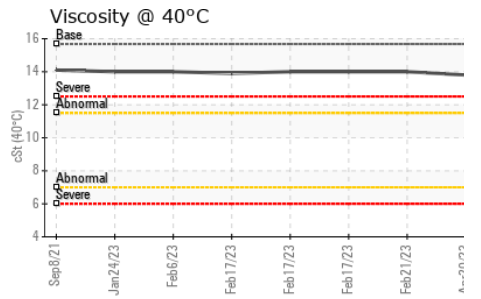
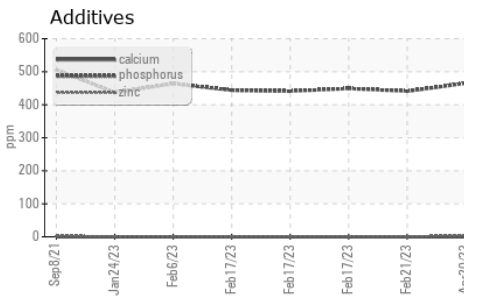


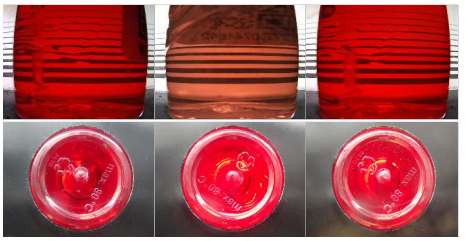




| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.07 | **0.06** | 0.08 | 0.06 |

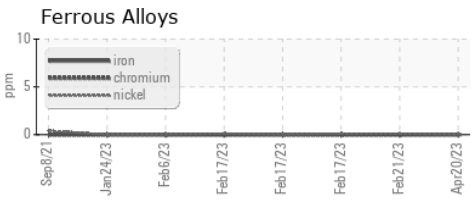
| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| 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* | >0.45 | **NEG** | NEG | NEG |
| Free Water | scalar | Visual* | | **NEG** | NEG | NEG |

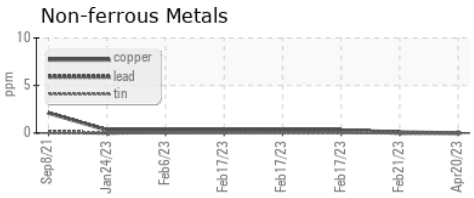
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 15.68 | **13.8** | 14.0 | 14.0 |

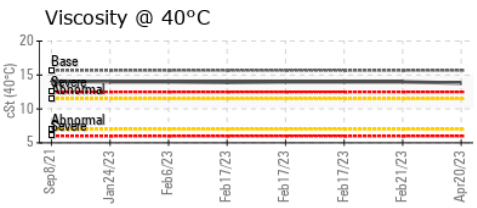
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | | | |
| Bottom | | | | | |

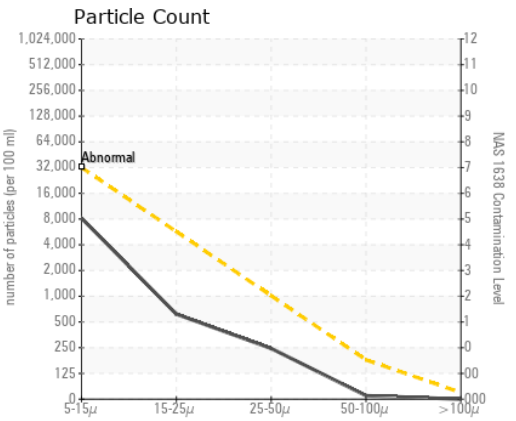


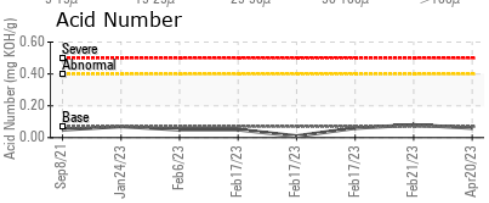
## GRAPHS




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0741644 **Received** : 26 Apr 2023
**Lab Number** : 02553617 **Tested** : 27 Apr 2023
**Unique Number** : 5566632 **Diagnosed** : 27 Apr 2023 - Kevin Marson
**Test Package** : IND 2 ( Additional Tests: KF, PrtCount, PrtCountNAS, 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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