# OIL REPORT

**LAB NUMBER:** Q86648 **UNIT ID:** N16398
**REPORT DATE:** 3/15/2023 **CLIENT ID:** 218993
**CODE:** 80/88 **PAYMENT:** CC: MC

**UNIT**

MAKE/MODEL: Lycoming O-360-A4A
FUEL TYPE: Gasoline (Leaded)
ADDITIONAL INFO: Piper PA28-180, S/N: L-211331-36AC
OIL TYPE & GRADE: Phillips XC (A/C) 20W/50
OIL USE INTERVAL: 52 Hours

**CLIENT**

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**COMMENTS**

STEVE: Universal averages show typical wear levels for this type of engine after ~35 hours use on the oil. This oil was run longer, so more wear is okay, though aluminum, iron, and nickel are all a little higher than expected, even for along oil run. If this engine has any Cerminil cylinders in use, then some of the higher nickel might be okay. Else, that shows excess wear at the exhaust valve guides. Aluminum is primarily from pistons while iron is from steel parts like cylinders and shafts. Silicon could be a factor so check air filtration. Look for metal in the oil filter and check back.

**ELEMENTS IN PARTS PER MILLION**

| | | UNIT / LOCATION AVERAGES | | | | | | UNIVERSAL AVERAGES |
|---|---|---|---|---|---|---|---|---|
| MI/HR on Oil | 52 | | | | | | | |
| MI/HR on Unit | | | | | | | | |
| Sample Date | 3/8/2023 | | | | | | | |
| Make Up Oil Added | 6 qts | | | | | | | |
| | | | | | | | | |
| ALUMINUM | **20** | 20 | | | | | | 7 |
| CHROMIUM | 8 | 8 | | | | | | 5 |
| IRON | **68** | 68 | | | | | | 32 |
| COPPER | 7 | 7 | | | | | | 7 |
| LEAD | 6716 | 6716 | | | | | | 3515 |
| TIN | 2 | 2 | | | | | | 1 |
| MOLYBDENUM | 3 | 3 | | | | | | 0 |
| NICKEL | **24** | 24 | | | | | | 2 |
| MANGANESE | 1 | 1 | | | | | | 0 |
| SILVER | 0 | 0 | | | | | | 0 |
| TITANIUM | 0 | 0 | | | | | | 0 |
| POTASSIUM | 1 | 1 | | | | | | 0 |
| BORON | 2 | 2 | | | | | | 1 |
| SILICON | **18** | 18 | | | | | | 5 |
| SODIUM | 0 | 0 | | | | | | 1 |
| CALCIUM | 1 | 1 | | | | | | 27 |
| MAGNESIUM | 1 | 1 | | | | | | 1 |
| PHOSPHORUS | 349 | 349 | | | | | | 732 |
| ZINC | 5 | 5 | | | | | | 7 |
| BARIUM | 0 | 0 | | | | | | 0 |

**PROPERTIES**

| | | Values Should Be* | | | | | |
|---|---|---|---|---|---|---|---|
| SUS Viscosity @ 210°F | 89.2 | 86-105 | | | | | |
| cSt Viscosity @ 100°C | 17.78 | 17.0-21.8 | | | | | |
| Flashpoint in °F | 465 | >430 | | | | | |
| Fuel % | <0.5 | <1.0 | | | | | |
| Antifreeze % | - | | | | | | |
| Water % | 0.0 | 0.0 | | | | | |
| Insolubles % | 0.5 | <0.6 | | | | | |
| TBN | | | | | | | |
| TAN | | | | | | | |
| ISO Code | | | | | | | |

*** THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE**

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