



# CHAPTER 81

## SKY WRITER

May 2011 Newsletter

### **Notice!**

**Regular Chapter Meeting at Ryan Field  
Administration Building  
Saturday, 21 May 2011, at 10 AM**

### **2011 EAA 81 Dues Payment Status**

Annual dues are \$20, now due for 2011. As of 15 May, 78 of 107 regular members are paid-up. Checks should be made payable to: EAA Chapter 81 and sent to Mick Myal, 2900 E. Weymouth, Tucson, AZ 85716, or brought to a chapter meeting.

### **EAA Chapter 81 Meeting Minutes Saturday April 16, 2011**

Meeting was called to order by Secretary Bob Miller at 1007 in the Ryan Field meeting room, as President Duane Boyd was unable to attend.

Treasurer's Report: Treasurer Mick Myal reported \$12,513.02 in the bank as of March 21, and there

	<b>Calendar of Events</b> (Please send event info to the editor)
May-21	EAA81 Meeting at Ryan Field, 10AM
Jun-18	EAA81 Special Meeting (TBD)
Jul-09	EAA81 Meeting at Ryan Field, 10AM (Note early date in the month)
Jul-25 to Jul-31	EAA AirVenture 2011
Aug-20	EAA81 Meeting at Ryan Field, 10AM
Sep-17	EAA81 Special Meeting (TBD)
Oct-15	EAA81 Meeting at Ryan Field, 10AM
Nov-19	EAA81 Meeting at Ryan Field, 10AM
Dec-17	EAA81 Holiday Party (date TBD)

has been one deposit of \$100 since then.

Secretary's Report: Bob wanted to read the Minutes of the March 24 meeting, but was quickly stifled, as they were published in both the website and in Sky Writer.

Three new Chapter 81 members were introduced: Rod Church and Bing Bingham are building Zenith CH 750s. Martin Key has 4000 hours single engine (jet) with the Air Force and is currently flying for United Airlines. He flies a Decathlon and has started building an RV7-A.

Old Business: We briefly discussed the Pima Community College Aviation program partnership with Chapter 81: there will be a presentation

ceremony with a giant check as we provide \$500 to each of three of their programs. We hope to attract new (and younger) members to the chapter via interaction with the college and exposing them to the wonders of experimental aviation.

New Business: Ken Rice moved his Lancair Legacy on Joe Seibold's trailer, and is looking for a DAR (Designated Airworthiness Representative).

Hal Helton introduced a proposal for a possible Chapter 81 hangar. Located at Aircenters West, it is 60 X 45 feet, insulated, has an epoxy floor, bathroom, heating, and air conditioning. A one-year lease is available at \$550 per month plus utilities and the owner pays the fees. Hal suggested that we could sublet two parking spots that would pay for the rental. Meetings, Pancake Breakfasts, demonstrations, etc. could be held there. Hal offered to take interested members there after the meeting for an inspection. It would be quite a deal, but most felt that it would be contingent upon having two reliable renters.

Bob Miller presented a book and a pamphlet for everyone to peruse: the book was "You Want To Build And Fly A What? Or...How I Learned To Fly, Built a WWI Replica, And Stayed Married" by Dick Starks. Bob read this book way back in 1992 when his Kitfox project wasn't yet even a gleam in his eye, but it gave him the inspiration to build and fly his own aircraft. "If this idiot can do it, so can I," thought the gullible Bob. Those who read Kit Planes magazine will find frequent articles by Dick Starks about the Dawn Patrol, a bunch of aviation nuts in the Midwest who built a bunch of WWI replica fighters and fly "patrols" regularly. Dick is not as dumb as he lets on, as he acquired all the skills to plans-build and fly these less-than-stable Walter Mitty machines. Heck, he even got his wife to build one for herself and join the Patrol. The pamphlet is one that comes free with a subscription to Kit Planes, and provides a brief summary of what Experimental Aviation is about, how to choose a suitable design, and how to survive the building process and maybe even stay married.

Joe Seibold informed us that there is a kit aircraft manufacturer under our very noses: the Arion Lightning composite LSA kit is manufactured at Marana Regional Airport and the manufacturer would be willing to provide a tour of the plant. Joe also reminds us that he has many aviation-dedicated tools for aluminum-based aircraft available for loan; a list will appear on the website. These include a template for instrument and bolt holes for a panel, large and small Nicopress tools, and a "magic tool" for installing rudder cables.

Davis-Monthan Air Force Base has temporarily moved all of its A-10 Warthogs to Tucson

International Airport while DM's runway is being repaved.

Bob Miller waxed enthusiastic about his first rotorcraft flight, a ride-along with the Air Support Unit of the Tucson Police Department. For a fixed-wing pilot, it is an eerie sensation to feel the nose pull up and the airspeed bleed off to zero without a stall. Maybe some vortex generators will do that for Bob's Kitfox!

Newsletter Editor Erik Fjerstad presented the question that needed to be asked: who will bring the coffee to the meetings? The answering silence was deafening. Joe Seibold was twitching in his seat, as the Volunteer Gene dominates his DNA, but he was reminded that he is only in Tucson half the year; he flees to upper-peninsula Michigan at the first 100-degree day! At present we remain coffeeless.

There were suggestions made for the Website: registration information, a classified page with color photos, archives of newsletters, a calendar of meetings and aviation events, links to tool manufacturers and kit manufacturers. Send your suggestions to Webmaster Bruce Noon about the website or to Erik about what you would like to appear in Sky Writer. It's our outlet to express our thoughts about aviation, so make a contribution to it! An article, an opinion, a photo of your plane, a question about how to do something on your project; it's all fair game.

It was noted that 100LL is now priced at \$5.18 a gallon. In comparison, Jet-A costs less than unleaded regular (because the airlines stockpiled it when it was cheaper and because kerosene requires less refining than gasoline). Bring on the aerodiesels!

Erik Fjerstad concluded the meeting with a demonstration of a tool-modification and two must-have tools for riveting. His Cleveland C-arm dimpling tool was modified with his own designed- and-constructed sheet-metal cradle for holding the hammer. This eliminates the need for growing a third arm, generally acknowledged as the most useful accessory for any homebuilder. Under the category of "Two Things I Absolutely Need To Get" are a mushroom riveting tool head with a rubber cup. This keeps it from sliding on the rivet head and it has a joint so that the head does not need to be perfectly vertical. Say goodbye to smiley-faces! It runs about \$100. Another \$60 gets you another must-have tool: a tungsten bucking bar. Tungsten is so dense (heavy) that it tends not to move as the rivet is driven. It works so well, one is tempted both to drive and buck without assistance! Erik suggests wrapping the bar with electrician's tape to avoid dings. He brought a chunk of not-so-dense titanium to compare to the tungsten; similar size pieces of

metal but the difference in weight is amazing!

Meeting was adjourned at 1055. The next meeting will be at the Ryan Field meeting room on May 21 at 1000.

Respectfully Submitted by  
Secretary Bob Miller

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### **Aviation Interest Articles**

#### ***Dealing with Alcohol in Fuel, its effects on equipment and on octane***

Alcohol in fuel is pretty much the standard in Arizona today, certainly in our EAA chapter area. For those of us with STC's to utilize automobile fuel in their aircraft, this is disappointing, as the STC's prohibit the use of auto fuel that contains alcohol. I've heard discussions on the effects of alcohol (on equipment and performance) and on various methods to "remove alcohol" in order to make it acceptable for use under the STC.

The development of the STC's considered the characteristics of fuels, and selected 87 AKI (AKI is R+M divided by 2) as the minimum acceptable octane for an 80 octane aircraft engine. This provides a margin of only 2 octane numbers. The "M" octane rating, or "motor" number is the same as the "aircraft" number and is typically 5 points lower than the AKI number. So if the pump's fuel grade is "87", then the "motor" number is 82, only 2 above 80. Fuel companies sell fuel formulated at below 87 (such as 85) in some areas, and this fuel isn't legal to use.

<http://www.eaa.org/autofuel/faqs/detonation.asp#TopOfPage>

Now, with alcohol in the fuel, the situation is more complicated. Alcohol enhances the octane characteristics of gasoline, and the oil companies understand this, so 87 AKI fuel with alcohol is probably only 84 or 85, or worse, with the alcohol removed, and converting this to the "motor" number, clearly could drop below the 80 requirement. See this article from "Fuel-Testers" an organization addressing fuel/alcohol handling issues.

[http://www.fuel-testers.com/gasoline\\_octane\\_and\\_ethanol\\_E10.html](http://www.fuel-testers.com/gasoline_octane_and_ethanol_E10.html)

The FAA cites numerous reasons that alcohol and airplanes do not mix. Alcohol:

- Adversely affects the volatility of auto gasoline, which could cause vapor lock.
- Is corrosive and not compatible with the rubber seals and other materials used in

aircraft, which could lead to fuel system deterioration and malfunction.

- Is subject to phase separation, which happens when the fuel is cooled as an aircraft climbs to higher altitudes. When the alcohol separates from the gasoline, it may carry water that has been held in solution and that cannot be handled by the sediment bowl.
- Reduces the energy content of the fuel. Methanol has approximately 55 percent of the energy content of gasoline, ethanol 73 percent. More alcohol equals reduced range.

In **Ben Visser's article "Testing for Ethanol" in General Aviation News, April 1 2011**, Ben describes the behavior of alcohol in fuel, the issue of removing it, and dealing with the contaminated water that results.

**(Ben Visser is an aviation fuels and lubricants expert who spent 33 years with Shell Oil. He has been a private pilot since 1985.)**

See Ben's article at this link:

<http://www.generalaviationnews.com/2011/04/19/testing-for-ethanol/#more-40325>

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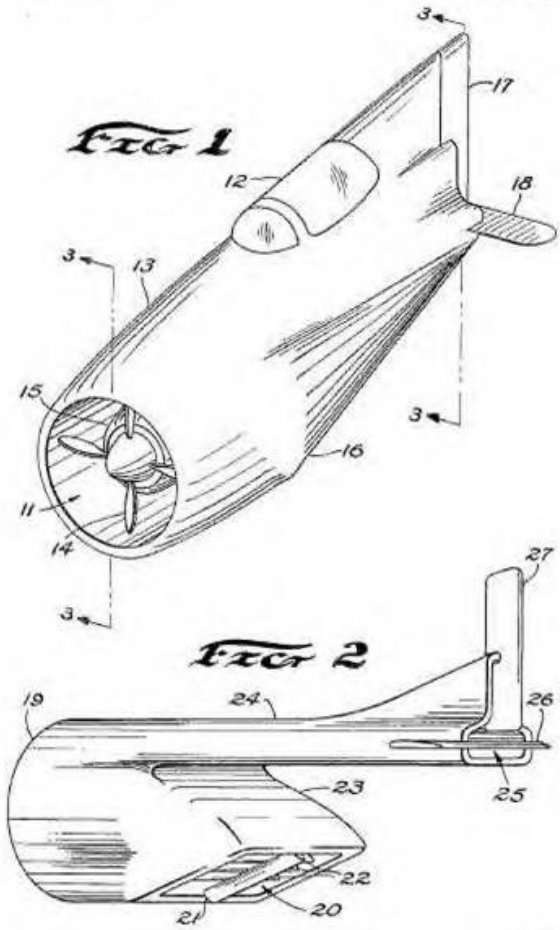
## **LIPPISCH AERODYNE RESEARCH** **(WW2-1972)**

Dr. Lippisch, known for his love of delta-winged aircraft, designed a series of delta-winged gliders in the 1930s that eventually led to the introduction of the world's first and only rocket-powered interceptor during WW2 - the Me 163 Komet.



Review a fascinating article about his aircraft and his work with Convair after the war, including the revolutionary "Aerodyne" at

Dec. 22, 1959      A. M. LIPPISCH      2,918,230  
FLUID SUSTAINED AND FLUID PROPELLED AIRCRAFT  
Filed Aug. 24, 1956      3 Sheets-Sheet 1



INVENTOR.  
ALEXANDER M. LIPPISCH  
BY *Marvin Moody*  
ATTORNEY



Please send items of interest, classifieds, etc to  
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Check out the Chapter Website at  
<http://WWW.EAA81.ORG/>

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