The Flightline

EAA Chapter 958 San Marcos, TX
Where every day is a good flying day!

February 2016 Issue

Special Meeting!!!
CAF Hanger
San Marcos Airport
Saturday February 20, 2016, 10:00 am
Coffee and Donuts @ 9:30

Program: Introduction to the Commerative Air Force and Facility tour by Wing Leader Bill Fier

Leader Bill Fier will give a brief presentation about the CAF followed by a tour of the facility. Many thanks to Bill and the CAF for their hospitality.

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Editors Notes

Hi everyone
The Chapter is getting off to a good start this year. We had a superb presentation by Chris McCrank on flying in the Mountains of Utah at our January Meeting and we're in the process of getting organized for the year. Current officers have agreed to extend their terms for the next year, which will help promote continuity to the programs that will be developed as we move along. We will be exploring the possibilities of collaboration with other aviation organizations here at San Marcos and expanding the Young Eagles and Eagles programs.

This Month we are moving the meeting to the Briefing Room at the CAF Hanger (See Map Below) where Wing

New advertising

New this month in the newsletter is advertising. As we look for ways the chapter can do some fund raising, we will add up to 2 pages of advertising. Initially we will be offering up to ¼ page for $25.00/year. This will be evaluated at the end of the year to determine whether or not to increase the rate. And preferences of course are for local and aviation related businesses. Anyone interested should contact me for details and file format preferences.

Editors notes (cont.)

Airventure
The chapter is in the process of putting together a group to travel to Airventure at Oshkosh this year. A camping location is being investigated by Kermit Krickhahn and Phillip Steel. The hope is to have a chapter representation and get together during the event with camping and/or other accommodations. Contact Kermit or Phillip if interested.

New Members
We want to welcome the following new members to the chapter:
Ed Cooper – currently flying a T-210, C-140 and Hatz Classic
Frank Pisz – currently building a CH 750 amphibious version (see this months article – fantastic project)
Salvadore Meneses – currently restoring a Navion

A warm welcome to everyone.

Programs
We're looking hard at providing a more interesting format to our meetings. The chapter officers will be meeting regularly, separate from the chapter meeting, in an effort to minimize the amount of time spent in the actual chapter business meeting. Also being discussed is how to diversify and make the meetings more educational, informative and helpful, including hanger meetings, hands-on programs and social events. If you have ideas for programs or events, please contact one of the officers and give them your input. Programs such as the one by Chris McCrank last month really show what we can do when we break the barriers of our comfort zone and explore the various types flying available to us around the country.

Everyone was tuned in as Chris McCrank talked about his flying experiences in Utah

See everyone at the meeting Saturday!!!
Russ

Changes coming to Young Eagles Program

We need pilots and ground volunteers to support our chapter's Young Eagles program. For the safety of our Young Eagles, EAA has created a Youth Protection Policy. The Youth Protection Policy sets basic requirements for all our volunteers and pilots who will be working with the Young Eagles. It requires at least two deep leader supervision for our Young Eagles, online training, and background checks for our volunteers and pilots. The online training is relatively easy and takes about 15 minutes to complete. The background check is just as easy and will take about another 5 minutes. The training and background check can be found on the EAA's Young Eagles web site. Log in or set up a new account and then go to My Account where you will find the Go to Training Tab. The background check will take about 7 to 10 days so do it soon. We tentatively plan to host a Young Eagle event in San Marcos in April. Please contact Mike Short at m.short13@att.net if you can be a ground volunteer or can fly some Young Eagles.

Mike Short
Chapter 598
Young Eagles Coordinator

Building a Zenith CH 750 on Amphibious Floats

(Not my plane…..it's still under construction….but a typical example)

Background

My interest in airplanes and flying began during my teenage years, where I got involved in flying U-control planes with a local model airplane club. My hometown, Union, New Jersey, had a wonderful recreation program for the township of which the club was part. My friends and I became serious competitors on a local, state, and national level, and my Dad was wonderful to me, giving up weekly golf games to drive me each weekend to somewhere in New England where a competition would be held. As we got older, the modeling took second place to college, marriage, raising kids, Vietnam, and other endeavors. I often thought about flying "the real thing", but having lost my hearing at age four to causes unknown, I discounted that idea. Then one evening when my wife and I were hosting a party at our home, one of the attendees who was a private pilot noticed my trophies and asked why I didn't fly the real thing. After telling him, he brushed that disability off, telling me that a radio is not required equipment and proceeded to tell me how he landed his piper cub on a dragstrip, mistaking it for a runway. I got my wife's blessings, enrolled in ground school, earned SEL, SES, and Comm. Glider certificates. That was about 40 years ago. Most of my experience is with Cessna 172's and 182's. It became my dream to build a plane of my own as a retirement project both for the enjoyment and challenge of building it as well as flying for fun. I chose to build a Zenith CH 750.

Why a CH 750?

- Good safety and performance history. Evolved from the CH 701 which has been flying for 25+ years. One of safest homebuilts with respect to fatality record.
- Good STOL and off-airport short field capability. Fun and easy to fly.
- Light Sport Qualified.
- Easy and fun to build - I'm a first-time builder.

- Good factory support, good quality control. Lots of support blogs on internet. Good rapport between builders.
- Good flexibility in engine choice, 100 – 140 HP range, up to 280 lbs installed weight. (ULPower, Jabiru, Continental, Rotax, Lycoming, Corvair conversion, Viking Honda Conversion)
- Modest cost:

Airframe	$19480
Engine	11995 (Viking 110 HP)
Firewall Forward	5920 (Viking)
Instruments	10000 (varies)
Floats	9340 (basic kit)
Total	$56735

Getting Started

The factory offers each month, for the $375. price of the rudder kit, a free two-day introductory workshop at their Mexico, Missouri factory. Here you get to tour the factory and observe how the different parts of the planes are manufactured, stored, inventoried, and packed for shipping. You get to meet the factory employees who will assist you in building a complete rudder assembly (takes about 6 hours to build). An evening dinner out the first night provides for some informal socialization between fellow builders and factory employees. A free demo flight in one of the planes is available on request. This introductory workshop provides a good opportunity to become familiar with the Zenith products and to obtain hands-on experience in building a sheet metal airplane and determine if that sort of construction is for you. The factory also hosts an informal fly-in each spring and fall where builders have the opportunity to "show and tell" their airplanes and socialize with fellow builders.

I'm building the plane in my three car garage, which so far has proven to provide more than enough space, even for the floats. First order of business was to construct two very sturdy and flat four foot by twelve foot workbenches to build the airplane components on.

Workbench Frame

Finished Workbench

Then I built a couple of jigs to build the floats on. The floats are constructed, for most part, upside-down within a framework supported on sawhorses. I later mounted the frames on furniture dollies so that they could be moved around.

The build

I built the rudder at a Zenith factory workshop in Mexico, Missouri. It was a very educational experience and helped me in my decision to commit to building a Zenith CH 750. I built this rudder before building the workbenches pictured above. Typical of Zenith construction, most components consist of a skeleton framework wrapped in sheet aluminum and pop-riveted together. The CH 750 rudder is “all flying”, supported by a single hinge.

The usual order of component build is to start with the simplest component and work up to the most complex component. For this plane, the component order would be: Rudder, Slats, Flaperons, Stabilizer, Elevator, Wings, Fuselage, and then when the plane is finished, Floats. For reasons fitting for another story at another time, I built the floats after the wings were about 80% completed and then continued with the wings and fuselage.

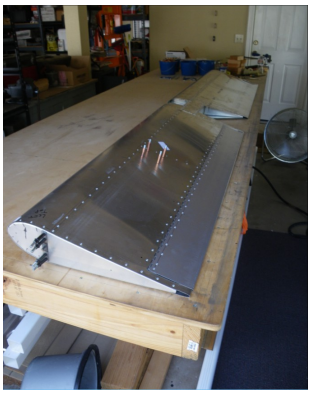
I built the slats and flaperons at a facility in Missouri near the Zenith factory in order to get away from the awful cedar pollen plague that we have in this area in January-February of each year. These components are very simple and consist essentially of rib forms wrapped in sheet aluminum and riveted. All rivet holes are deburred and all contact surfaces are primed for

corrosion resistance before riveting. Slats and flaperons are built in half-lengths, so there are four slats and four flaperons to construct. Wing wash-out is provided by a slight offset in flaperon orientation.

Fabrication of the Slats

Fabrication of the Flaperons

The stabilizer and the elevator are built in a manner similar to the flaperons and are each about eight and one-half feet in span. The elevator contains a small servo which activates the elevator trim tab. The Zenith CH 750 is novel in that the stabilizer and elevator are mounted on the plane “upside down”. This is to pull the tail downward immediately at the beginning of take-off roll for good STOL performance. Vortex generators are mounted on the elevator near its junction with the stabilizer to enhance low speed-high angle of attack controllability.



Stabilizer Elevator

Elevator-Stabilizer

Next, the wings were fabricated. Each being about thirteen feet in span and four feet in chord, they took up all the space on both of the workbenches shown previously. The wings are constructed in a manner similar to the rudder, flaperons, elevator and stabilizer. One 15 gallon aluminum fuel tank is mounted within the root section of each wing. Two pitot tubes are mounted to the underside of the wings, one for the airspeed indicator , the other for an angle-of-attack (AOA) indicator. The wings are wired for navigation lights, strobe lights, and for wig-wag landing lights which are enclosed in the slats. The wing tips are molded fiberglass.

Wing Construction

I interrupted the construction of the wings to begin construction of the floats. The floats were fabricated from the Zenith “basic” (cheapest) kit which is essentially a raw material stockpile. The builder is required to cut, shape, and form all of the hinges, brackets, stiffeners, sheet coverings, etc. from raw stock. In short, it is very nearly a plans-built operation. While not difficult, it is a fun project and quite time consuming, taking me a year to build two floats, what with life’s usual interruptions involving job, family, home, cars, etc. It is a messy project also, as almost every part of the floats are “glued” using 3M 5200 series sealant/adhesive at each joint.

The adhesive oozes out when the parts are riveted and is then cleaned off using an acetone-soaked rag. No matter how careful you are, the adhesive gets all over everything…workbench, floats, tools, clothing, and even inside the house. The floats are approximately 15 feet long and weigh about 100 Lbs. each.

Fabricating and Fitting Bulkheads

Nearly finished Floats in Cradles

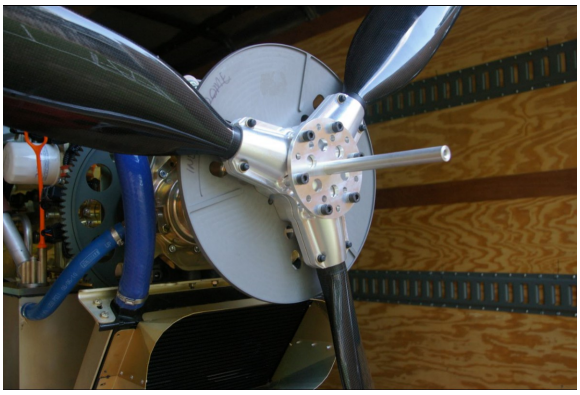
At this writing, the last component of the build, the fuselage is still under construction. I built the fuselage up to the point of installing the instruments and then decided I was not happy with the way it came out (another story for another time) so purchased another fuselage kit and re-initiated the build. That fuselage is approximately 60% completed. The fuselage consists of three components: the rear fuselage, the forward fuselage, and the firewall. The forward fuselage, with the controls and instrumentation is the most detail-oriented component of the entire build.

First Fuselage Build

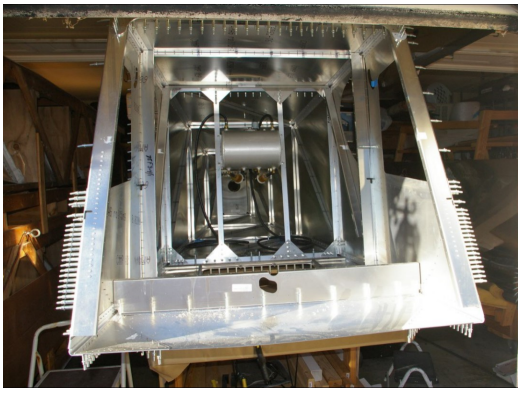
The engine is a Viking 110 which is a Honda Fit engine converted for aviation use. It is 110 HP and weights about 178 Lbs. (about 220 Lbs. installed) A 70 inch ground adjustable pitch

Whirlwind propeller supplies the thrust. It was very easy to install with an engine crane and a few simple wiring tools. Being fuel injected, a header tank is employed and situated behind the baggage area. Two fuel pumps are mounted on the header tank producing a compact and easy-to-install unit. The electrical system has dual ECU's for redundancy. At this point, all the electrical wiring, instrumentation, and fuel system associated with the engine side of the instrument panel was "roughed-in" (using zip ties) an the engine was run. It appeared to run in a satisfactory manner. A "Viking View" EIS provides most of the necessary engine operating parameters.

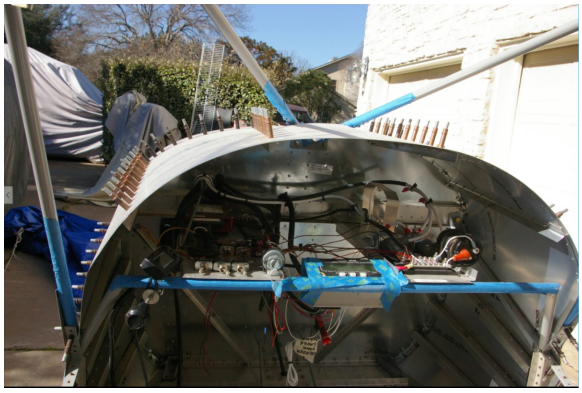
Viking Engine Install to Firewall



Whirlwind Propeller Install



Header Tank and Fuel Pumps



Engine Wiring and Instrumentation "Roughed-In"

Current Status

The second rear fuselage, forward fuselage, and firewall are approximately 60% completed. The construction is progressing nicely and much more quickly than the first fuselage, due to the experience factor. All non-engine related instrumentation (except the ELT) has been purchased and I'm in the process of figuring out how to wire it all together. I'm using a Vertical Power Electronic Circuit Breaker System, MGL iEFIS Explorer 8.5" Touchscreen, MGL Avionics V6 Transceiver, Trig TT22 Remote Mode-S Transponder, and a few other goodies.

Hoping to complete construction of the plane this summer, fly off the 40 hours test period on wheels, then switch to the floats, fly off the 10 hours test period on floats, and then enjoy.

Frank A Pisz
Lakeway, TX

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Safety Corner

EAA Webinars

Date	Time	Webinar	Presenter
2/17/16	7 p.m. CST	Powered Parachutes, The ultimate Low and Slow Ride	Roy Beisswenger
2/23/16	7 pm CST	Chapter Chat: Pilot Proficiency Program for EAA Chapters	Radek Wyrzykowski
2/24/16	7 pm CST	When Prop Balancing Isn't Enough: Troubleshooting Complex Vibrations	Matthew Dock
3/2/16	8 pm CST	Fix it Now or Fix it Later	Mike Busch
3/16/16	7 pm CDT	Are You Fit to Fly? Understanding Aeromeddical Certification	Dr. Greg Pinnell
3/23/16	7 pm CDT	Reviewing the Flight Review	Prof. H. Paul Shuch
3/30/16	7 pm CDT	Basics for Tailwheel Airplanes	John Valade