



EAA Chapter 32 News

Jim Bower, Editor



May, 2011

Good Friday...eh, Not so Good



Lambert Field's main terminal shows the effects of the series of tornadoes we got on Good Friday (April 22, 2011). Much property damage was caused, but there were NO deaths and few injuries in our area. Compared to what happened in the Southern states, we were lucky. Stuff can be fixed and replaced; lives can't. We hope you and yours are safe and well, and hope you can join us for the upcoming meeting.

We'll be looking for you at the May meeting (Saturday 5/21/11).

April Meeting Minutes

Dave Deweese

Our April meeting began with the Pledge, Dave Doherty presiding.

Due to our YE event in March there was no official meeting, and therefore no minutes to approve. We flew 101 kids at our event, and participating pilots included Rod Hightower who brought his Stearman. We haven't had this much activity in a while and have many more events coming up. Laura reminded us that this year's events take place on the second Saturday of each month, pilot and ground crew briefings start at 8:30 am. April's event flew 71 Young Eagles, so we've flown more in two months of 2011 than in all of 2010.

There were no visitors to recognize at this meeting.

Don gave the Treasurer's report, including savings and checking account balances. We've recently filled the propane tank and emptied the septic tank, taking a chunk out of our funds. Since the closing of the Fly Girls' restaurant we've been selling food at our Young Eagles events and this helps defray expenses. We also sold food at our recent Wings presentation. We're signed up, once again, for the July Fourth event in O'Fallon. Taking lessons from last year we'll buy less and sell for a bit more. We'll also sell food at this year's airport open house. Tracy has not yet set a date.

Old Business: water. Tracy reports that the airport intends to supply clean water to all airport users. Although this will take about a year, it negates our own clean water project.

Art Zemon is helping out with our new nametags. These will be printed and laminated, so they can theoretically include whatever you like: a logo or graphic of your aircraft. A sheet was passed around at the meeting asking for specifics.

We have raised \$85 of our projected \$500 scholarship fund and will be contacting universities soon.

Design for flagpole lighting is in progress. It will have to be weatherproof and hopefully will light the walkway as well.

One of our refrigerators is dead. Since some local utilities will haul away old appliances we'll be checking to see if Ameren will take ours.

With the recent increase in activity at KSET there has also been an increase in reports to the FAA. Some incidents involve the intersection of the two runways, and others are the result of flying odd patterns. The FAA is

not looking at imposing new rules as it might cause more confusion. Remember to stay on the radio and make your intentions known.

New Business: We've been invited to tour the CAF after an upcoming meeting and get a look at what our neighbors are up to. Bill mentioned the CAF 'Heritage' program: rides in the B-25 will go for \$325. They are looking at including more planes in the program.

The ARC needs paint. Anyone who's up for some scraping and brushing is welcome to volunteer.

Mike Saettel is looking for old charts to donate for educational purposes. Ron Burnett notes that FBO's cut the corners off charts to identify them as expired, and agrees that VFR charts in particular are good to give away.

Ron reminded the group that he had extra food coupons, and Dave reminded new members that the chapters gets 4% from purchases made. Dave is also looking for corporate sponsorship for the chapter, if you're aware of such sources please let him know.

The Ford Trimotor will visit Cahokia this year. There's no news on the B-17 and Dave will contact EAA HQ once more.

A few Chapter 32 members were at Sun-n-Fun this year, though none were at our April meeting. We're waiting for an eyewitness account.

April's movie, on April 30, is 'Pearl'.

Dave Doherty has signed up with Dave Pressy to pursue his sport pilot certificate. He's now looking for a Taylorcraft.

If you find any out of date information in the roster please contact Jim Bower.

As of the April meeting the river is technically in flood stage, but is still about 10 feet from threatening KSET. The magic number is 31 feet of flood stage at Grafton, which puts the water about 6 inches from the floor level of the ARC.

Our by-laws were written in the nineteen sixties and need a review. Our executive committee will review and present changes to the membership. If you'd like to get involved please contact Dave Doherty.

Following the meeting Bill Doherty recognized Ron Burnett for the first flight of his RV-6A. Beginning in 2009, the quick-build kit took 11 years to complete. Ron thanked the chapter at large for assistance, and specifically recognized Jeff McKee, noting that they started Marine flight training together. Jeff was always ahead, even in the construction of his airplane. Ron has several suggestions, including building at home, and waiting to move to the airport only when your project is nearly complete. He also warns against the 'shotgun' approach:

moving to a different subproject when you encounter a challenge. It's better to ask questions, get your issue resolved, finish the part you're working on and then move on. Ron's plane has a Subaru engine that burns 5 to 6 gallons per hour, a money saver over time. In retrospect, however, he noted that a Lycoming and a standard prop would have ended up costing about the same and taken less time to install and set up. Ron's thinking about selling his Luscombe, but don't consider making an offer if you plan to paint her.

ANNUAL FRASCA FLY-IN

*Frasca Field (Airport Locator: C16) Urbana, IL
June 10-12, 2011*



Dear Friends,

Rudy Frasca has once again offered to host a fly-in at Frasca Field on June 10th through the 12th. We invite you to participate in this special gathering of aviation friends.

Free camping will once again be available (*please bring your own tie downs*).

Early Arrivals: Friday, June 10

Dinner/Movies in the Hangar: Saturday, June 11

(Saturday) Special Guest Speaker: EAA President, Rod Hightower

Depart for Home: Sunday, June 12

Hotel reservations can be made at: Eastland Suites Hotel
1907 North Cunningham Avenue
Urbana IL 61802
Phone: (217) 367-8331
Toll Free: (800) 253-8331

Please RSVP to Tom Frasca by calling (217) 367-8441 (feel free to leave a message) or e-mail: tfrasca@frasca.com. **Please include the number of guests in your party.**

We look forward to seeing you at Frasca Field for this amazing aviation gathering.

See you there,

A handwritten signature in cursive script that reads "Paul H. Poberezny".

Paul H. Poberezny
Founder
Experimental Aircraft Association
Email: ppoberezny@eaa.org

Small Engine Design Considerations

by Bud Cole

High efficiency low pollution, crankcase 2-cycle and 1-cycle engine rules to obtain the best engine design for your particular use, you need to do as many of the following as practical:

1. You need a stoichiometric mixture (14.7:1 to 1 with gasoline). A carburetor is usually the best and easiest way to do this and the carburetor butterfly should be controlled by the exhaust throttle. A computer controlled injection system will work as well but has other problems.
2. There are many simple methods of timing the carburetor intake charge into the engine but some will let the engine run backwards. If you can it is best to let the crankshaft time the intake.
3. You should pack the crankcase as tightly as practical making sure nothing touches or drags on anything. How tightly you pack it will determine both the crankcase vacuum to draw in a charge and the crankcase pressure to push the bypass charge into the cylinder. If you only draw and put in half a charge you should only expect to produce half as much power.
4. Your intake bypass ports should open at about 35 degrees of crankshaft before bottom dead center and the exhaust ports open at 45 degrees before bottom dead center. It is common practice on poorly designed 2-cycles to open the exhaust port at 60 degrees and the bypass ports 10 to 15 degrees later and enlarging the bypass area to make up for low crankcase pressure. It doesn't work and even an exhaust throttle can only make up part of the loss in power.
5. The piston needs baffles that kick the incoming charge upward into the top of the cylinder and to guide the burned charge from the center out the exhaust ports. Flat top pistons invariably let some of the intake charge escape out the exhaust, losing power, raising fuel consumption, and greatly increasing pollution. Again an exhaust throttle can only make up for part of the loss.
6. An exhaust throttle connected to the carburetor intake throttle is extremely desirable for minimum pollution,

minimum fuel consumption and maximum power output. It is the single device that will do more to improve almost any 2-cycle than anything else. All of the giant industrial most high efficiency 2-cycles have exhaust throttles to fine tune at load.

7. Compression ratio is important to efficiency. Up to the detonating point, the higher the compression ratio the higher the engine output. All fuels, particularly hydrocarbons, have a critical pressure and temperature where they cease generating pressure to force the piston down in the cylinder and the burning and heating changes from controlled burning to explosive instant ignition of all remaining carbon. The hydrogen has already burned to ignite the burning carbon. Detonation force smashes into the cylinder structure with a hammer-like blow, greatly reducing engine power output. When throttled back, compression drops to a low level and poor efficiency with poor fuel consumption results. Variable compression heads are relatively easy to make on 2-cycle engines with plain heads but very difficult and expensive to build into 4-cycle engines. Their great advantage is to permit a varying load engine to operate at maximum compression at any speed and load. A second advantage is to permit burning a wide variety of fuel and lubricants at best efficiency even watered engines*.

8. All internal combustion reciprocating engines have high heat losses from the cylinders and require an expenditure of power to keep cylinders within acceptable limits. Air cooling has several advantages. First it is a very simple system with a crankshaft mounted fan, light sheet metal shrouds and fins on the cylinders and heads. Second it is more efficient, desired to operate at or near 375 degrees EGT. And third it is simple and light weight with almost no maintenance. Liquid cooling is actually a less efficient remote air cooling through a heavy, more complicated radiator system with messy complication and maintenance.

9. The best and simplest lightest, cheapest and most reliable ignition system is a simple glo-plug.

*Internal Combustion Steam Engines utilize 50% water or 100 proof alcohol with lubricant.

Safety Note #2 - Maneuvering Speed

Fred Immen

There is a little placard on my Cherokee instrument panel that says, "ROUGH AIR OR MANEUVERING SPEED 129 MPH". I used to think-so what-I hardly ever cruise above 120 mph and never yank on the controls to do any aggressive maneuvers. WRONG THINKING!

Maneuvering speed is a precautionary speed limit usually called V_a or V_o that a pilot should stay below if he were to encounter wind gusts associated with clear air turbulence, wind shear, thunderstorm weather, etc. These gusts have the potential to tear the pilot and his airplane apart.

Uncle Isaac Newton says that a force applied to a mass in a vacuum will accelerate the mass and it will go flying off into space and never stop: $F=MA$. For us aviators on earth that can be converted to $L=NW$.

Everything on earth is being accelerated toward the center of the earth at 32 ft/sec/sec. In order for the airplane to be suspended off the ground, a lifting force equal to the aircraft weight must be applied to the wings. If the aircraft suddenly encounters a gust of wind increasing lift and driving the aircraft upward, every mass item in the aircraft will experience an inertial downward force equal to $LIFT/WT (N)$ times its own weight.

From the relation $L=NW$ it can be seen that for a specific lifting force, an airplane at a light gross weight will experience higher inertia factors than at a maximum gross weight.

So, maneuver speed at maximum gross weight (V_a) must be reduced to a lower limit speed (V_o) at minimum flying gross weight. On my Cherokee,

$$V_a = 129\text{mph} \quad V_o = 105\text{mph}$$

If you are trapped in severe turbulence, gently turn away toward smoother air (probably from whence you came), slow down to 50-55% power and don't yank back on the wheel when the next gust tends drive you down, i.e. let the airplane ride the waves.

One wonders whether Scott Crossfield might not have taken the proper steps and paid for it with his life.

If you can't find a V_a or V_o value for your homebuilt ask your friendly tech counselor for help.

Attention New Members

Our treasurer, Don Doherty, needs to talk with all members who have joined the chapter in the past 12 months. Please call him at (636) 397-4713.

Project for Sale

Zenair Zodiac CH601 HDS. The S stands for tapered speed wing. It's a 2 place side-by-side, all metal, low wing tail dragger kit fabricated in Mexico, Mo. It uses approximately 8500 aircraft quality 1/8 and 3/16 pop rivets for construction. All welding and bending has been done at the factory. Kit includes all parts except engine, instruments, engine cowling and upholstery. Construction is approximately 50% complete. Feel free to contact me if you have any questions or want to see the aircraft.

Ralph Morris

Rgmmorris2@charter.net

636-346-4045

Learning As We Go

“Special Lady, Shocking Day, Wild Layover, Friendly Flight and Crazy Skies”

by mr. bill

SPECIAL LADY

It was a special day. She was a special lady. A day I never thought would happen, not in a million years. Somehow she trusted me, but then again, she was there in the beginning, through it all, for better or worse, she was there. Thru the young eagle introduction flight at age 14.



Through the talk with the local businessman, who said there are worse ways a kid could spend his \$1,134 dollars in 1975. Flying lessons are a good thing. She was there as I entered college and showed her damaged airplane parts from the Aircraft Accident Investigation Class that I hoped to take as a senior in college. “Do you still want to do this Aviation thing after seeing all this?” she asked?

After college, and moving back to my parent’s home in Chicago to save money and pay off the school loan, my undergraduate college roommate, now attending the U of Chicago-Law School calls me after reading an AOPA article about “Glider Flying.” Joe stated that the same glider in the article was based just 80 miles west of Chicago (Hinckley Soaring) and said “Let’s go fly this thing!” We did! A year later I was at the Glider club 30 miles west of Chicago (Windy City Soaring) when I popped the question to that special lady. She said, “Yes!” It would be the first flight for this special lady. As she entered the front seat of the glider and as we were towed up to two thousand feet and released from the tow plane she was alright with everything. It was calm smooth day and 20 minutes later the flight ended with a smooth land-

ing. Her husband took pictures of the day and I was happy it went well. It was October 27, 1983, her youngest daughters’ birthday and I took this Special Lady up for her only airplane flight in a Schweizer 2-33 training glider.



Her son had done something special for her by taking her for her first flight. She had a terrible fear of heights. Mom had done something special for me, let me fall in love and play around in this wonderful field of aviation.

CRAZY DAY

Seeing the pictures on the news about the tornado at Lambert Airport help ease the shock of actually seeing the airport when we returned home Easter Sunday. American airlines chartered an American Eagle Embraer-145 jet to bring 27 distressed flight crews back to Lambert. We were allowed to walk thru the airport terminal as it was being boarded up. Kind of sad but then again nobody was hurt.



The place looked like it had been abandoned for years with all the dust, debris, and boarded up windows making the place look dark and dingy. The real shock came as I drove out of the employee parking lot, took the loop around the lower then upper levels of the terminal. Twist-

ed metal airport information signs everywhere. Leaving the airport and heading west on highway 70 was really depressing with all the broken trees, flattened houses, and roofless homes that was just as shocking and sad to see.

WILD LAYOVER

Going through customs after our own flight from Monterrey, Mexico, the flight crew from the Boeing 777 flight from Japan was right behind us in the custom line. I asked how the (Japan) flight was. The captain replied, "Flight good. Landings alright. Layover shaky!" How's that I replied. "We survived the flight. The copilot landed in Japan. The FB (Food Boy/Eater/International Relief Officer/ the guy who is the extra pilot for the 14+ hour flight) landed in Dallas/Fort Worth. The layover in the Japan hotel only had three earthquake aftershocks this time!!!"

FRIENDLY DAY

Last year I took a 14 year-old boy out to St. Charles Flying Service (SCFS) at St. Charles Muni Airport to have him take an introductory flight on International Fly a Friend Day. He loved it. This year the second annual date is Saturday, May 21, 2011. This year I plan to take a high school senior out who will be attending the Air Force Academy this June. Needless to say he is thoroughly pumped for this day. I am excited for him attending the AF Academy.

So call a friend, find a young person, or if you have no friends, take yourself up for a flight. St. Charles Flying Service 1-800-447-6066, now at St. Charles County-Smartt Field, helped us hangar the Cessna Skycatcher C-162 for the Jeff Skiles Tour. So let us show some appreciation by giving them some help. Now that I am over 50 I kind of think about that bucket list movie and getting these things done before we run out of time, money, or airports and flight schools.

CRAZY SKIES

Gang, we are running out of airports. So this month's article was going to be called SPACE: THE FINAL FRONTIER. We basically have only one airport in the area and that is Smartt Field. We NEED to use the airport and the airspace PROPERLY! The airport and airspace were very busy at both Young Eagle events. In March we had 14 pilots flying Young Eagle flights. In April we had 6 pilots and the Boeing B-25 flying around. There was a lot of BUZZ about flight procedures of certain pilots, lack of radio communication, and some lack of good flying decisions. If there is someone on the runway go around. If it looks close...go around. As Dave P. from SCFS says, "When in doubt...take it out of the pattern!"

We just had a FAA Safety Seminar at the EAA 32 building the week before the April Young Eagles Rally. It seems that some people are forgoing safe piloting procedures and putting our airfield in harms way.

I stated FINAL FRONTIER because we need to keep the airport safe and the flight school open because there are very few airports left (still not sure about the status of St. Clair, MO) and even fewer hangars. If we have an incident at Smartt you all know the people are going to want to close that dangerous place and make it a duck hunting area and club house. We have enough trouble with Mother Nature and her rising waters. Let us not lose our little gold mine of an airport and club house because of some silly flying mistakes that will hurt us all!

What aircraft also has the same take off and landing weightas an electric aircraft?

That would be a SAILPLANE....though high performance sail planes use water ballast for additional weight at takeoff which is dumped before landing at the end of the flight.



Check out our Fantastic Web Pages at
WWW.EAA32.ORG
 Laura Million, Web Designer
 While you're there, take time to join the
 Yahoo Groups to help you stay abreast of
 Chapter happenings!

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