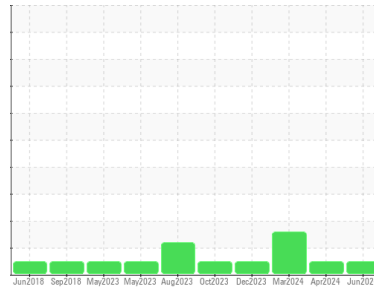




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area

**(C-GQXD)**

Machine Id

**[C-GQXD] PIPER PA31-350 L-949-68A**

Component

**Right Piston Aircraft Engine**

Fluid

**PHILLIPS 66 AVIATION X/C OIL SAE20W50 (12 QTS)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

The water content is negligible. There is no indication of any contamination in the oil.

### Fluid Condition

The condition of the oil is acceptable for the time in service.

## SAMPLE INFORMATION

|               | method      | limit/base  | current            | history1    | history2    |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info |             | <b>WC0945324</b>   | WC0886726   | WC0896317   |
| Sample Date   | Client Info |             | <b>27 Jun 2024</b> | 18 Apr 2024 | 18 Mar 2024 |
| TSN           | hrs         | Client Info | <b>0</b>           | 0           | 0           |
| TSO           | hrs         | Client Info | <b>2833</b>        | 2690        | 2637        |
| Oil Age       | hrs         | Client Info | <b>55</b>          | 53          | 59          |
| Oil Changed   |             | Client Info | <b>Changed</b>     | Changed     | N/A         |
| Sample Status |             |             | <b>NORMAL</b>      | NORMAL      | ABNORMAL    |

## CONTAMINATION

|        | method    | limit/base | current        | history1 | history2 |
|--------|-----------|------------|----------------|----------|----------|
| Fuel   | WC Method | >4.0       | <b>&lt;1.0</b> | <1.0     | <1.0     |
| Glycol | WC Method |            | <b>NEG</b>     | NEG      | NEG      |

## WEAR METALS

|           | method | limit/base    | current | history1     | history2 |      |
|-----------|--------|---------------|---------|--------------|----------|------|
| Iron      | ppm    | ASTM D5185(m) | >90     | <b>30</b>    | 33       | 36   |
| Chromium  | ppm    | ASTM D5185(m) | >20     | <b>8</b>     | 8        | 9    |
| Nickel    | ppm    | ASTM D5185(m) | >15     | <b>11</b>    | 8        | 9    |
| Titanium  | ppm    | ASTM D5185(m) |         | <b>&lt;1</b> | <1       | 0    |
| Silver    | ppm    | ASTM D5185(m) | >5      | <b>&lt;1</b> | 0        | <1   |
| Aluminum  | ppm    | ASTM D5185(m) | >25     | <b>7</b>     | 6        | 6    |
| Lead      | ppm    | ASTM D5185(m) | >20000  | <b>9450</b>  | 8434     | 8737 |
| Copper    | ppm    | ASTM D5185(m) | >25     | <b>6</b>     | 6        | 7    |
| Tin       | ppm    | ASTM D5185(m) | >30     | <b>0</b>     | 0        | 0    |
| Antimony  | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0        | 0    |
| Vanadium  | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0        | 0    |
| Beryllium | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0        | 0    |
| Cadmium   | ppm    | ASTM D5185(m) |         | <b>1</b>     | 1        | 1    |

## ADDITIVES

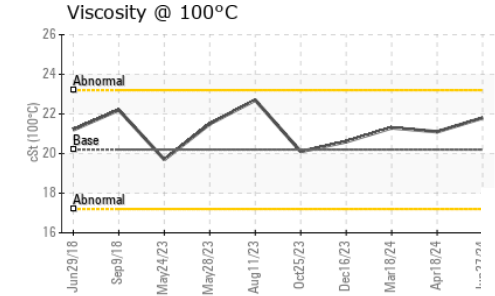
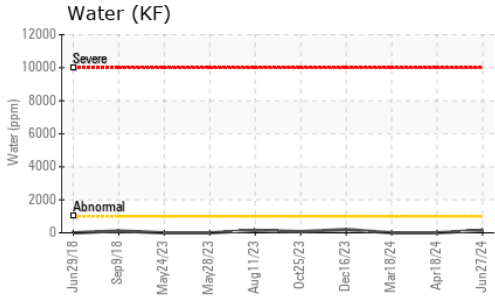
|            | method | limit/base    | current | history1     | history2 |      |
|------------|--------|---------------|---------|--------------|----------|------|
| Boron      | ppm    | ASTM D5185(m) | 0.0     | <b>&lt;1</b> | 0        | 0    |
| Barium     | ppm    | ASTM D5185(m) | 0.0     | <b>0</b>     | 0        | 0    |
| Molybdenum | ppm    | ASTM D5185(m) | 0.0     | <b>1</b>     | 0        | 0    |
| Manganese  | ppm    | ASTM D5185(m) | 0.0     | <b>0</b>     | 0        | 0    |
| Magnesium  | ppm    | ASTM D5185(m) | 0.0     | <b>4</b>     | 13       | 8    |
| Calcium    | ppm    | ASTM D5185(m) | 4.7     | <b>2</b>     | 3        | 3    |
| Phosphorus | ppm    | ASTM D5185(m) | 0.0     | <b>2</b>     | <1       | <1   |
| Zinc       | ppm    | ASTM D5185(m) | 0.1     | <b>4</b>     | 5        | 5    |
| Sulfur     | ppm    | ASTM D5185(m) | 848     | <b>999</b>   | 979      | 1031 |
| Lithium    | ppm    | ASTM D5185(m) |         | <b>&lt;1</b> | <1       | <1   |

## CONTAMINANTS

|           | method | limit/base    | current | history1     | history2 |     |
|-----------|--------|---------------|---------|--------------|----------|-----|
| Silicon   | ppm    | ASTM D5185(m) | >15     | <b>5</b>     | 3        | 4   |
| Sodium    | ppm    | ASTM D5185(m) |         | <b>&lt;1</b> | <1       | <1  |
| Potassium | ppm    | ASTM D5185(m) | >20     | <b>&lt;1</b> | <1       | <1  |
| Water     | %      | ASTM D6304*   | >0.1    | <b>0.015</b> | ---      | --- |
| ppm Water | ppm    | ASTM D6304*   | >1000   | <b>152</b>   | ---      | --- |



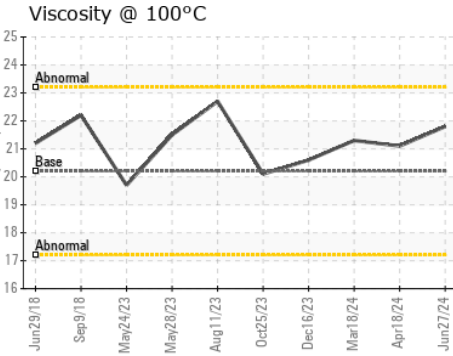
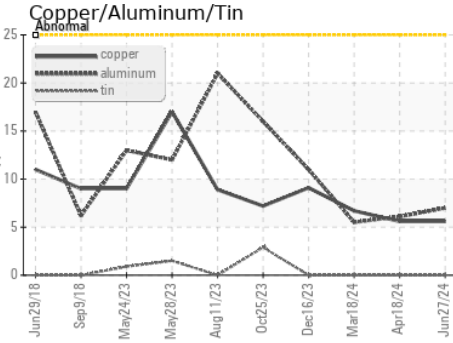
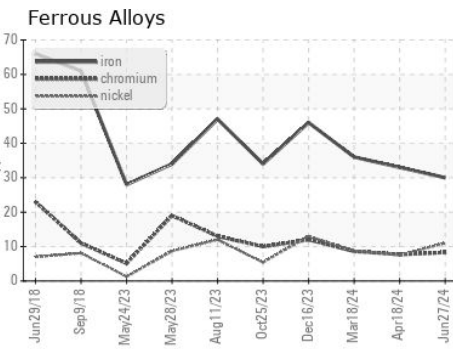
# OIL ANALYSIS REPORT



| VISUAL           | method | limit/base | current | history1 | history2  |
|------------------|--------|------------|---------|----------|-----------|
| White Metal      | scalar | Visual*    | NONE    | NONE     | NONE      |
| Yellow Metal     | scalar | Visual*    | NONE    | NONE     | NONE      |
| Precipitate      | scalar | Visual*    | NONE    | NONE     | NONE      |
| Silt             | scalar | Visual*    | NONE    | VLITE    | NONE      |
| Debris           | scalar | Visual*    | NONE    | NONE     | NONE      |
| Sand/Dirt        | scalar | Visual*    | NONE    | VLITE    | NONE      |
| Appearance       | scalar | Visual*    | NORML   | NORML    | NORML     |
| Odor             | scalar | Visual*    | NORML   | NORML    | NORML     |
| Emulsified Water | scalar | Visual*    | >0.1    | .2%      | NEG ▲ .2% |
| Free Water       | scalar | Visual*    |         | NEG      | NEG ▲ 1%  |

| FLUID PROPERTIES | method | limit/base    | current | history1 | history2  |
|------------------|--------|---------------|---------|----------|-----------|
| Visc @ 100°C     | cSt    | ASTM D7279(m) | 20.2    | 21.8     | 21.1 21.3 |

## GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0945324 **Received** : 04 Jul 2024  
**Lab Number** : 02645426 **Tested** : 05 Jul 2024  
**Unique Number** : 5802965 **Diagnosed** : 05 Jul 2024 - Kevin Marson  
**Test Package** : AVI 1 ( Additional Tests: FT-IR, KF )

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 F: (807)737-0040

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.