

Flying G100UL: Yeah, It Works

By *Paul Bertorelli*

About a month ago, we reported on a new developmental fuel project called G100UL, meant as a direct, unleaded replacement for 100LL. At the time, George Braly, whose General Aviation Modifications, Inc. is running this project, promised to invite me down to watch a test cell run and actually fly the stuff.

Despite horrid weather, he was true to his word: On Thursday afternoon, I firewalled the throttle on a Cirrus SR22 at GAMI's Ada, Oklahoma home airport. "Congratulations," said Braly, "you're one of the first pilots to fly with the future fuel for general aviation." Gotta give the man credit for unbridled confidence if nothing else.

We spent the morning burning some G100UL in the test cell, comparing its detonation margin, BSFC and energy generation to 100LL. Bottom line: It's pretty close to 100LL across the board. It's a little heavier than avgas--6.4 pounds compared to 6.0 pounds--but it has higher energy density so it's within a couple of percentage points of being a wash. The governing spec for avgas is ASTM D910 and at this juncture, G100UL appears close to meeting it. There are some minor deviations that don't appear significant to me.

My knee-jerk journalistic skepticism prevents me from anointing G100UL as *The One*. I'd like to know more about the formulation and see some additional testing, but nothing I've seen so far remotely suggests that G100UL has any technical showstoppers. The octane is good, early tests have revealed no worries about seal and hose softening nor are there any apparent handling concerns related to toxicity, but it's still early in the test program. At the moment, nothing is guaranteed, so you should keep your Missouri Show Me hat in place. In aviation, disappointment is a constant companion.

What's most curious is the industry's reaction to this out-of-the-blue fuel development. It's almost as if no one wants to believe it. Braly has had to do some arm twisting to get the FAA interested and reports real resistance to his proposal to fast track this stuff. AOPA and EAA are interested, of course, and although invited, they weren't able to send representatives to Thursday's demo. GAMA's Greg Bowles did attend, despite the weather. The FAA also demurred.

There are several reasons why the industry is initially sleepwalking through this. One is that the search for a new fuel has become an end in itself. Ultimately, the entire exercise has had a degree of pointlessness to it because the EPA has never been serious about eliminating lead from avgas, so the industry has been on a free ride for 30 years. Against that backdrop, why would a refinery want to build a gasoline for which there is no ready market? Also, some may have felt burned by the Swift Fuel project, which hasn't yet delivered what many thought it might.

Now, with the Friends of the Earth breathing down the EPA's neck on the lead issue, it appears that the agency may be about to get serious about lead regulation. The big risk is that aviation interests have become so comfortable with the endless search as an industry unto itself that it may not know how to do the turn-on-a-dime that's desperately needed. Because the FAA and Coordinated Research Council boxed themselves in by requiring any new fuel to meet the current avgas ASTM D910 spec, it all but guaranteed that nothing ever would.

GAMI is outside the fuel development Gun Club loop. Many in the industry don't know of GAMI's technical expertise and haven't see the companies' sophisticated test cell and graduate-level analysis of the combustion process. In the fuel world, GAMI is just an annoying upstart, if you will.

Millions of dollars have been spent on research and some viable fuels seemed to have been proposed. But they never went forward because they didn't match the expectation of the present. This is, of course, the definition of in-the-box thinking. GA is, if nothing else, capable of stunning myopia at times.

If G100UL has legs--and it's impossible to say at this juncture if it does or it doesn't--the people at the pointy end of solving this problem need to get on it like white on rice. It should be advanced through testing as quickly as possible. If it's a dud, let's find out as soon as possible. If it's the real thing, let's get on with having refiners build the stuff and quit jacking around with all the fly speck reasons why we can't make this happen. Hand wringing over D910 ought to be replaced with--I dunno--actual problem solving. If we just keep in mind that the goal is a fuel that works, not meeting a spec for one that soon won't, we'll be fine.

Increasingly, I am beginning to get the impression that when the history of 100LL is written, finding its replacement will look like a bunch of well meaning, sincere guys stumbling around a pitch black forest with a half-dead flashlight. If anybody had bothered to look over their shoulder, they might have seen that the great shining city on the hill was there all along.

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