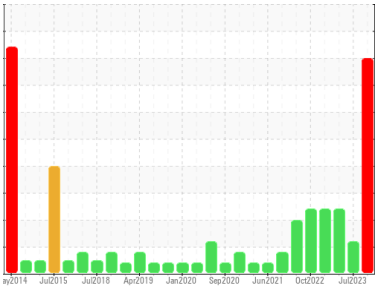
# PROBLEM SUMMARY

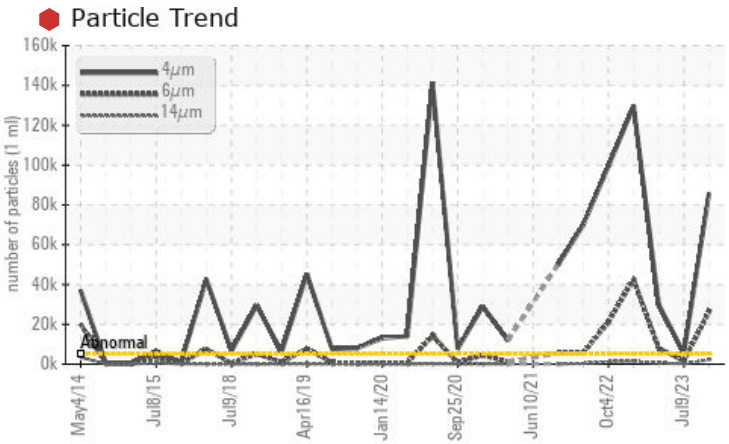
**Sample Rating Trend**



**ISO**

Machine Id
## SL 1B
Component
**Hydraulic System**
Fluid
**ROYAL PURPLE SYNDRAULIC 68 (100 GAL)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | SEVERE | ATTENTION | ABNORMAL |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | **85795** | 5427 | 29964 |
| Particles >6µm | | ASTM D7647 | >1300 | **26264** | 1497 | 8049 |
| Particles >14µm | | ASTM D7647 | >160 | **2224** | 159 | 509 |
| Particles >21µm | | ASTM D7647 | >40 | **650** | 49 | 96 |
| Particles >38µm | | ASTM D7647 | >10 | **45** | 2 | 11 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | **24/22/18** | 20/18/14 | 22/20/16 |

**Customer Id:** JOHPUL
**Sample No.:** RP0018150
**Lab Number:** 05979602
**Test Package:** IND 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:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Filter | --- | --- | ? | We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. |
| Resample | --- | --- | ? | Resample in 30-45 days to monitor this situation. |
| Check Breathers | --- | --- | ? | The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. |
| Check Dirt Access | --- | --- | ? | We advise that you check all areas where contaminants can enter the system. |
| Filter Fluid | --- | --- | ? | We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. |

## HISTORICAL DIAGNOSIS

**09 Jul 2023 Diag: Wes Davis**

ISO

We recommend you service the filters on this component. Resample at the next service interval to monitor.All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

**23 Mar 2023 Diag: Doug Bogart**

ISO

We recommend you service the filters on this component. Resample at the next service interval to monitor.All component wear rates are normal. There is a high amount of particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

**09 Jan 2023 Diag: Jonathan Hester**

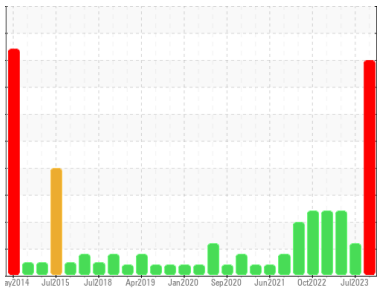
ISO

We recommend you service the filters on this component. Resample at the next service interval to monitor.All component wear rates are normal. There is a high amount of particulates present in the oil. 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



ISO

Machine Id
**SL 1B**
Component
**Hydraulic System**
Fluid
**ROYAL PURPLE SYNDRAULIC 68 (100 GAL)**

## DIAGNOSIS

**Recommendation**

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.

**Wear**

All component wear rates are normal.

**Contamination**

There is a high amount of particulates (2 to 100 microns in size) present in the oil. The water content is negligible.

**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 | | **RP0018150** | RP0018348 | RP0028401 |
| Sample Date | | Client Info | | **21 Sep 2023** | 09 Jul 2023 | 23 Mar 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 | | | | **SEVERE** | ATTENTION | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | **2** | 1 | <1 |
| Chromium | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >20 | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **0** | <1 | 0 |
| Lead | ppm | ASTM D5185m | >20 | **0** | <1 | 0 |
| Copper | ppm | ASTM D5185m | >20 | **5** | 3 | 2 |
| Tin | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | <1 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Barium | ppm | ASTM D5185m | | **0** | 1 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | | **0** | <1 | 1 |
| Calcium | ppm | ASTM D5185m | | **30** | 11 | 44 |
| Phosphorus | ppm | ASTM D5185m | | **321** | 320 | 333 |
| Zinc | ppm | ASTM D5185m | | **399** | 345 | 423 |

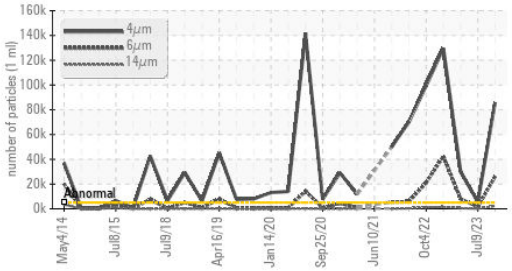
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **<1** | <1 | <1 |
| Sodium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Water | % | ASTM D6304 | >0.05 | **0.008** | 0.013 | 0.011 |
| ppm Water | ppm | ASTM D6304 | >500 | **86.5** | 139.5 | 114.1 |

| FLUID CLEANLINESS | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Particles >4µm | ASTM D7647 | >5000 | **85795** | ▲ 5427 | ▲ 29964 |
| Particles >6µm | ASTM D7647 | >1300 | **26264** | ▲ 1497 | ▲ 8049 |
| Particles >14µm | ASTM D7647 | >160 | **2224** | 159 | ▲ 509 |
| Particles >21µm | ASTM D7647 | >40 | **650** | 49 | ▲ 96 |
| Particles >38µm | ASTM D7647 | >10 | **45** | 2 | ▲ 11 |
| Particles >71µm | ASTM D7647 | >3 | **2** | 0 | 0 |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14 | **24/22/18** | ▲ 20/18/14 | ▲ 22/20/16 |

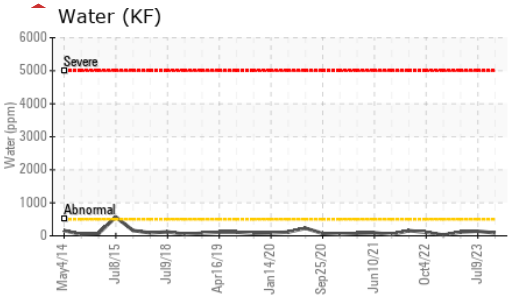
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **0.45** | 0.35 | 0.42 |

# OIL ANALYSIS REPORT

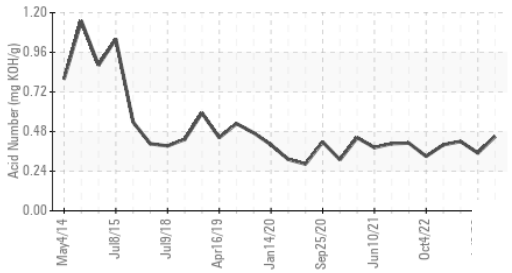
Particle Trend



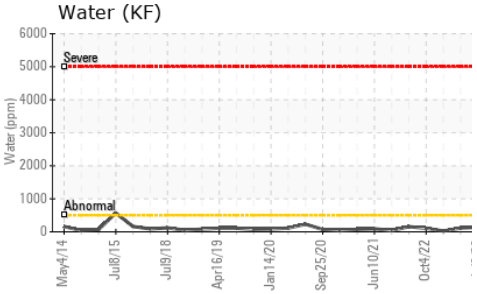

Water (KF)



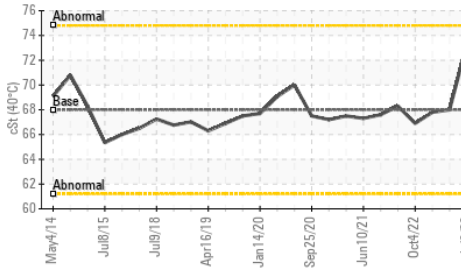

Acid Number




Water (KF)

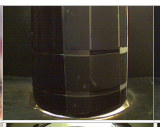
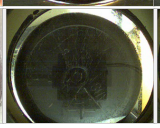
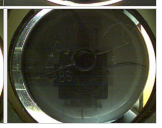



Viscosity @ 40°C



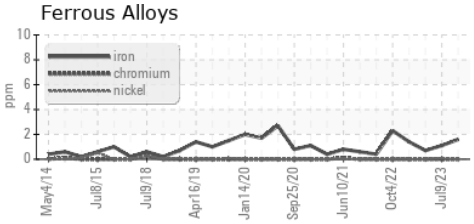

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | LIGHT |
| 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 | 68.0 | **68.0** | 73.3 | 68.0 |

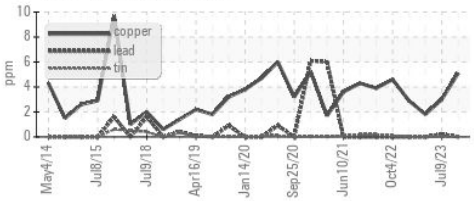
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  |  |  |
| Bottom | | |  |  |  |

## GRAPHS

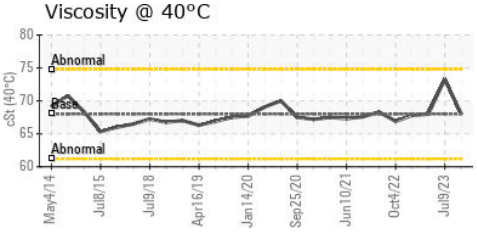
Ferrous Alloys



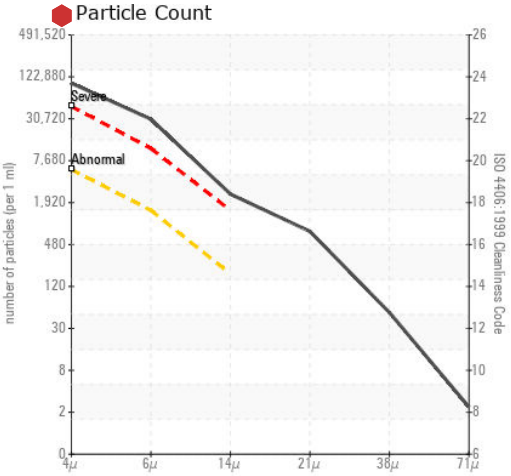

Non-ferrous Metals



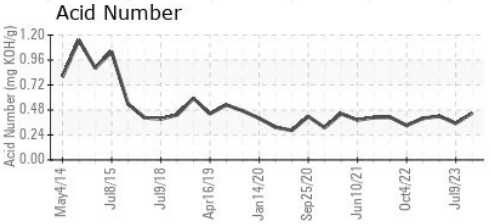

Viscosity @ 40°C




Particle Count




Acid Number




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : RP0018150 **Received** : 16 Oct 2023
**Lab Number** : 05979602 **Diagnosed** : 17 Oct 2023
**Unique Number** : 10696897 **Diagnostician** : Wes Davis
**Test Package** : IND 2

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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