



The Beacon

The newsletter of Chapter 54
Lake Elmo, Minn.

JULY 2018

July 2018

NEXT MONTH'S PROGRAM WILL BE ON

MONDAY August 13, 2018

- Social Hour 7:00 PM
- Meeting Begins 7:30 PM
- CHAPTER HOUSE, ENTRANCE B, LAKE ELMO AIRPORT 21D
- Our Chapter Web site address: www.eaa54.org

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Chapter Calendar of Events

July 14 Young Eagles

July 24 to 29 Airventure

August 11 Young Eagles

August 12 Aviation Days - Pancake breakfast

August 13 Chapter Meeting

Fly the Ford

Some of the volunteer that helped with the EAA Fly the Ford event at Holman Field. The star of the show is the



1929 Ford Trimotor airliner. The plane is one of 8 still operational. This one is owned by EAA and travels the country giving rides. Local chapters sponsor the event and provide promotion and volunteer support and make \$5 per



person for helping. The volunteer work was easy and fun because everybody was there to have an enjoyable experience. It was work because it was hot and windy



and we really had to pay attention to details so we could have a safe and fun event. The video training was very good and we got plenty of guidance. There were 4 people on the morning and the afternoon shift on



Passengers board a Northwest Airways Ford Trimotor at St. Paul Downtown Airport in 1930.



Thursday through Sunday. The plane uses three 450 horsepower engines and uses 60 gallons per hour going about 90 miles per hour. It seats 9 passenger and a person can pay extra to ride in the co-pilot seat. It does look cool when the pilot and co-pilot are flying with their arms casually out the window like they are cruising in a car. 199 Ford Trimotors were built in 1929 — there was one passenger that was actually older than the plane — he was 94 years old. Every volunteer that wanted a ride, got a ride!





PRESIDENTS MESSAGE

JACK MILLER

The Last Flight of the Pietenpol (July, 2018)

The wind was out of the southwest at about 9 mph with clear skies that Monday afternoon at Lake Elmo Airport. Earlier that morning, in my attempt to start Plum Bob (PB), I found the battery dead as a doornail so onto the trickle charger it went. It took several hours to get up to a decent charge, enough to crank the 120 horsepower Corvair engine. The problem with flying in the afternoon is the increased daytime heat generated from the sun. The added air movement makes a light aircraft, like PB, bouncier and more interesting to fly. 10-12 mph winds are my no fly stay-on-ground rules. But it was 9 mph!

I climbed into the rear cockpit. PB has two cockpits. The front one is for a passenger at 150 lbs or less, while the pilot sits in the rear cockpit. Sliding into the hole was just that ... feet went through slots under the passenger and rest on the pedals and toe brake. The control stick stands in the middle, between the knees, daring the pilot to take control. Meanwhile, with each shoulder pushing against its respective side of the cockpit, the pilot puts on the safety harness. There is no room to reach down to put on the safety harness! After several pulls and grunts, like a Greco Roman wrestler, the harness is fastened into place and snugged up.

Head gear on and preflight check done, the pilot shouts "Clear Prop" and everyone runs for cover! The prop turns over and she sputters into a roar. Now that is an experience, sitting directly behind the engine. No muffler to dampen the engine noise, the propeller is getting ready to spin at the speed of sound, the resulting wind is doing everything it can to push the radio headset off one's head. It is so noisy that no one can hear your radio calls, let alone hearing the other pilots telling PB to get out of the way.

Undaunted, PB rolls forward to the taxiway and finally the warmup area. Here the pilot checks everything, but PB doesn't have much to check since it is so basic. PB continues to roll out onto the taxi way moving towards runway 22. There we hold short and look for and listen for other air traffic. Sitting there one feels like Charlie the Tuna in the can.

Time to go ... so we roll out, heading into that 9 mph wind coming down 22. In pilot talk it is not runway twenty two, rather it is runway two two. Pushing the throttle forward a pilot gets the distinct feeling that we are crossing the Rubicon (when Julius Caesar crossed the Rubicon River in Italy, he marked it as the River of No Turning Back). The earth rolls underneath and the wind stiffens its resistance above as PB accelerates. The vibrating rumble turns to a softer sway as the wheels lift off Terra Firma and PB yields to the forces aloft. It is fun to watch the land grow small beneath you. There is so much to see and so many places to go. Heading north along the Saint Croix River, I was bound for Osceola Wisconsin. Incredible views and a bouncier flight it was. Apparently the winds aloft were stronger than I had anticipated. I began to feel like a martini in a James Bond movie – shaken not stirred! So I turned around and headed back to Lake Elmo Airport. "There are the old pilots and the bold pilots, but there are no old bold pilots" the saying goes.

It is strange how the winds hit you in the cockpit. Any turn or maneuver changes the forces against the plane and your head. I did not like what the winds were doing to PB, so I radioed ahead that I was flying straight in on 22. Usually a plane enters the flight pattern along with other planes wanting to land. To go straight in is like butting in line at a public bathroom .. not good, but I felt I had little choice. I was coming in at 1300 feet altitude at about 50 mph. PB lands at 30-40 mph. I made it to the runway, but was half way down 22 before I could have a chance at landing. Did not want to force PB down that far down the runway, so I pushed the throttle forward and entered the pattern.

It is an existential experience being alone and knowing you are responsible for the results of any landing. Reminds me of my college wrestling days when I was alone on the mat staring into the eyes of someone who was out to pin my body to that mat! Every pilot is alone and has to deal with the forces thrust upon them.

Finally, after some turns and maneuvering I made it to the final approach of 22. I reached back into my training and skill set and lined PB up with the center line. I was flying almost directly into the wind so crosswinds were not an issue. Power full back I glided to the surface of the runway. Feathering the stick I took advantage of the ground effect (that brief cushion of air between the runway and the wings).

Touchdown. One of my better landings until I felt the sinking lurch on the right and a loud scraping noise. Looking down I saw my wheel rolling away from PB down runway 22. People arrived from all over 21D and the rescue of PB began. I had a few bumps and bruises, but as they say "Any landing you walk away from is a good one." Whoever "they" are has not lost a wheel!

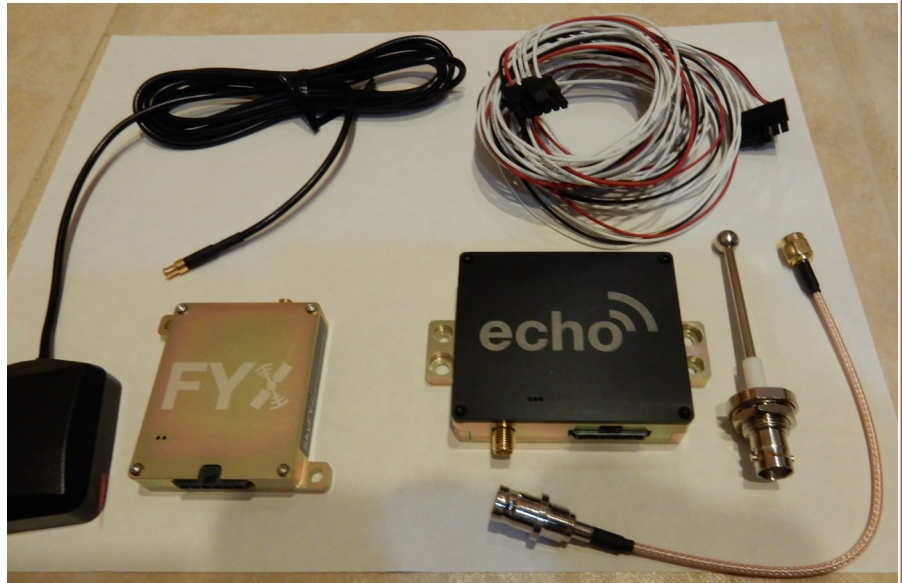
It appears that the axel pipe had been rusting away from the inside where no one could see the rust. Thanks again to Scott, Bill Sr, Mike, Jim, Al, Mitch) at all the effort and hopes we had for PB. Stay tuned for the next adventure.

Installing a cost effective ADS-B system in an experimental aircraft

Dave & Diane Syverson, Kitfox 7 Tri gear

After contemplating the 2020 ADS-B mandate and observing the changes in equipment costs, availability and configuration, we decided on purchasing a unit this past winter. The beauty of having an experimental aircraft affords a person the opportunity of doing the install themselves and considerable savings on the equipment and labor.

The device chosen for our Kitfox is manufactured by uAvionix and the model is called Echo UAT costing \$995 for the ADS-B, wire harnesses, mono-pole antenna and [Coax](#) pigtail. An installer who already has a WAAS capable GPS could wire that into the Echo UAT; however, such was not the case for our plane so an additional purchase which can be bundled with the ADS-B parts to include a WAAS compliant GPS source (identified as Sky FYX model by the manufacturer) and GPS antenna comes to a total of \$1450. A person also needs to get some Coax cable for the antenna, a circuit breaker or fuse, a panel switch to control the unit



and some wire for the power connection and ground. The Echo UAT transmits on the UAT frequency; however ADS-B in functions are on both frequencies and are WIFI connectible in the cockpit for weather and traffic. The manufacturer's claim to fame is a substantial history of making extremely compact ADS-B transmitters for drones so they have been making these for a while and the parts are much smaller than we see in most avionics equipment for aircraft. Total weight of the supplied parts in the package is 9 ounces with the main ADS-B box measuring 2" square and about 3/8" thick.

The neat thing about this model is the install requires a minimum of wiring, the parts can be mounted just about anywhere in the aircraft due to its extremely small size, and the only panel mount items are the power switch and circuit breaker/fuse. The Echo UAT will ping off an existing mode C or mode S transponder antenna without a hardwire connection for altitude data. Since we had a late model solid state transponder this worked out perfectly.

Decisions need to be made where to mount the monopole antenna, the GPS antenna, the Echo UAT and Sky FYX boxes; and, where to put the switch and Circuit breaker/Fuse. Locating the monopole antenna, which must be on the bottom of the aircraft, had to include consideration for maintaining the correct minimum distance from other antennas, adequate room for a decent ground plane and staying away from aircraft structures, such as the gear legs, which can shadow out the signal.

Most Kitfoxes are tailwheel aircraft with the main gear towards the front of the fuselage; however, ours is a tri-gear with the main gear assembly at the back of the cabin necessitating an antenna placement other than the bottom of the cabin. A call to uAvionix tech support revealed that the best place for the monopole antenna with the trigear was out on the tail cone for an unobstructed view of the ground stations and to avoid the gear shadow. The remaining consideration was to assure the antenna would be far enough from other antennas and the



location had space for a good ground plane. The ground plane is necessary because of the fabric covering on a Kitfox. The most favorable location for the new antenna ended up being on the tail cone below the back of the baggage bay and in the center of the port half of the aircraft. This assured the required distance from all other antennas. The ground plane was fabricated from a light gauge aluminum sheet of approximately 12" by 12" to fit between the aircraft structures and provide a ground plane approximately twice the minimum required size and a solid mount for the antenna; but, bigger is always better with ground planes if I understand this type of voodoo correctly.

Next item was where to place the electronics boxes. About the only consideration for that was to assure that a person could see the electronics as they have LED indicator lights that need to be checked during setup and initial run. A convenient place on a kitfox is to utilize a small fabricated plate mounted on cushion clamps just inboard of the port side of the aircraft behind the pilot's seat between the baggage bay side and the skin of the aircraft. This location was also on the same side of the aircraft as the monopole antenna making that connection easy. By leaving the flaperon control rod cover off, a clear view of the LEDs was possible for initial setup and testing. This location also provided an easy routing of the GPS antenna cable to the top center of the cabin for excellent exposure of the GPS antenna to satellite signals. Some builders place the GPS antenna under the fiberglass glareshield or in the turtledeck area; however, the cabin top provides the best exposure while causing no interference with other equipment.



The instrument panel had good places for the circuit breaker and switch, right next to other parts of the same kind.

The most time consuming part of this installation was clearly the need to remove parts of the baggage bay, the seats, console sides, floor, and glareshield to access areas for the wires to be installed. At least some "airplane yoga" was required to reach the tail cone area. Other than that, the physical installation is a piece of cake.



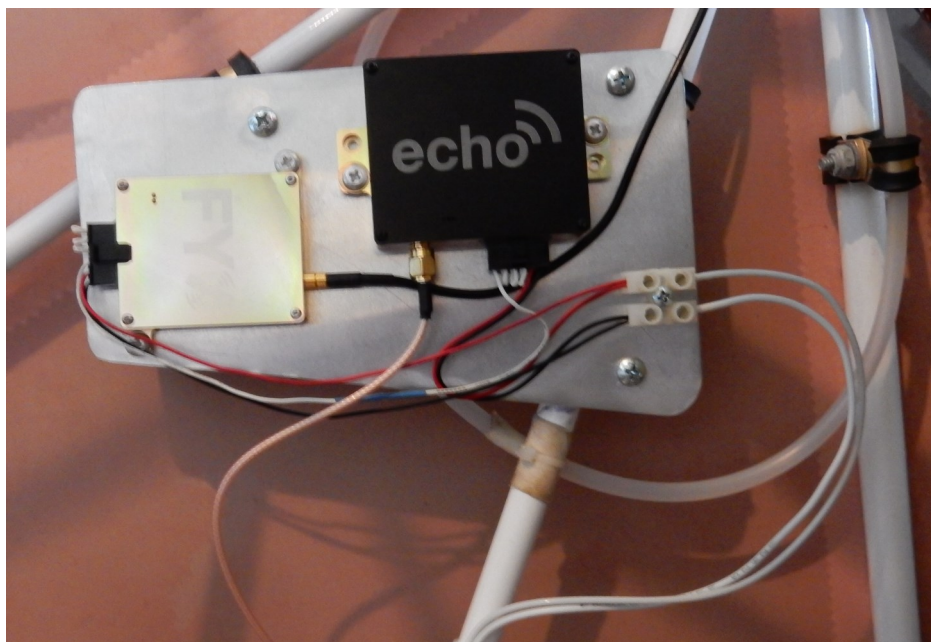
Once the physical installation is complete, a person is ready to do a "smoke test", which proved to be OK since all the smoke stayed in the wires once power was applied. At this point the unit can be configured for operation. Since the Echo UAT is a WIFI system, the setup can be accomplished by downloading a simple piece of free software through the manufacturers link to an Android, Ipad or appropriate phone.

Although certificated repair stations (usually) have equipment to ground test installed ADS-B equipment to assure the systems are working properly before returning to the customer; there is no requirement to have this done before flying with it; and there is no requirement that an experimental aircraft ADS-B unit be officially inspected before operating. There is a requirement that the ADS-B out equipment on an aircraft work properly.

To assure an ADS-B system is operating as required, a person needs to establish that the unit is configured for anonymous mode disabled. Go on line to review the Public ADS-B Performance Report (PAPR) Users guide located at <https://adsbperformance.faa.gov/PAPRUsersGuide.pdf> The user's guide includes the web location you can go to to request a PAPR for your equipment after you have gone out and flown for an hour or so with anonymous mode disabled. The user's guide also explains how to interpret the PAPR and includes a troubleshooting chart to

help with resolving any problems found by the reporting system as well as an explanation of acronyms (there are a lot) and terms. The PAPER system is totally automated and a complete performance report will be forwarded to your e-mail, usually within 30 minutes, following the request. Any failed parameters will be flagged in red. In some cases a report will include a small percentage of interrogation failures, such as 0.28% fail, for a particular parameter and it will not be flagged red as a failure. The reason for this is it is possible to blank out the antenna in maneuvering flight and such intermittent phenomena are considered to be normal. In some cases, the low failure rate may be due to insufficient altitude during the flight.

The experience with our installation could not have been better, once I figured out a person had to include the "N" in the N number setup field during configuration. Turns out this is a common occurrence with setup on new installations. All parameters came through with 0.00% failures. I also had a friend on board who has an Ipad mini to check out the TIS-B and FIS-B, which worked perfectly. The end result with the uAvionix equipment was a reasonably priced, easy to install system that worked perfectly on both ADS-B out and in.



Pat Moore Wins Grand Champion Super Custom

A photo of Pat's plane was unavailable for the last newsletter so it is included here.

A link to their website
<http://swiftmuseumfoundation.org/>



2018 Swift National Award Winners

Grand Champion Original — NC80505 — Nan Funkhauser
Reserve Grand Champ Original — N3796K — Sacha Botbol

Grand Champion Modified — N3729K — Steve Roth & Lynn Dawson
Reserve Grand Champ Modified — N58KB — Will and Bill Kientz

Grand Champion Super Custom — N2387B — Pat & Vicky Moore
Reserve Grand Champ Super Custom — N78109 — Pat Hockett

Most Original — NC80505 — Nan Funkhauser
Best Polish — N3315K — Jerry Bauerle
Best Paint — N78109 — Pat Hockett
Best Panel — N22GW — Simon Green
Best Interior — N80555 — Ted Williams & Bob Boston
Ladies Choice — N68773 — Paul Barnett

Best 3-Ship Formation Team — "Silver Flight"
 Jim Roberts
 Sacha Botbol
 Ben Wilson

Best 4 Ship Formation Team — "Coco Flight"
 Paul Barnett
 Jerry Kirby
 Don Abbott

Chapter Clubhouse Gets New Siding

Look for a large article about the new clubhouse siding in the next newsletter. There is a crew lead by Gregg Adler working to install vinyl siding. Below are a few photos of the BEFORE condition.



Chapter 54 Pancake Breakfast and Fly In August 12, 2018

Volunteers Needed

Head Chef

Servers

Car Parkers

Set up Staff

Cooks

Volunteering is a great way to meet other members, contribute and support the mission and goals of the chapter and have a little fun. We can find some way for you to help if you want to give your time and efforts.

Contact Jeff Hove: flying@jeffhove.com



EAA CHAPTER 54 *THE BEACON*

Art Edhlund Memorial Fly-Over By Jeff Hove

Long-time EAA Chapter 54 member and director Arthur Edhlund passed away April 4, 2018 in Florida. (Read more about Art in the April 2018 issue of The Beacon.)

On Sunday June 3rd, Art's family hosted a memorial service at the Historic Courthouse in Stillwater, Minnesota. Chapter 54 members performed a formation fly-over to honor the Navy veteran.

(Photo by Billie Rankin)

The four aircraft were in left-hand "fingertip" formation.



<u>Position</u>	<u>Aircraft</u>	<u>Crew</u>
#1 Lead	Apache	Paul Anderson, Paul Hove, Jack Miller
#2 Right Wing	Citabria	Al Kupferschmidt
#3 Left Wing	RV-7A	Jeff Hove
#4 Left Wing	Cessna 182	Paul Rankin, Billie Rankin (air-to-air videographer)

The planning for these flights was extensive with briefing and de-briefing meetings much longer than the actual air time. Dave Becker performed a site visit the day prior and gave valuable information about sight-lines and sun-angles to help us plan the run-in heading. Dave then videoed the actual event from the ground.

We practiced earlier that day with just the Apache (Paul Anderson and Jeff) and Citabria (Al and Paul Rankin) to verify aircraft compatibility and to be sure the winds and turbulence were manageable.

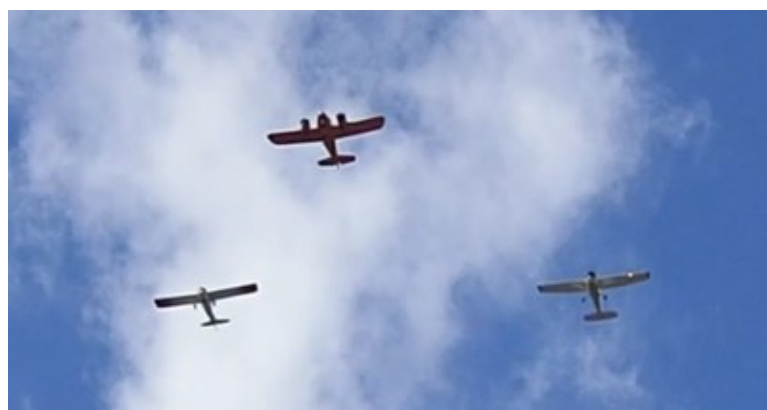
The aircraft departed individually at short intervals from 21D runway 32 and performed "running re-joins" during the Northward leg of our arching path to the holding area over Square Lake. Flight lead coordinated via radio with Art's son, Paul Edhlund, on the ground to ensure the visitors were ready then led us on our North to South run-in. As we neared our planned landmarks approaching the courthouse, Lead gave the command "Number three, readyyyy, readyyyy, pull" for the missing-man to climb up, then turn westward into the setting sun. (Frame from video by Dave Becker)



The remaining flight then passed over the event site with the empty #3 position signifying the absence of our departed friend, then continued south out of sight before breaking to recover individually. (Frame from video by Dave Becker)

We landed back on 32, debriefed the flight (where we critically reviewed our performance and lessons-learned) then drove to the court house to attend the remainder of the memorial and express our feelings in person. The family and visitors were very appreciative of the gesture, and we were honored to have this opportunity to celebrate Art's life.

Dave's ground-to-air video can be viewed at: <https://www.dropbox.com/s/1w3tnd1g4bgdj8b/Art>



FOR SALE

Stratoflex clamps PN 10781-4-22CR - SS clamps used for securing firesleeve over hose assemblies. I have 6 of these - \$2 each or offer (new price is \$4.35 ea at Aircraft Spruce) ddsylverson@comcast.net

Tailwinds Membership, \$4,000 see ad below. Josh Tocko (Owner) FLIGHT LEVEL 510 DESIGN 651.587.0999 design@fl510design.com

I am in a partnership on a 1958 Champ at Lake Elmo and one of the partners recently decided to sell his share and we would like to find a replacement. [Chip Berniard <eberniard@gmail.com>](mailto:ChipBerniard@gmail.com)

I have a share of the Hobo's Flying club for sale. Each share is worth 20% of the club (There are 5 Members). The plane is a 1971 Bellanca Champ Monthly dues: \$60 Wet hourly flying rate: \$50 Club Initiation fee: \$200 Asking price: \$6000 / obo wschanks@gmail.com

Piper PA-12 project; Additional miscellaneous parts and older instruments also available. This aircraft has been in my wife's family since 1971. No damage history and all logs. Asking \$35,000 for the project and \$23,000 for the 160hp 0-320. If interested, please email me at joelbrodd@gmail.com

WANTED

"Working Partner" to develop Durand Mark V as a Kit plane, working knowledge of Solidworks or CAD. An A & P background is desired...Investment is negotiable Contact Jim Swatosh 956-607-6088 jswatosh@hotmail.com www.durandmarkv.com

FOR SALE

1997 Glasair FT1. \$62,000. 550 TT on airframe. 1200 hours on engine major. Up to 200 mph cruise at 10-12 gph with an IO 360 Lycoming. 47 gal fuel. Less fuel burned and slower if pulled back. It has steam gauges but can be flown IFR, a great autopilot. Everything works. Whirlwind constant speed prop. 2000 fpm climb in this weather at 130 mph. Flies great. Comfy interior. No problems at present. More info upon request. Insurance 1/3rd that of retract. Good bird - I built it. Hangar on 21D might also be for sale. Cheap to heat. Clean and cozy. David Briggs dgbrig550@gmail.com 612 799 1254

WANTED — TO RENT

Hangar space to rent at Lake Elmo Airport for final assemble of Zenith 750. High wing about the size of a Cessna 152. Ed Trudeau 651-303-4936.



Chapter 54 Directory

Housing Director	
Dave Fiebiger	
housing@eaa54.org	
Membership Director	
John Renwick	
member-ship@eaa54.org	
Young Eagles Director	
Treasurer	youngeagles@eaa54.org
Tom Gibbons	
treasurer@eaa54.org	Newsletter Editor/Director At- Large
Secretary/Class IV Director	Dale Seitzer
Jim Pearsall	Newslet-ter@eaa54.org.
secretary@eaa54.org	Chapter Historian: Jeff Hove
Education Director	21D RCO 118.625, Uni-com: 122.8
Lief Erickson	21D AWOS:120.075, TPA: 1932'
education@eaa54.org	Runways::
	4-22 (2497' x 75')
	14-32 (2850' x 75')



Tailwinds Flying Club Welcomes New Members

Tailwinds Flying Club is based at Lake Elmo airport. We are a non-profit corporation of 39 pilots who equally own three aircraft and one hangar (25E). Our goal and philosophy are to fly great airplanes safely and inexpensively. We currently have a Cirrus SR20, Archer II and Cherokee Six. Some of our members belong to EAA 54 and we love to fly Young Eagles. Please stop by and visit us anytime! North side, Fairchild Lane, Hangar 25E. To inquire about membership, please call 612-584-1740 or visit www.tailwinds21d.org.