



OIL REPORT

LAB NUMBER: L71839

UNIT ID: N3212T

REPORT DATE: 10/31/2019

CLIENT ID: 23123

CODE: 41/32

PAYMENT: CC: Visa

UNIT

MAKE/MODEL: Lycoming O-320-E2D

OIL TYPE & GRADE: Aeroshell W100 (AD)

FUEL TYPE: Gasoline (Leaded)

OIL USE INTERVAL: 29 Hours

ADDITIONAL INFO: Cessna Cardinal 177; Eng S/N L-20623-27A, 17700512

CLIENTCHARLES MOUNT
3504 MORNINGWOOD CT NE
SUWANEE, GA 30024PHONE: (904) 813-0636
FAX:
ALT PHONE:
EMAIL: chuck@mountpoint.org**COMMENTS**

CHARLES: This sample looks a lot like those that you've done over the past six years. In a way, that's good - not all engines wear like averages so what we really want to see is steady trends over time. That's what you've got here. Even though chrome and iron are still elevated compared to other O-320-E3D engines, they're fine for your particular engine. That's why we decided not to mark them anymore. You can see your own averages in the unit/location column. No contamination is present, and blow-by looks good. Nice report.

| ELEMENTS IN PARTS PER MILLION | MI/HR on Oil | 29 | UNIT / LOCATION AVERAGES | 6 | 52 | 44 | 44 | 35 | UNIVERSAL AVERAGES |
|-------------------------------|-------------------|------------|--------------------------------|-----------|-----------|----------|----------|----------|-----------------------|
| | MI/HR on Unit | 752 | | 722 | 678 | 602 | 535 | 2,335 | |
| | Sample Date | 10/17/2019 | | 9/20/2018 | 9/17/2017 | 3/8/2016 | 7/9/2014 | 2/9/2013 | |
| | Make Up Oil Added | 2 qts | | 0 qts | 2 qts | 2 qts | 4 qts | 2 qts | |
| | ALUMINUM | 6 | 7 | 3 | 16 | 10 | 5 | 6 | 5 |
| | CHROMIUM | 12 | 29 | 5 | 23 | 25 | 17 | 20 | 6 |
| | IRON | 51 | 48 | 32 | 78 | 81 | 56 | 47 | 25 |
| | COPPER | 3 | 7 | 2 | 5 | 6 | 6 | 7 | 5 |
| | LEAD | 3018 | 2285 | 1352 | 4809 | 5051 | 3736 | 2954 | 2904 |
| | TIN | 0 | 2 | 0 | 1 | 3 | 3 | 1 | 1 |
| | MOLYBDENUM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | NICKEL | 4 | 4 | 2 | 4 | 6 | 6 | 6 | 2 |
| | MANGANESE | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
| | SILVER | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | TITANIUM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | POTASSIUM | 0 | 1 | 1 | 1 | 2 | 0 | 0 | 1 |
| | BORON | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 |
| | SILICON | 4 | 7 | 4 | 5 | 4 | 4 | 4 | 5 |
| | SODIUM | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 |
| | CALCIUM | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 20 |
| | MAGNESIUM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | PHOSPHORUS | 15 | 64 | 17 | 342 | 6 | 0 | 26 | 516 |
| | ZINC | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 4 |
| | BARIUM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Values
Should Be*

| PROPERTIES | SUS Viscosity @ 210°F | 94.4 | 86-105 | 95.2 | 98.5 | 99.2 | 98.5 | 94.5 |
|------------|-----------------------|-------|-----------|-------|-------|-------|-------|-------|
| | cSt Viscosity @ 100°C | 19.03 | 17.0-21.8 | 19.23 | 20.00 | 20.18 | 20.01 | 19.05 |
| | Flashpoint in °F | 515 | >460 | 495 | 520 | 470 | 445 | 530 |
| | Fuel % | <0.5 | <1.0 | <0.5 | <0.5 | <0.5 | 0.8 | <0.5 |
| | Antifreeze % | - | | - | - | - | - | - |
| | Water % | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Insolubles % | 0.4 | <0.6 | 0.3 | 0.2 | 0.4 | 0.3 | 0.4 |
| | TBN | | | | | | | |
| | TAN | | | | | | | |
| | ISO Code | | | | | | | |

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 www.blackstone-labs.com