



## PAFI Initial Testing

### COMPLETE (GATES 1, 2, and 3)

#### ☑ Mini-Materials Compatibility

Subset of full materials compatibility testing involving articles representative of sealants, fuel bladders, and elastomers, performed by fuel developer

#### ☑ Engine Performance/Fuel Properties

Rated power check of TIO-540-J2BD to compare engine operational parameters and CoA to 100LL

#### ☑ Performance & Detonation

Comparative testing between minimum specification 100LL and test fuel performed in altitude test cell on TSIO-520-VB engine

#### ☑ Mini-Durability

Engine test to evaluate the deposit forming characteristics and effects of the fuel during a § 33.49 150-hour endurance test, TSIO-550-K engine

## Full Scale PAFI Testing

### IN PROGRESS (GATE 4)

#### ➔ **Materials Compatibility (25% Complete)**

Full materials compatibility lab and bench tests

- **Rig Testing:** Storage stability, cold soak storage, hot surface ignition temperature, low temperature flow ability

#### ➔ **Performance & Detonation (19% Complete)**

Testing of multiple engine models at simulated altitude, hot day conditions

#### ➔ **Durability (25% Complete)**

- 1) § 33.49 150-hour endurance engine test followed by
- 2) 200-hour flight duty cycle durability test per AC 33.19-1 to characterize effects on engine durability and TBO on multiple engine models

#### ➔ **Additional Testing (3% Complete)**

Evaluate propeller stress levels compared to 100LL for multiple engine / propeller combinations and cold starting and fuel tank quantity sensing

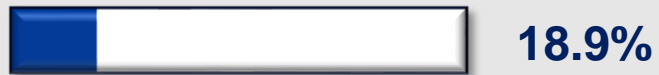
#### ➔ **Aircraft (4% Complete)**

Ground and flight testing on multiple aircraft to evaluate engine and aircraft operability, handling, cooling, and fuel system hot weather

# PAFI GATE 4 – UL100E Full Scale Testing Status as of 11-Oct-2024



## Detonation & Performance



93%		Continental TSIO-520-VB
0%		Lycoming TIO-540-J2B
20%		Lycoming IO-540-K1A5
0%		Continental IO-550-D
0%		Continental O-470-U
0%		P&W R-1830 S1C3-G

## Aircraft Testing (Operation, Cooling Climb, Hot Fuel)



100%		Lancair Super Legacy
0%		Robinson R44 II
0%		Cirrus SR22T
0%		Beechcraft G36
0%		Cessna T206H
0%		Cessna 402C
0%		Piper PA-46-350
0%		Cessna 182Q
0%		T-6G (Harvard 4)

## Materials Compatibility



9%		Metallics (32)
19%		Non-Metallics (26)
0%		Finished Parts (5)
90%		Paint Systems (10)
0%		Fabric Systems (5)
35%		Polysulfides (17)
100%		O-Rings (5)
20%		Aircraft Hoses (5)
0%		Distrib. Sys. (13)
0%		Fuel Bladders (2)
0%		Comp. Resins (16)
0%		Composites (6 - 18)
0%		OEM Materials (5)
75%		OEM Wing Test (4)

## Durability & Performance

(150 Hr. § 33.49 + 200 Hr. flight duty cycles)

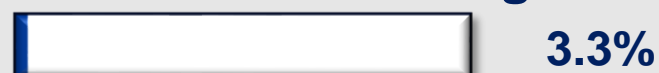


350 hr		Continental TSIO-550-K
0 hr		Lycoming IO-360-C1F
0 hr		Air Repair W670-6N
0 hr		Lycoming O-360-A1A

## R&D Testing (CHT, OAT/MAT, Timing)



## Additional Testing



10%		Propeller Vibe
0%		Cold Starting
0%		Fuel Qty Sensing

# PAFI Fleet Authorization Process / Status – UL100E as of 11-Oct-2024

