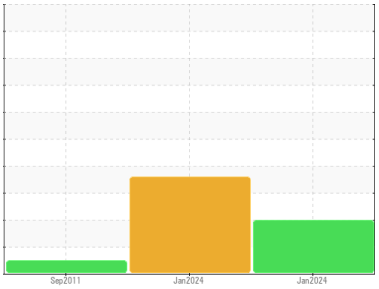
# OIL ANALYSIS REPORT

Sample Rating Trend




VISCOSITY

Area
**TM 11**
Machine Id
**TM 11 AIR SIDE MACHINE CHEST**
Component
**Gearbox**
Fluid
**ROYAL PURPLE SYNERGY 90/220 (--- GAL)**

## DIAGNOSIS

**▲ Recommendation**
Resample at the next service interval to monitor.

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

**Contamination**
There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

**▲ Fluid Condition**
The oil viscosity is lower than normal. This plus the additive levels indicates the addition of a different brand, or type of oil. Confirm oil type. The AN level is acceptable for this fluid.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **RP0037974** | RP0038096 | RP115061 |
| Sample Date | | Client Info | | **30 Jan 2024** | 29 Jan 2024 | 23 Sep 2011 |
| 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 | | | | **ATTENTION** | SEVERE | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| PQ | | ASTM D8184 | | **14** | 38 | --- |
| Iron | ppm | ASTM D5185m | >200 | **74** | 98 | 2 |
| Chromium | ppm | ASTM D5185m | >15 | **<1** | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >15 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **0** | 2 | <1 |
| Lead | ppm | ASTM D5185m | >100 | **0** | <1 | 0 |
| Copper | ppm | ASTM D5185m | >200 | **<1** | <1 | <1 |
| Tin | ppm | ASTM D5185m | >25 | **<1** | <1 | 0 |
| Antimony | ppm | ASTM D5185m | >5 | **---** | --- | 1316 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **2** | 37 | <1 |
| Barium | ppm | ASTM D5185m | | **20** | 0 | 1 |
| Molybdenum | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Manganese | ppm | ASTM D5185m | | **2** | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | | ▲ **34** | 0 | 4 |
| Calcium | ppm | ASTM D5185m | | ▲ **25** | 2 | 4 |
| Phosphorus | ppm | ASTM D5185m | 370 | **270** | 357 | 235 |
| Zinc | ppm | ASTM D5185m | | ▲ **228** | 0 | 10 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | **2** | 2 | <1 |
| Sodium | ppm | ASTM D5185m | | **4** | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 3 | 0 |
| Water | % | ASTM D6304 | >0.2 | **0.007** | 0.015 | 0.003 |
| ppm Water | ppm | ASTM D6304 | >2000 | **79** | 158 | 30 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >20000 | **14709** | ⬢ 111914 | 1205 |
| Particles >6µm | | ASTM D7647 | >5000 | **3028** | ⬢ 24362 | 656 |
| Particles >14µm | | ASTM D7647 | >640 | **117** | 368 | 111 |
| Particles >21µm | | ASTM D7647 | >160 | **25** | 56 | 37 |
| Particles >38µm | | ASTM D7647 | >40 | **3** | 1 | 5 |
| Particles >71µm | | ASTM D7647 | >10 | **1** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | **21/19/14** | ⬢ 24/22/16 | 17/17/14 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.33 | **0.43** | 1.87 | 1.14 |

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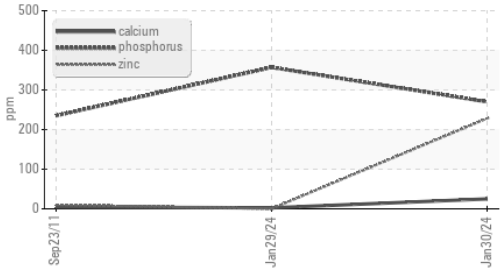
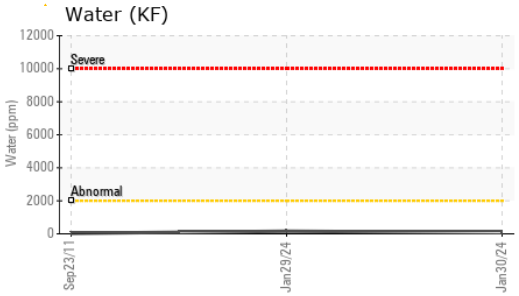
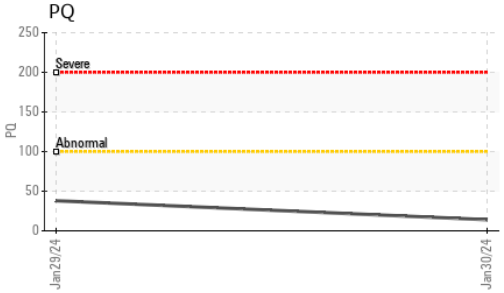
Additives



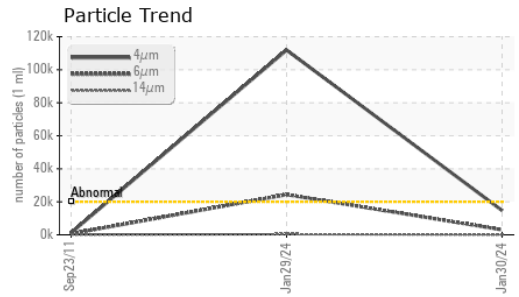

Water (KF)



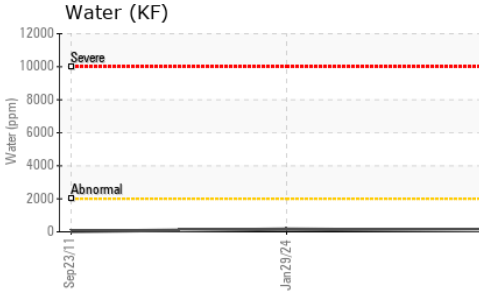

PQ




Particle Trend




Water (KF)



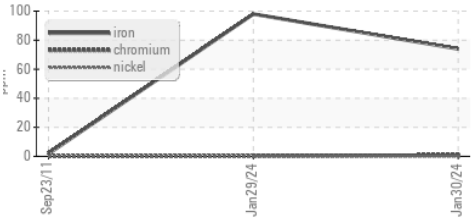

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **LIGHT** | NONE | LIGHT |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 216.1 | ▲ **67.9** | 225 | 201.5 |

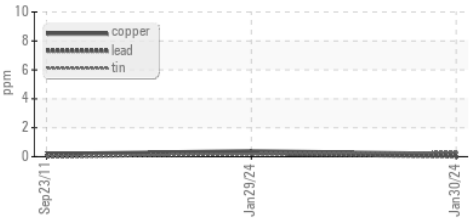
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  |  | *no image* |
| Bottom | | |  |  | *no image* |

GRAPHS

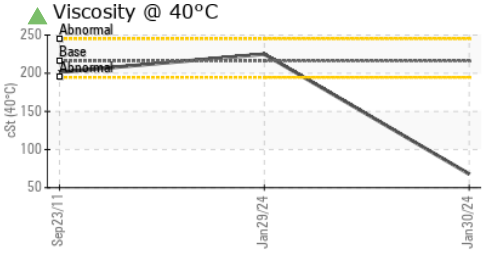
Ferrous Alloys



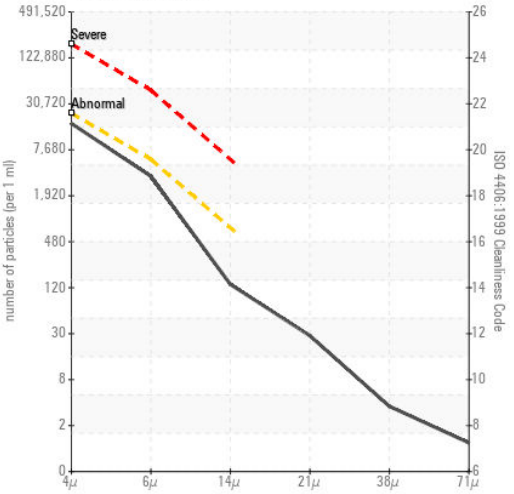

Non-ferrous Metals



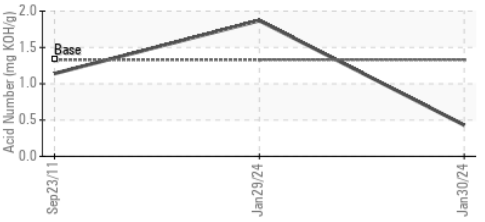

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : RP0037974 **Recieved** : 31 Jan 2024
**Lab Number** : 06075761 **Diagnosed** : 02 Feb 2024
**Unique Number** : 10857852 **Diagnostician** : Don Baldridge
**Test Package** : IND 2 ( Additional Tests: PQ, PrtCount )

*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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