

EAA Chapter 648

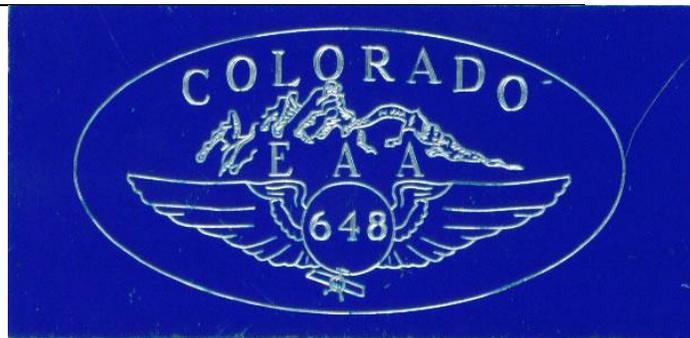
Longmont, Colorado 80503

Our Next Meeting will be May 11th at the Colorado Classic Aircraft building of Carol & Bob Leyner, located on the north side of the Longmont airport.

May

2015

www.648.eaachapter.org



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April Meeting Photos:



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May Program: Our program will be presented by Heiko Eichler. You have to show up to find out what he has in mind.

Several months ago, members volunteered to organize meeting programs for 2015. Our April 2015 meeting program will be arranged by Connie Socash. As a reminder, the schedule for subsequent months is as follows:

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June	(Need volunteer)
July	Rick Hall
August	(Need Volunteer)
September	Chapter Picnic
October	Bill and Mary Mitchell
November	(Need Volunteer)
December	Chapter Christmas Party

If you aren't on the list already, please step up and take one of the months needing a volunteer to arrange the program.

As always, everyone is invited to bring a guest to our meetings. There is almost always an interesting program and fun for all.

A Message from the President

How does "waffles, bagels and cream cheese, doughnuts, and lots of hot coffee" surrounded by airplanes and pilots on a Saturday morning sound to you? As a chapter we meet once a month and have a reasonably good meeting but for the next thirty days we rarely get together or do anything "airplane-wise". Our newest member, Phil Brown, (See this issue's "Plane of the month.") got me thinking about a Chapter get together at Boulder's airport. A fly-in, drive-in, walk-in few hours to get together in an informal atmosphere to tell a few lies, argue about how to do things, and generally act like pilots, all in good fun and company. Give it some thought and we can discuss it at our next meeting.

Also don't forget to write your Senators and Representative concerning the Pilot's Bill of Rights #2 currently working its way through Congress.

Dick Socash

President, EAA Chapter 648

NEWSLETTER QUIZ

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Each month, we will ask a "question" in the newsletter. Answers are given at the meeting referenced in the newsletter. At the end of the year, there will be a prize to the person who has the most correct answers. Some will be easy and some difficult.

April Question: RV-7A (Tricycle gear, illustrating that training wheel is installed on incorrect end of aircraft..Ed.) N537S is fitted with a 74" blended airfoil propeller. Vans recommended this propeller should not be fitted to the RV-7(conventional gear) model. What is the difference in rotational cross-section between a 72" propeller and a 74" propeller?

April Answer: This is a simple calculation of the difference in areas divided by the original area.

Using the formula for area, πr^2 , we get:

$(\pi(37)^2 - \pi(36)^2)/\pi(36)^2$ which equals 0.056 or about 6%. This will give more thrust for a given rpm but there will be a slightly increased vibration during turns since the larger diameter propeller has a greater moment of inertia. Recall the case of the original two-bladed P-47 Thunderbolt. There was a noticeable vibration with the large diameter paddle blade propeller. Switching to four blades reduced the vibration to an acceptable level.

May Question: In discussions with my brother-in-law who was a waist gunner in a B-24 in the 446 Bomb Group in Europe during the latter stages of WW2, he talked about using "Headlight tracers." What are "Headlight tracers?"

April Program: Our program, "Spark Plugs Gone Bad" presented by Connie Socash covered cleaning, checking and maintaining spark plugs. A good discussion and exposition of a number of interesting points and opinions. Thanks to Connie for her research and presentation on a subject that affects all pilots.

AIRPLANE PICTURE(S) OF THE MONTH (#19)

Phil Brown's Pober Pixie

Since I was a kid, I have been fascinated by and loved two things - radio and aircraft. When I was thirteen, my parents gave me my first Heathkit shortwave receiver kit, the 4-tube GR-91. Immediately out of college I spent my first "real" money on flying lessons, and as soon as my

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private ticket was earned I transitioned from Cherokee to J-3 Cub, \$8 per hour at Indianapolis' Bob Shank Airport. That same year I attended a hot air balloon rally, and one of the balloons there was a homebuilt, made out of Tyvek housewrap by a guy named Brian Boland. He sold a book on how to build his balloon so I bought the book and built one. Only I up-sized it and made it out of real spinnaker cloth, and built a second larger basket in the shape of an old sailing ship, with huge bamboo air-oars. I flew it for a number of years before buying a commercial Barnes balloon with which to work my way through engineering school.



My first Oshkosh, 1976, came right after that private ticket. Someone asked me if I was going. "What is Oshkosh?" So I went. There I saw the cutest airplane in the world. Paul had recently designed it, and I was told he used the first Heathkit as a model. A little quick asking around revealed that the Pober Pixie was an updated Heath Parasol. WOW, what a connection! This lover of Heathkits had a connection to

what was the very first Heathkit, Ed Heath's 1928 Parasol. His was powered with a barely altered Henderson motorcycle engine, all of 29 horsepower. Paul Poberezny's version was powered with a Volkswagen conversion. I was powered with enthusiasm, what a fun thing it would be to build. I took the plans home.

I started by buying lots of 1/4" spruce capstrip and a 4' by 8' sheet of 1/16" mahogany- faced plywood from B&F Aircraft in Chicago. Also sitting inverted on a tire on the floor there at B&F was a freshly overhauled Continental A-65-8 engine. The logbook read "Carb and mags not serviced." The price tag on it was \$1,200. I had to borrow money from a bank but a week later I took that engine home. Wow, I had actually entered the ranks of homebuilders. Me!

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Wing ribs were fun, and they went fairly quickly. I was moonlighting in a kite store then and I would assemble the rib in my rib jig and glue the gussets on the first side. When that glue had



dried I would take the ribs to work to glue and nail the gussets on the second side. "That's a pretty big model you're building", a customer would occasionally comment. "Yep, thirty foot wingspan, 65 horsepower." And in some ways it was just a much bigger model than I had ever built before. But I knew I also had to learn how to weld.

Long story short.... got married, bought house, assembled wing ribs onto spruce spars. Kids came and the airplane project slipped to the dust- gathering part of life. Once in a while I would work on the wings a little. Years passed.

When the kids got to high school, I began to find time again. I remembered thinking that these wings and full span ailerons would be fabric covered. How would the fabric be shaped? How



would the fabric be attached in the aileron bays? How much clearance was needed between wings and ailerons? I tried to anticipate problems and solve them first. Finally, after many coats of urethane finish on the wood, I put the leading edge aluminum on the wings which stiffened them a lot. The wings were finished and it was a big boost to finish something!

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I ordered a tubing and sheet metal package. The freight company shipped it to Puerto Rico instead of Indianapolis, and it got lost on a dock. That took a while to sort out. The metal finally arrived and I had to take the basement window apart to get it into the basement. In a year I had enough of a fuselage so that I could sit in it! The landing gear was a challenge - sheet steel and thin tubes welded to thick axles at weird angles. I bought a TIG welder and that made the job of all those little odd fittings much easier. The plans told me what the finished parts should look like, but never how to make them! Jigs helped, and I learned that the time spent building a jig was well rewarded in the integrity and fit of the part that came out of it. Lots of little tabs and attachment parts had to be welded on. Jigs again for the tail feathers and my son home for the summer helped with that. Lots and lots of little parts and lots of plan studying trying to figure out that the vertical stabilizer on page 6 had to mate with the fuselage on Page 2.

When all the metal work was finally finished, wood work again, stringers and a turtle deck. But it was really beginning to look like an airplane. And what was really fun, it was beginning to look like a real antique airplane! I pictured Ed Heath in his Chicago storefront, 1721 Sedgewick Street, doing the same many years before me. So I went to see the site.

I decided to use modern covering materials for long life, and every step of that fabric covering was fun, too. Progress seemed fast and Stewart System's training DVD's explained the process well. Guster, our dog, kept me company as I did the rib stitching. Little aluminum parts worked to trim-up the full span aileron bays, nothing in the plans about how to do that. — I could see why no factory would ever choose to mass produce this design! Silver and fill coats.

Since the Pixie I had fallen in love with was my dream, my Pixie had to look as much like that original as possible. My engine and cowl were different, more antiquey looking I thought, but I wanted the paint job to be identical. So I took slide photographs of Paul's original Pixie hanging



in the museum, and projected the slides on my components to outline the color edges. It worked pretty well! A lot of time was spent masking, more than the time spent painting. Not perfect, but pretty good, I thought.

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You know part of the story. I ran the engine on the wingless but finished fuselage for the first time in my driveway. Neighbors appeared, one a Marine pilot that wanted to get back into the air. Some thought I was a little nuts. I'm not sure what it would have been like to fly Ed Heath's first underpowered flivver, but Paul's redesign of it has yielded a great, simple design. Like it says on Zephyr's rudder, "Thanks Paul!"

Zephyr, my Pixie, is flying now. That calm wind first flight was as exciting and scary as they say. I even had the local fire department come to watch, just in case. Climb straight, Phil, center the ball, keep it all gentle, never get slow. I have almost fifteen hours on it. It is to the point that I am beginning to trust it to behave like an airplane, an antique taildragger, anyway. There have thankfully been zero surprises. Buffet comes at about 42 MPH, waaaaay nose high, and cruise is better than I had hoped. I'm still tweaking the vertical stabilizer offset, my prop is too steep and a new one will be needed, and the single P-mag is almost dialed-in right. Every flight is a delight. When I'm at 3,000 feet I sometimes find myself looking around me at this collection of steel tubes and wood and fabric that I've created and thinking "Egad! This thing is actually flying and I feel pretty safe in it! Is this a dream?" It's not, and I have official Federal Aviation Administration paperwork to prove it! It only took 37 years.

And yes, I still have that first Heathkit and it's as good as the day I first turned it on 50 years ago. I built the Pixie to the standard that my son would fly it when I'm gone, and I hope he takes as much care of it as I put into it. He understands; he's a pilot also.

Phil Brown is a Lifetime EAA Member, # 95809. He holds a commercial airplane and balloon rating and CFI-I and MEI certificates, and flies a Comanche 180 in addition to his new Pixie. He can be found on the 20 meter Amateur Radio band as WE7A, or at philwe7a@gmail.com. And he hastens to add that Amateur Radio is a wonderful and complimentary hobby to aviation. Visit ARRL.org.

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To members, friends and aspiring authors. *Get published!* Send in Your Newsletter Items! **DON'T FORGET!!!** We need to get submissions from the members to include in future newsletters. I'm starting to run out of *ideas and lies*!! Let's hear from you!! Need "Plane of the Month", trip reports, technical tips, hangar tales, "beautiful planes," and aviation slanted "fish stories".

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Other Items of Interest

An interesting anecdote from one of our chapter members, whose attendance at chapter meetings is sketchy, at best:

A while back, the Antique Airplane Association of Colorado gave some scholarship money to Kate Kennedy, an Aerospace Engineering senior at CU Boulder. We met Kate a few years ago on the Taylorcraft project at Jack's place. Since the Taylorcraft, she has helped on the SPAD XIII project at the Vintage Aero Flying Museum at Platte Valley airport and worked at the glider port at Boulder; while there she earned a Private Pilot-Glider certificate. She wanted the AAA scholarship money to help add an Airplane-Single Engine rating. Kate asked me to be her instructor and said she wanted to fly a tail wheel airplane, so we trained in a friend's Piper Cub and a bartered Cessna 172. I thought the group would like to know how their money was spent.

I can't speak for Kate, but I certainly learned a lot during our training. One thing I learned is that when you tell a glider pilot, "Let's make a right turn to north" she does it RIGHT NOW, stick and rudder cranked into a thermal-chasing knife edge turn. And when high on approach, she throws it into an altitude-losing slip that is a fall-out-the-door affair if you aren't strapped in well. I learned to hang on; she learned to moderate and it all worked out.

Coming from the world of soaring, some of her observations were interesting. On our first flight we headed a few miles from the airport to get the feel of the plane and she commented how strange it was to actually go somewhere, in a straight line, in an airplane. She was also sensitive to lift, sink, and coordination. One sunny day after a rain we weren't climbing as well as usual and she taught me that wet ground produces less lift than dry. It makes sense; it just never occurred to me. She learned about gasoline, oil, finicky airport fuel pumps, hand propping, and Cub brakes. The original 1940s brakes won't hold the plane from moving during a 2000 rpm run-up so she swings the plane around to hook the tailwheel over the edge of the taxiway or just checks the mags at about 1500 rpm.

Some things were just funny. This is a Cub you solo from the front seat and Kate likes to fly with the door open. I sit behind her and if she forgets to braid her long hair it's like flying behind a horse. I know how second place at the Kentucky Derby feels. One time after a series of touch-and-gos she said she wasn't used to the fast pace of Cub training. The Fast Pace of Cub Training? I'd never heard those words together before. It seems that with gliders there is the lining up the glider, waiting for the tow plane, monkeying with the rope, lots of hand signals

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and rudder wagging, a slow drag to altitude and then the flight itself. After landing, the glider has to be pushed back to the starting position and the process begins anew. Touch-and-gos in a 60 mph airplane seemed hectic to her. I also chuckled at her determination to perfect her landings. She would be straight as a string tracking the runway center line, banked into the

crosswind, flaring, flaring, and then she would plummet from a two inch altitude to a beautiful landing. She didn't see all the things she did right, only that little thump at the end. She also was unhappy about gaining altitude during the slow flight maneuver. The limits for Private Pilot standards are plus/minus 100 feet. I showed her how to say to the examiner "I'm gaining altitude, I'll stall it down 50 feet to get back to 7000", then stall, flutter down, break the stall and carry on at 32 mph on the airspeed indicator. She thinks that's what everybody does. Funny stuff.

I also found that time allotted for cross-country flights had to be adjusted based on how many dogs and cats she found to play with at airports across eastern Colorado. On her long solo she returned about two hours beyond the actual flight time because, "Well, you know that cat at Fort Morgan? I had to pet him for a while. And there's a really nice dog at Akron..."

The Cub has no electrics or radio so she had a rope arrangement with release so she could hand-prop by herself and cross-country navigation was solely by compass, clock, and map. Old school. She learned the regulations by arguing with a fellow CU student who was training in a glass cockpit, who insisted that the Cub did not have enough instruments for legal flight. She quoted FAR 91.205 and assured him it had everything needed: Tach, Oil Temp and Pressure, Airspeed, Altimeter, Compass, and that Sophisticated Cub Fuel Gauge. He just shook his head and tried to fathom it. On her check ride when the examiner asked her about the rules for inoperative equipment she had to stifle a laugh, but didn't tell him that we flew one cross-country flight with an altimeter (robbed from Scott's B-25 project) propped in a shoe on the floor, after the installed one died and we didn't have time to change it.

We did have to do some of the training in an airplane with attitude instruments, electronic navigation, night flying capabilities and communications radios, and those aren't cheap. Kate worked a full time job this summer to pay for her college and flight training, and money was tight (the scholarship money goes quickly) so I arranged a deal between a 172 owner who had a daughter failing calculus and Kate who had passed three calculus classes. Tutoring traded for an airplane; she just bought fuel. She also figured out that 80 mph burns less fuel than 120 mph, so she always flew the Cessna slowly. She handled the nose wheel plane well but never really warmed to it. "Stupid toe brakes. Can't fly with the door open. Gotta sit on the side with

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this dumb thing like a steering wheel. It won't turn around on the ground. Flies heavy like a pig. Throttle in the wrong place.”

She's a Cub girl - I think we may have ruined her.

In fact, the only time she soloed the Cessna was the day I refused to fly with her. She had been dragging her feet about soloing the Skyhawk and going to a control tower field alone. While she worked well with ATS (my students know them as Air Traffic Suggesters) and had good radio skills, she didn't much like talking on the radio. One of her other complaints about the Cessna was “Stupid radios.” But part of the requirements for the rating is three solo landings at a towered airport.

“What are we doing today?” she asked. “WE aren't doing anything,” I said, “YOU are getting your butt in that 172 and going to Metro for three landings.” I left to drink coffee and she made her first and only nose wheel solo flight. She came back in an hour or so, said “That was interesting”, and we went on from there.

Her check ride lasted a while. Two weeks and three tries, in fact. The Sunday before the new college semester started she met with the examiner in the morning, went through the paperwork and oral exam, but the wind was 20 kts across the runway when it came time to fly. “I'm not flying the Cub in this,” she told the examiner. “We could go to another airport and do our landings there,” he suggested. She checked the weather and it wasn't much better elsewhere so she said no. Just like that. End of discussion. The Pilot In Command has spoken. So they rescheduled. The second meeting was a misty, rainy, but VFR morning so they took the Cub up for a while and came back almost finished with the exam – just the radio navigation and instrument work in the Cessna left to do. The weather was getting worse so they postponed again. Kate went to her job for a couple hours and attended an afternoon class at CU. Later in the evening the clouds lifted so they went up again, checking the boxes on the FAA form and finishing the rating. On September 5, 2014 Kate Kennedy became an airplane pilot. Jack Greiner's vision of the Taylorcraft project, attraction of young people to aviation, and the scholarship program paid out another dividend.

In my view, we made a good investment.

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Tower received a call from a crew asking, "What time is it please?"

Tower responded, "Who is calling?"

The crew replied, "What difference does it make?"

Tower replied "It makes a lot of difference.

If it is an American Airlines flight, it is 3 o'clock.

If it is an Air Force plane, it is 1500 hours.

If it is a Navy aircraft, it is 6 bells.

If it is an Army aircraft, the big hand is on the 12 and the little hand is on the 3.

If it is a Marine Corps aircraft, it's Thursday afternoon and 120 minutes to Happy Hour.

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