

PAFI Unleaded Fuel Testing Protocols – UL100E as of 9-Dec-2024

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 (25% 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 (7% Complete)**

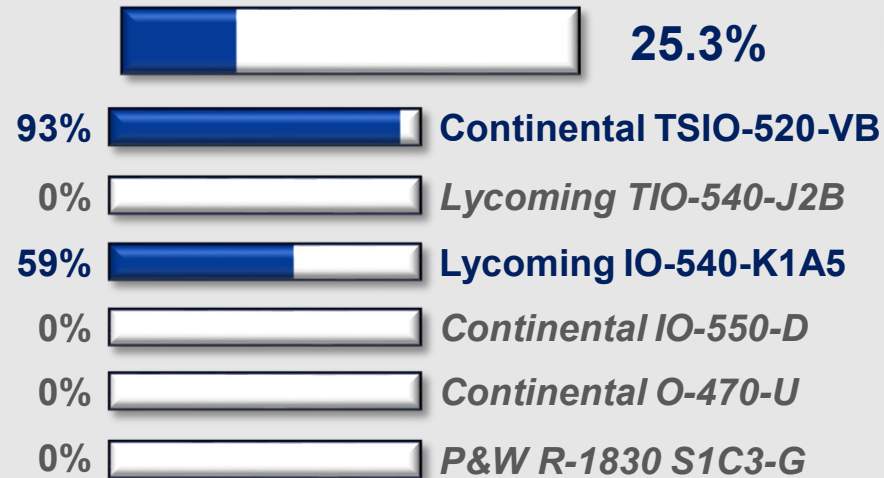
Evaluate propeller stress levels compared to 100LL for multiple engine / propeller combinations and cold starting and fuel tank quantity sensing

➔ **Aircraft (4% Complete)**

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

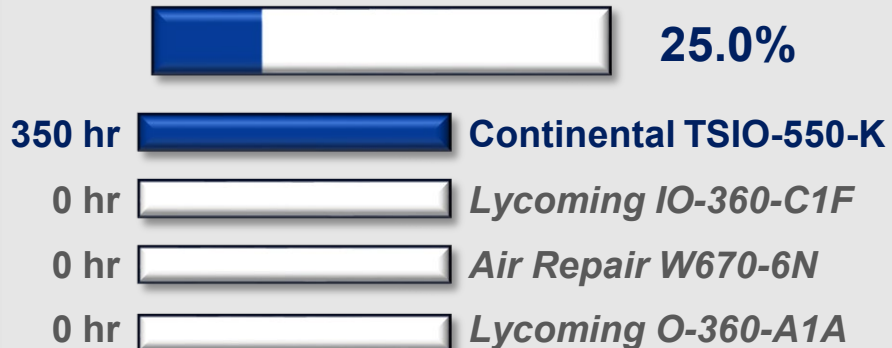
PAFI GATE 4 – UL100E Full Scale Testing Status as of 09-Dec-2024

Detonation & Performance

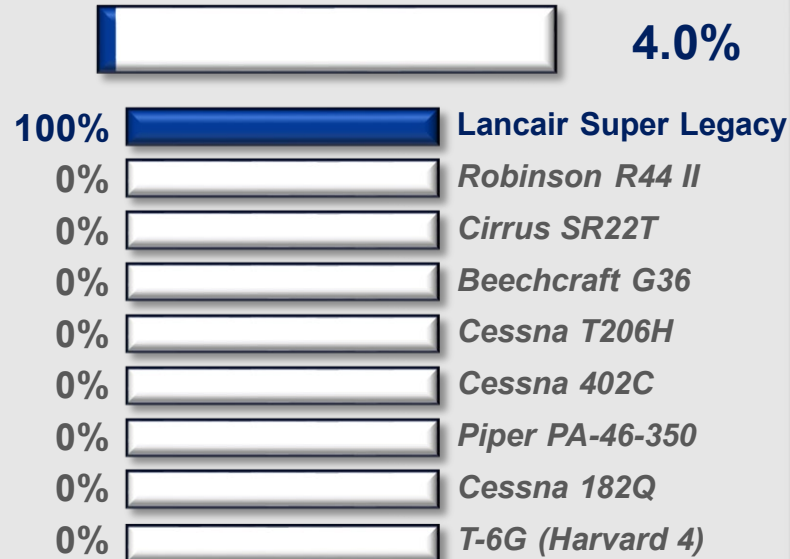


Durability & Performance

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



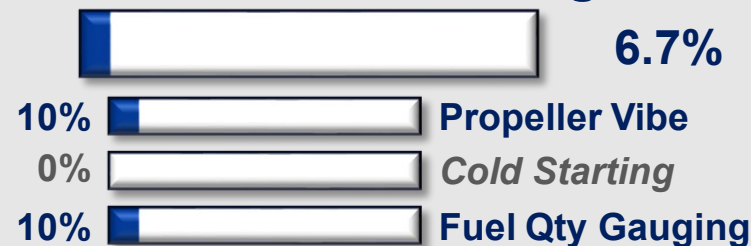
Aircraft Testing (Operation, Cooling Climb, Hot Fuel)



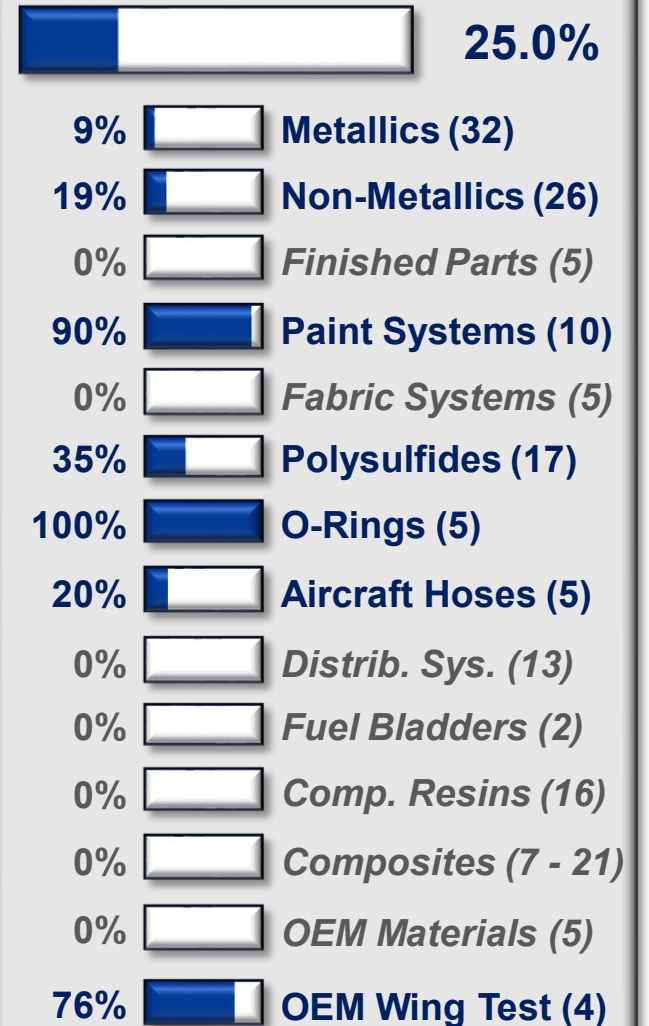
R&D Testing (CHT, OAT/MAT, Timing)



Additional Testing



Materials Compatibility



PAFI Fleet Authorization Process / Status - UL100E as of 09-Dec-2024

