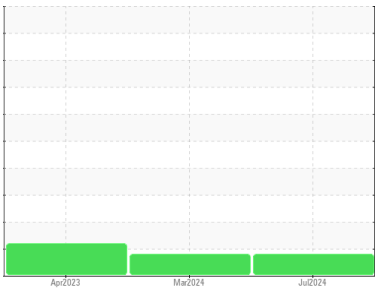
# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Machine Id
## 050-03 WC-03 (S/N 7142-0313)
Component
**Hydraulic System**
Fluid
**CHEVRON RANDO HD 46 (53 GAL)**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. Oil and 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 < 6 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 | | **PH0003023** | PH0000584 | PH0000596 |
| Sample Date | | Client Info | | **02 Jul 2024** | 08 Mar 2024 | 14 Apr 2023 |
| Machine Age | hrs | Client Info | | **559** | 0 | 22590 |
| Oil Age | hrs | Client Info | | **559** | 0 | 22590 |
| Oil Changed | | Client Info | | **Changed** | Not Changd | N/A |
| Sample Status | | | | **ATTENTION** | ABNORMAL | ABNORMAL |

| 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 | **0** | 0 | 1 |
| Chromium | ppm | ASTM D5185m | >20 | **0** | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **0** | 0 | <1 |
| Lead | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >20 | **0** | <1 | 3 |
| Tin | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

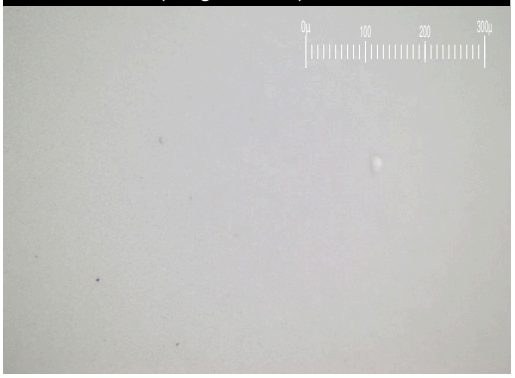
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 1 | 0 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **<1** | 7 | <1 |
| Calcium | ppm | ASTM D5185m | | **37** | 24 | 32 |
| Phosphorus | ppm | ASTM D5185m | | **316** | 63 | 302 |
| Zinc | ppm | ASTM D5185m | | **374** | 71 | 345 |
| Sulfur | ppm | ASTM D5185m | | **810** | 427 | 882 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **3** | <1 | 6 |
| Sodium | ppm | ASTM D5185m | | **<1** | 1 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >1300 | **1720** | ▲ 2642 | ▲ 23486 |
| Particles >6µm | | ASTM D7647 | >640 | **362** | 72 | 939 |
| Particles >14µm | | ASTM D7647 | >80 | **8** | 5 | 26 |
| Particles >21µm | | ASTM D7647 | >20 | **2** | 2 | 5 |
| Particles >38µm | | ASTM D7647 | >4 | **0** | 0 | 1 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >17/16/13 | **18/16/10** | ▲ 19/13/10 | ▲ 22/17/12 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.30** | 0.062 | 0.31 |

Particle Filter (Magn: 200 x)



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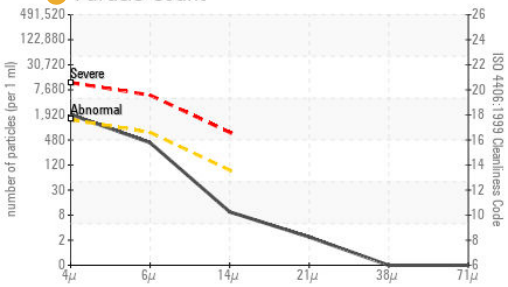
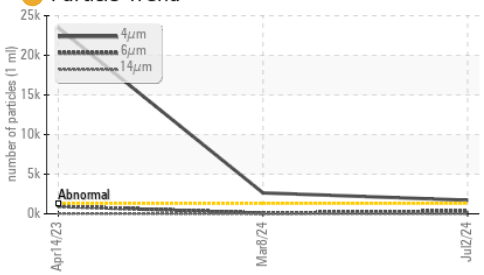
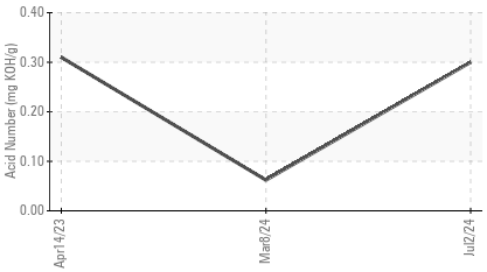
Particle Count



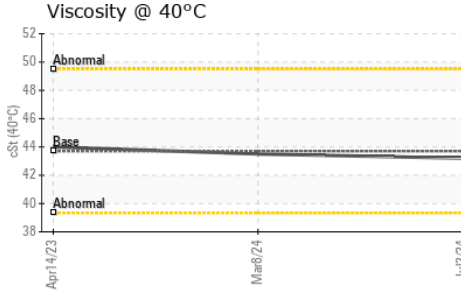

Particle Trend




Acid Number




Viscosity @ 40°C



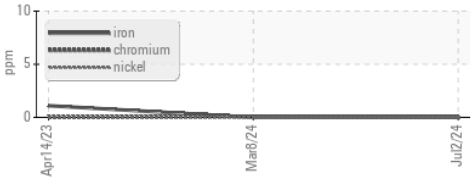

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 43.7 | **43.2** | 43.5 | 44.0 |

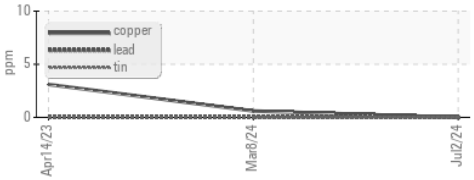
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | | | |
| Bottom | | | | | |
| PrtFilter | | | | | |


GRAPHS

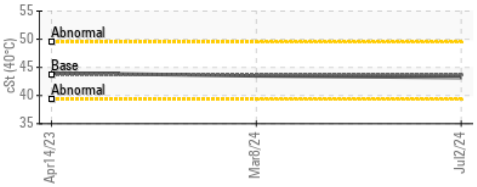
Ferrous Alloys



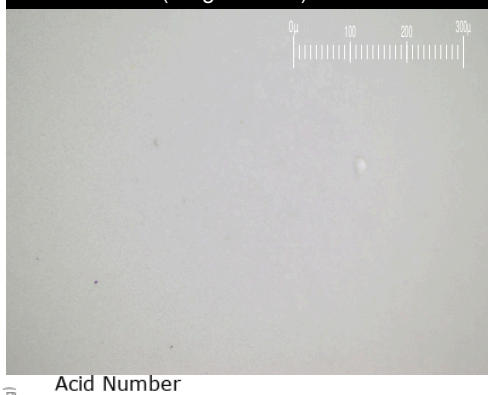

Non-ferrous Metals



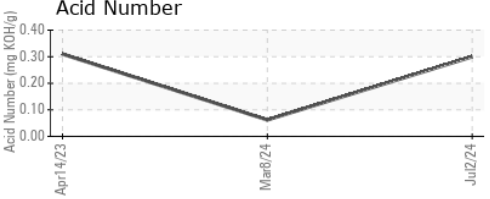

Viscosity @ 40°C




Particle Filter (Magn: 200 x)



Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PH0003023 **Received** : 16 Jul 2024
**Lab Number** : 06237766 **Tested** : 18 Jul 2024
**Unique Number** : 11126600 **Diagnosed** : 18 Jul 2024 - Jonathan Hester
**Test Package** : PLANT ( Additional Tests: PrtFilter )

*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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Report Id: SMCSAN [WUSCAR] 06237766 (Generated: 07/18/2024 15:53:19) Rev: 1

Submitted By: SUSAN BENNETT