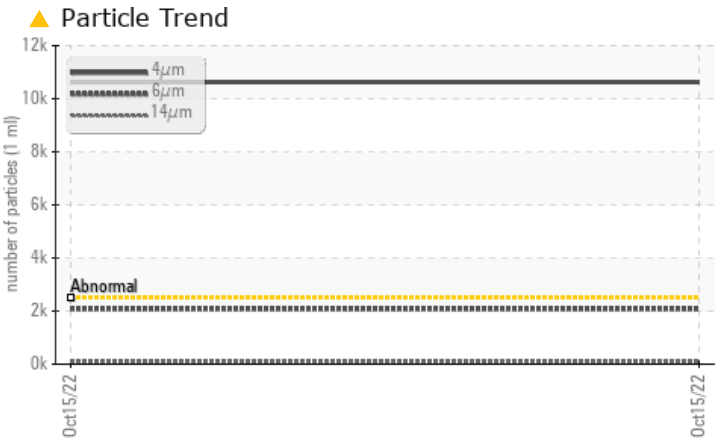
# PROBLEM SUMMARY

Sample Rating Trend


ISO

Area
## Steering Gears
Machine Id
## Steering Gear Starboard
Component
**Rear Right Steering**
Fluid
**PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (--- GAL)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Status | | | | **ABNORMAL** | --- | --- |
| Particles >4µm | | ASTM D7647 | >2500 | ▲ **10627** | --- | --- |
| Particles >6µm | | ASTM D7647 | >640 | ▲ **2081** | --- | --- |
| Particles >14µm | | ASTM D7647 | >80 | ▲ **90** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >18/16/13 | ▲ **21/18/14** | --- | --- |


**Customer Id:** VMASSEY
**Sample No.:** WC0707623
**Lab Number:** 02519390
**Test Package:** MAR 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
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wesd@wearcheck.ca

*To change component or sample information:*
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Resample | MISSED | Jan 13 2023 | ? | We recommend an early resample to monitor this condition. |

## HISTORICAL DIAGNOSIS

# OIL ANALYSIS REPORT

Sample Rating Trend


ISO

Area
## Steering Gears
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Component
**Rear Right Steering**
Fluid
**PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (--- GAL)**

## DIAGNOSIS

**Recommendation**
The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

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

**Contamination**
Oil Cleanliness are abnormally high. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high.

**Fluid Condition**
The AN level is acceptable for this fluid. The fluid 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 | | **WC0707623** | --- | --- |
| Sample Date | | Client Info | | **15 Oct 2022** | --- | --- |
| Machine Age | hrs | Client Info | | **0** | --- | --- |
| Oil Age | hrs | Client Info | | **0** | --- | --- |
| Oil Changed | | Client Info | | **N/A** | --- | --- |
| Sample Status | | | | **ABNORMAL** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >50 | **1** | --- | --- |
| Chromium | ppm | ASTM D5185(m) | >15 | **0** | --- | --- |
| Nickel | ppm | ASTM D5185(m) | >5 | **0** | --- | --- |
| Titanium | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Silver | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Aluminum | ppm | ASTM D5185(m) | >5 | **0** | --- | --- |
| Lead | ppm | ASTM D5185(m) | >10 | **<1** | --- | --- |
| Copper | ppm | ASTM D5185(m) | >50 | **10** | --- | --- |
| Tin | ppm | ASTM D5185(m) | >5 | **<1** | --- | --- |
| Antimony | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Vanadium | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Beryllium | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Cadmium | ppm | ASTM D5185(m) | | **0** | --- | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 0 | **0** | --- | --- |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185(m) | 0 | **0** | --- | --- |
| Manganese | ppm | ASTM D5185(m) | 1 | **0** | --- | --- |
| Magnesium | ppm | ASTM D5185(m) | 0 | **<1** | --- | --- |
| Calcium | ppm | ASTM D5185(m) | 100 | **105** | --- | --- |
| Phosphorus | ppm | ASTM D5185(m) | 670 | **711** | --- | --- |
| Zinc | ppm | ASTM D5185(m) | 850 | **839** | --- | --- |
| Sulfur | ppm | ASTM D5185(m) | 1600 | **1667** | --- | --- |
| Lithium | ppm | ASTM D5185(m) | | **<1** | --- | --- |

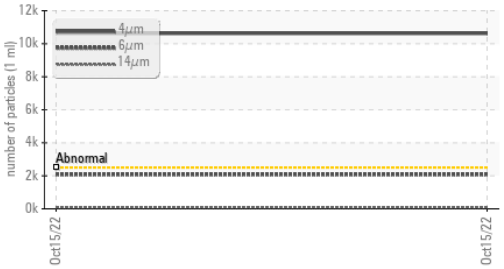
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >15 | **<1** | --- | --- |
| Sodium | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | --- | --- |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >2500 | ▲ **10627** | --- | --- |
| Particles >6µm | | ASTM D7647 | >640 | ▲ **2081** | --- | --- |
| Particles >14µm | | ASTM D7647 | >80 | ▲ **90** | --- | --- |
| Particles >21µm | | ASTM D7647 | >20 | **23** | --- | --- |
| Particles >38µm | | ASTM D7647 | >4 | **0** | --- | --- |
| Particles >71µm | | ASTM D7647 | >3 | **0** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >18/16/13 | ▲ **21/18/14** | --- | --- |

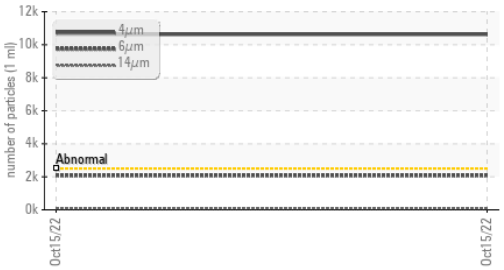
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.60 | **0.82** | --- | --- |

# OIL ANALYSIS REPORT

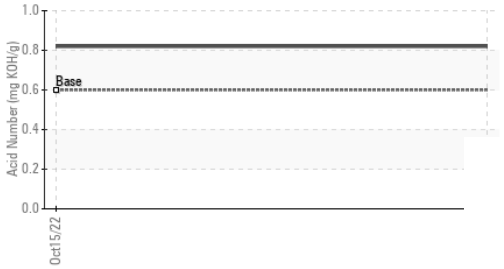
Particle Trend



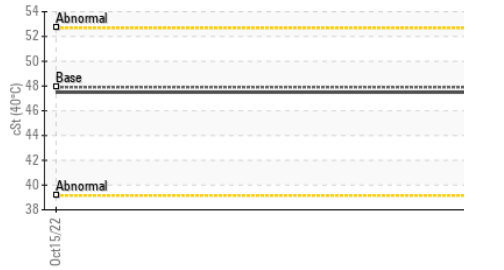

Particle Trend




Acid Number

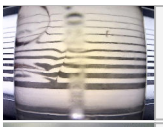
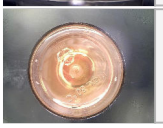



Viscosity @ 40°C




| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | Visual* | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | Visual* | NONE | **NONE** | --- | --- |
| Precipitate | scalar | Visual* | NONE | **NONE** | --- | --- |
| Silt | scalar | Visual* | NONE | **NONE** | --- | --- |
| Debris | scalar | Visual* | NONE | **NONE** | --- | --- |
| Sand/Dirt | scalar | Visual* | NONE | **NONE** | --- | --- |
| Appearance | scalar | Visual* | NORML | **NORML** | --- | --- |
| Odor | scalar | Visual* | NORML | **NORML** | --- | --- |
| Emulsified Water | scalar | Visual* | >0.2 | **NEG** | --- | --- |
| Free Water | scalar | Visual* | | **NEG** | --- | --- |

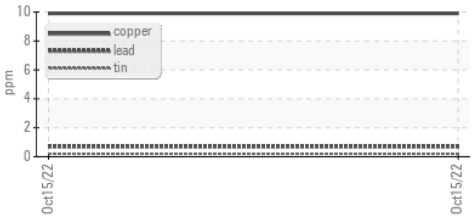
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 47.9 | **47.5** | --- | --- |

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | *no image* | *no image* |
| Bottom | | |  | *no image* | *no image* |

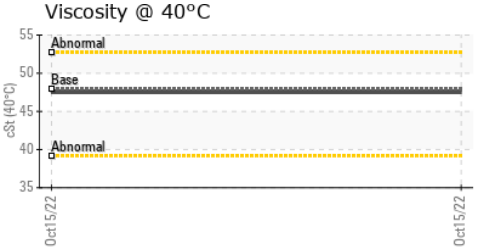
## GRAPHS

Ferrous Alloys

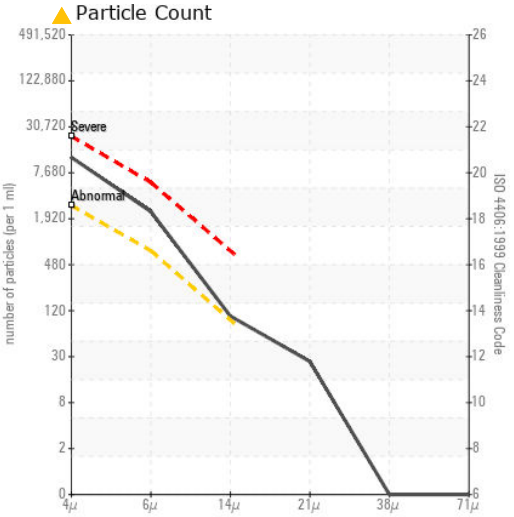

Non-ferrous Metals



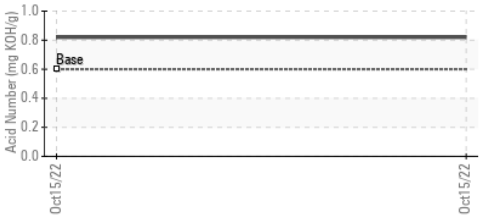

Viscosity @ 40°C




Particle Count




Acid Number




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0707623 **Received** : 28 Oct 2022
**Lab Number** : 02519390 **Diagnosed** : 31 Oct 2022
**Unique Number** : 5476370 **Diagnostician** : Wes Davis
**Test Package** : MAR 2 ( Additional Tests: PrtCount )

*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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