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Swift Fuel—The Future of Avgas?

Approximately nine planes made the trip from the Evansville area to Lafayette, Indiana to take part in the tour of the *Swift Enterprise* facilities on April 10. Our host was Jon Ziulkowski, a principal investor and researcher in that business. Jon took us around the lab, explaining how much of the equipment works, and how their new approach to creating motor fuel will work.

Obviously, the chemistry involved is cutting-edge stuff, so it's hard to explain. The bottom line (as I understand it) is that they will be producing a new blend of 104-octane avgas, indistinguishable by your aircraft's engine from present 100LL avgas, and made totally from biomass. (vegetation.)

Some benefits of Swift Fuel include:

- Lower exhaust emissions
- 104 Motor octane fuel
- NO deterioration in octane over time
- Does NOT contain ethanol or tetraethyl lead
- High lubricity
- Production flexibility with a wide variety of viable feedstocks
- Crops other than food stock can be used
- Utilization of existing infrastructure for distribution
- Independence from foreign oil
- No harmful boutique chemicals – ETBE, TEL, MTBE
- Stable over time, can be density checked for quality
- 2 pure components rather than 78 (with 100LL)

The general aviation fuel market is estimated at 350,000,000 gallons per year. Ten small plants, distributed around the United States, would cover the general aviation market, and assure a stable price. Projected costs are below current production costs for petroleum due to the lower number of process steps and the independence on biomass "type."



Jon Ziulkowski shows us Swift's laboratory

At Sun 'n Fun, Swift Fuel made several presentations, including one at Sun 'n Fun's Green Space, dedicated, a week early, to Earth Day. Swift now says they can make 115/145 avgas as well with their bio-sourced trimethylbenzene blends. However, unlike past years when Swift promised unenvisionable pricing

(\$2/gallon), they now have a former refinery engineer helping them with facility design and economics. The new word is that Swift Fuel will be \$10/gallon initially, with costs coming down as volume increases. Another note of realism was the admission that even given the money, they're maybe a decade away from being able to meet the entire avgas demand of the US at approximately one million gallons per day (their estimate).

Considering the ever-increasing price, and ever-decreasing availability of fuel for our airplanes, this company and its innovative concepts comes none too soon. Will this be what we fuel our airplanes with in the future? Or will it be the G100UL fuel being developed in Oklahoma? Or maybe we'll all have battery-powered airplanes.

Time will tell.

Thanks to Earl Schroeder, Larry Helming and his friend John Roberts, and Bobby Hester for their contributions to this article.

—Pete Wiggin





INTERNATIONAL LEARN TO FLY DAY • MAY 15, 2010



The world of flight offers fun, freedom and experiences unlike anything else in the world. And you're invited to participate as Chapter 21 of the Experimental Aircraft Association hosts an International Learn To Fly Day event at Henderson City-County Airport in Henderson on Saturday, May 15.

International Learn to Fly Day was created to invite people interested in the world of flight to discover more by meeting local aviators and discovering the initial steps toward "living the dream" of personal flight. Nearly 600,000 people from all walks of life in the U.S. are licensed pilots, but millions more have dreamed of joining that group.

During the EAA Chapter 21 International Learn To Fly Day event, which is free of charge, guests will discover more about how learning to fly is not as time-consuming or expensive as they might think. Pilots, flight instructors and aircraft owners will be available to discuss the possibilities and enjoyment available in aviation.

The May 15 event in Henderson will be held at Henderson City-County Airport at 2154 Highway 136 West. It is scheduled to take place at 10:00 AM.

EAA embodies the spirit of aviation through the world's most engaged community of aviation enthusiasts. EAA's 160,000 members and 1,000 local chapters enjoy the fun and camaraderie of sharing their passion for flying, building and re-storing recreational aircraft. For more information on EAA and its programs, call 800-JOIN-EAA (800-564-6322) or go to www.eaa.org. For continual news updates, connect with <http://twitter.com/EAAupdate>

The information center for International Learn to Fly Day is the www.learnstoflyday.org website, which features the ability to find an event that encourages a person to discover more about flying, or allows a group or company to post an event that welcomes those interested in flying.



Please join us at KEHR May 15th while we participate in EAA's International Learn to Fly Day

MORE ABOUT SWIFT FUEL—Here's an email from Jon Ziulkowski:

EAA21 Members,

Just wanted to follow up with you all since your visit to our facilities in West Lafayette, IN two weeks ago. As you might be aware, we were in Lakeland last week at Sun 'n Fun 2010, so please pardon the delay in response. As far as Sun 'n Fun, we had a great showing this year and truly made an impression on the aviation community. As a short recap of the event, for those of you that could not attend, we were displaying our partnership, known as 'Green Fleet' (Swift, Embry-Riddle Aeronautical University, Lycoming Engines, Cessna Aircraft, and AvFuel Corporation) with a large display. Included in this was the Experimental Piper Seminole that ERAU flew every day of the show on SwiftFuel. During the first half of the week, the plane was piloted by Erik Lindbergh (grandson of famed aviator Charles Lindbergh) as well as members of ERAU's Eagle Flight Research Center. When not in flight, the plane was parked at our booth space for static display. This was a great conversation piece which led to further interest as people walked past. Not only did we have the Seminole present at our booth but we also had a fuel truck, our corporate Piper Navajo, and many fuel experts to answer any and all questions throughout the week. It was a great opportunity to meet and talk to pilots about what it is that we are doing. We plan on doing the same display at Oshkosh, for those of you who missed it.

As for the auto fuel samples we got from your aircraft (those of you who gave them), we are running them in the lab now to check for Ethanol content via GC (gas chromatography). When I have the results from the lab technicians, I will email them out. I have also given your names to Ken Kasper and he will add you to the pilots group list. If you know of anyone else who wanted to be on the list (or get this email, that did not) please let us know so we can add them.

Thanks again for visiting us, we really enjoyed having you all. If you have any other questions, I would be more than happy to address them with you, via email or phone, as they occur. Thanks again for your interest in Swift.

Respectfully,

EAA 21 Members,

Thanks again to those of you who gave us samples of your Mogas for testing of Ethanol (ETOH). Our lab technicians have finally run the samples as they have been busy for quite some time testing other fuels. They analyzed your fuel samples via gas-chromatography (GC). This is a machine which I'm sure you all saw in the lab (looks like a large white box). Essentially, it takes a sample and runs it through a capillary column which depends on the column's dimensions (length, diameter, film thickness). The difference in the chemical properties between different molecules in a mixture will separate the molecules as the sample travels the length of the column. The molecules take different amounts of time (called the retention time) to come out of (elute from) the gas chromatograph, and this allows the mass spectrometer downstream to capture, ionize, accelerate, deflect, and detect the ionized molecules separately. The mass spectrometer does this by breaking each molecule into fragments and detecting these fragments using their mass to charge ratio. Basically, a technical way of saying it pulls apart each component and lets you know its in the sample. After testing 6 samples (2 of each of the fuels to be sure), the results are below:

Bobby's No Ethanol Present in both test samples
Bill's Between 5-8% Ethanol Present in both test samples
N3XG No Ethanol Present in both test samples

I hope this helps. I would be more than happy to go more in depth if you have any further questions. Again, If you have any other questions, I would be more than happy to address them with you, via email or phone, as they occur.

Respectfully,



Jonathon D. Ziulkowski
Vice President – Renewable Fuels
Chief Pilot – Corporate Flight Operations
Swift Enterprises, Ltd.

EAA Chapter 21

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Upcoming Chapter 21 Events

EAA21 Chapter Meeting: Wednesday May 12th, 7:00 PM, Skylane Airport

Skylane Airport (3EV) located at 2029 Allens Lane, 3/10 mile east of St. Joseph Ave, Evansville, Indiana

Check the website, www.eaa21.org, for meeting program information.



Our EAA Chapter is pleased to announce the opening of EAA 21 Club. We will be preparing Hamburgers, Brats and Hot Dogs for all that flyin. Just as New York's 21 Club has become known as the *HAPPENING PLACE* to be and be seen, EAA 21 Club is the place to be on the first Saturday (with a couple of exceptions) each month.

When: June 5, July 10, August 14, September 4, October 2; 10:00 AM till 2:00 PM Central time

Where: Henderson Kentucky City-County Airport ([KEHR](#))