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Chapter 81 Skywriter

Annual Dues \$20

Checks should be made payable to EAA Chapter 81 and brought to a chapter meeting or sent to the Treasurer:

Eric Nelson
10270 N. Krauswood Ln
Oro Valley AZ 85737

Do not send payment to the newsletter editor!

**EAA Chapter 81 Meeting
September 19, 2020
10:00**

**Ryan Airfield Administration building
(Just East of Richie's Cafe)**

Gary Goebel will speak about his flying adventures as a fighter pilot for three decades, on several fighter aircraft including a tour as an exchange pilot with the RAF.

We are attempting to practice appropriate physical distancing, and members are asked to bring and wear appropriate facial masks.

Click on the link below to see aviation events around Arizona

[Arizona Aviation Events](#)



These handsome chapter 81 patches are available from Eric Nelson when you cough up money for your dues.

Dave Jaksha

The notch-eral way...



One of the fun aspects of building with tubing is the job of fish-mouthing, notching or coping the tube ends to prepare them for welding to another tube. Even more fun is producing a fish-mouth end at some arbitrary angle and tubing size.

When you first run into this type of project a quick search on the web or Youtube produces many hints on making the notches.

Most suggest a simple approximation of sizing by first marking the centerline of the tube to be notched. Then measure approximately one third of the tube diameter back along the center line and make a mark. Then mark a line around the circumference of the tube at the mark. Draw freehand a curved lines from the intersection of the centerline and circumference circle. Then simply remove the material indicated by the dashed lines in four places. Some instructions even say don't bother with the curved line, just make a straight cut. Removing the dashed area can be done with a chop saw, bandsaw or disk grinder.



After removing the dash area you usually end up with something like the image on the left. Welding is going to

require a somewhat better fit than this, so a good tool to smooth and shape the edges of the coping would be a flap wheel on your grinder. All of this takes some time and a little skill to get a good fit up. This type of notching works best when the two pieces of tubing interface between 90 and 45 degrees. Difficulties increase when you start



trying to produce clean fit-ups at steep angles greater than 45 degrees. Now all of the above requires some art and skill. Welding thin wall tubing, at least for me works much better if the joint between the two tubes is close. Gaps in the joint lead to burned holes in the tubing which have to be fixed, which in turn results in a weakened welds and are kinda ugly also.

Another method which can produce nice clean coping is to use a notching machine. Some machines can work up to a 60 degree angle. The down side is the machines are usually expensive and multiple cutting tools are necessary depending on the tubing diameter.

A coping machine like the one shown run about \$150 with some hole saws. If you really want to go first class check out the Copematic link below!

[Copematic 4000](#)

If Cut Tube Wall Thick is larger than 0, the cut fits to the inside diameter of the tube, making a notch 1 For a snug fit at the outside of the tube, enter 0 Cut Tube Wall Thick and grind inside of tube to fit.

Parent Tube Diameter 1" $\frac{1}{4}$ "

Cut Tube Diameter 1" $\frac{1}{4}$ "

Cut Tube Wall Thick 0.06 in

Cut Tube Angle 45

Plot Point Increments $\frac{1}{4}$ "

Full Set at 2" Increments

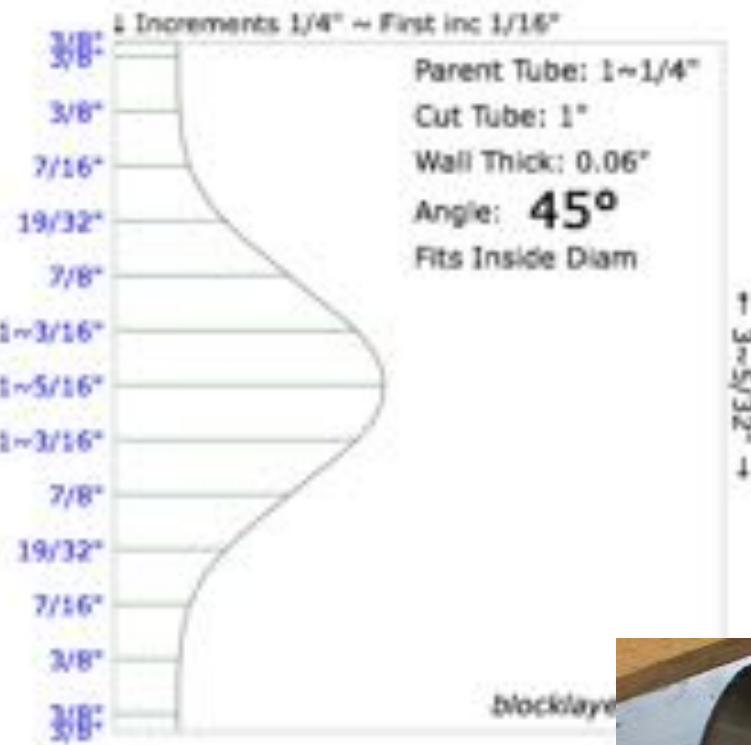
Calculate

Diagrams to PDF

Wish there was a way to get very accurate cuts without the expensive tool?

Not to worry, computers to the rescue! We can have the computer calculate the cutting path dependent not only on the parent tube diameter (this is the tube we are welding too), the cut tube diameter (tube we are welding to the

parent tube, the cut tubes wall thickness, and the angle of attachment. In this example I have had the computer calculate the cutting path based on the input parameters shown above. The output is a cutting path printed at 100% on your printer, cut out and wrapped around the cut tube. It shows the exact path to follow. If you are careful and mark the cut path with a marker you can reuse the template many times.



I have located two web based programs that produce the cutting templates. Both are free to the user.

The first has some graphics which are helpful in showing what is happening. Its the one shown above in the example.

<https://www.blocklayer.com/pipe-notcheng.aspx>

The second is more text based, but the end result is the same.

<https://metalgeek.com/static/cope.cgi>

Check'em out.

Erick Fjerstad

WASP Honor Flight flyover

WASP flyover - at the last meeting we discussed the opportunity to participate in the WASP Honor Flight flyover commemorating Edith Smith's WWII service on her 99th birthday August 30th. Edith test flew, ferried, and instructed in B25 and AT6 aircraft. The 99s organized the event and we got a break in the weather, Sunday morning was overcast, cool, and calm. Participating were about 20+ aircraft from Phoenix, Lake Havasu City, California, and Tucson. Our chapter was represented by Erik Fjerstad (Hatz biplane), John Dale (Stinson 108), Bill Hempel (RV7), Martin Thomas (Grumman Yankee), and William Mclearran (Swift). There were a total of 3 biplanes (my Hatz plus a Waco UPF7 and Stearman PT-17) as well as an historical Ryan PT-22 that actually saw duty as a trainer at KRYN during the war.



Hello Arizona Chapters,

I am proud to announce an exciting development for EAA Chapter 538 at Glendale, Arizona. We are about to fulfill our long time goal of having our own hangar and permanent chapter facility. We can really use your help in raising the necessary funds to complete our fund raising goal. \$10, \$20 or more can greatly help us achieve our objectives. Our chapter member has offered to match any funds raised toward the project up to \$250,000.

How do you benefit? With this facility, it will become our base of operations for many EAA and aviation related activities. Imagine visiting our hangar as a flight destination. We plan to have pancake breakfasts and burger BBQ as social gathering and fund raising events. We can host any number of activities such as workshops, leadership seminars and aircraft tour stops. If you are from the phoenix area or plan to move here, we will have hangar space available to build your project and have an available tool crib and workshop area for member use.

If you wish more information, review the attached flier or you can contact me at 530-736-1338 or by email p51bldr@yahoo.com

Darren Henley
EAA Chapter 538
Glendale, AZ

IMAGINE...

Imagine the Experimental Aircraft Association (EAA) Chapter 538 having a permanent facility to call home.

An opportunity has come before us that is like no other. Chapter member Larry Polhill has presented us with an offer that we just can't refuse. He has offered to MATCH our fundraising towards a new chapter hangar ending 31 December, 2020. Imagine the possibilities...

This is our chance to fulfill a long time goal and to build our own hangar.

Imagine a permanent meeting location.



Enough room for a group of 30-40 in the primary classroom with even more seating on the open area hangar floor.

Air conditioning, heating, and of course the necessary comforts are also planned to be incorporated.



Our most esteemed activity is the Young Eagles Program. This program is designed to provide children the opportunity to experience a flight in general aviation airplanes while educating them about aviation and future aviation careers. Several times a year we host these flights. Having our own hangar will make it much easier to have these events.



Our planned size of the hangar is 80 feet by 90 feet. A major consideration for this size is to provide a large enough door and floor space to house the EAA Ford Tri-motor. In order to host this historic aircraft, it is necessary to store it inside and protect it from severe weather. Based upon this requirement, we will be able to host the aircraft any time it travels through the Phoenix Metro area. This is such a lovely and elegant aircraft. It gives you a glimpse of what air travel was like during the golden age of aviation.



While hosting this aircraft, a portion of the proceeds are donated to the chapter to help fund various chapter activities. Imagine being a forever stop on the Ford Tri-Motor's touring schedule.

IMAGINE...



That's Right. Pancake Breakfasts. We began to have pancake breakfasts as a way to raise funds for the chapter. Not only that, pancake breakfasts are fun! Imagine the camaraderie, working together to have a successful event. By having our own hangar, these events can become more common. Imagine other chapters and flying clubs making our hangar a destination for our monthly pancake breakfast.

But wait, there's more...

Building an aircraft? Need more space but not in your own hangar yet?

We have the solution!

When it is time to mount the wings and the garage is just not big enough, a space on the hangar floor can be rented to do the necessary work. Chapter tools, such as a brake, shear, English wheel, media blasting, scales, shop air and electrical will be available. Our tool crib is always growing and we might have what you are looking for.



IMAGINE...



WE NEED YOUR SUPPORT!

Please donate today to the EAA Chapter 538 Hangar Fund. We are a 501(C)(3) non-profit organization.

For more information contact:

Darren Henley

EAA 538 Chapter President

P51bldr@yahoo.com

530-736-1338

Find and like us on Facebook at

<https://www.facebook.com/EAA538>

Bob Miller

EAA Chapter 81 Meeting Minutes August 15, 2020

Meeting was called to order at 1002 by President Erik Fjerstad in the Ryan Field meeting room.

Treasurer's Report: Eric Nelson has skedaddled to parts unknown, hopefully without taking the check book with him. We're pretty sure that he will be back, eventually.

Secretary's Report: Before Bob Miller could even begin, there was a motion to accept the Minutes of the July 18 meeting as published in *Sky Writer* and on the website eaa81.org. Had someone actually wanted the Minutes to be read, Bob would have been SOL (Sadly Overly Lax), because he actually forgot to bring a copy. However, the amazing David Schiffman was ready to save the day, producing a copy and waving it around as though anyone would want to see it (nobody did). Thanks anyway, David. We appreciate everything you do for us (which is a lot).

President Fjerstad made a point of thanking Larry Wilson for "funding our hangar". Larry is doing final assembly of his Zenith 701 STOL there.

Visitors: Jeff Black flies a Piper Arrow with the automatic gear-up mechanism enabled. Brave soul! He has been a member of EAA for years. Dana Stoker bought an RV-7A and has built other airplanes. He is moving from TIA (in this case, Tucson International Airport, not Transient Ischemic Attack, also known as a mini-stroke) to Ryan Field. Matt Habib recently bought a Pulsar with a Jabiru 2200 4-cylinder engine.

Next was our featured speaker, Erik Fjerstad. Erik informs us that he has a five-year itch when it comes to engineering jobs. He has had four: General Electric fire-control systems, his own computer business, aircraft systems engineer for fuel-measuring systems on multiple aircraft, including digital replacement systems on Boeing B-52 bombers (which were produced through 1962, so Erik is not as ancient as you might think), and finally, he worked on electromechanical flight-control systems.

Erik's presentation covered the FAA's requirements for fuel gauges (they only have to be accurate at zero!) and the need in some cases for accuracy at other points. 1% of the full fuel load for a 747-400 is almost 600 gallons, or about 2 tons of Jet-A, which can impact the CG calculations and is almost 20 minutes of flying time at the end of a long flight. 1% however for Erik's RV-6A, however, is only about 2.5 lbs, so probably not very important. The most common fuel gauging technologies were discussed, including visual level, visual floats, electric sensor using floats, submerged capacitance tubes, ultrasonic (sonar) probes, external "drip sticks" that essentially lower a standpipe to the fuel level to see the overflow (used as a manual back-up to confirm fuel tank quantity under conditions of gauging problems), and totalizer systems that integrate consumed fuel flow measurements to decrement a starting fuel load value. Despite having designed many fuel gauge systems, Erik's Hatz utilizes visual float gauges and his RV-6A utilizes simple potentiometer float gauges, not seeing any reason to have anything more exotic in these aircraft. A question regarding the choice of gallons, pounds, or kilograms was posed. Erik summarized that for large airplanes weight is critical for various phases (takeoff limits, landing limits, etc.) and that fuel energy is proportional to fuel mass (fuel density varies with fuel constituents and temperature) and engine performance is set in mass per hour. For small airplanes, especially those using gasoline, gallons has been historically used.

The selection of pounds or kilograms has had unintended consequences, for example when the air and ground crews mishandled a gauging fault and subsequent refueling of an Air Canada 767 and took off after loading a specific quantity of pounds when that number of kilograms was requested, resulting in the infamous “Gimli Glider”. The 767 with its glide ratio of 20+ made it to the former RCAF Gimli airfield with both engines windmilling.

Builders’ Progress Reports: Erik is finishing up the installation of a pre-owned Lycoming O-360 to take the place of the O-320 previously in his RV-6A. Bob Miller is hanging the lateral stringers and doors on his Kitfox Series 5 Vixen. Larry Wilson had fuel gauge problems, handily solved by our resident fuel gauge expert, Erik Fjerstad. Like many electrical instrument problems, it was a bad ground. Larry also learned the hard way that aircraft electrical wiring is not intuitive, having tragically toasted his Tosten grip switch (he said alliteratively). Erik is helping him sort out the rest of the wiring, as Zenith, at least initially, did not provide an adequate and specific wiring diagram. Larry has had another Chapter 81 member, Jason (Bubba) McCoy make vinyl decals to make his Zenith CH 701, already painted Sand Gelb (yellow in German), resemble a Fieseler Fi 156 Storch. For those not familiar, the Storch was an extreme STOL (Short Take Off and Landing) liaison airplane used by the Germans before and during WW II. Larry was persuaded to replace the authentic swastikas with Balkan Crosses so as not to offend the sensibilities of onlookers.

Speaking of wiring issues, Matt Habib is having problems with his GRT EFIS (Electronic Flight Instrument System) and is working with GRT on this; also , he replaced his starter, but is having fuel sender and tachometer issues, and the strobe breaker pops. Dana Stoker has 20 hours on his RV-7A and is having high oil temperatures. The engine, originally from a Cherokee, had a 5” circular intake there, but the RV has instead a NACA duct and ram tube that narrows considerably on the way to the oil cooler. He wonders whether this could be the problem (it could!).

Old Business: George Snyder, in Ryan Field hangar C-5, reminds us that he has a sheet-metal brake, shears, and even an English Wheel, available to Chapter 81 members gratis, and George will even provide instruction. Jim Keown is seeking volunteers to partially dismantle and restore the Cessna 140 donated to us. Vice President Steve Horton has already offered to go over the logs. Work will begin when it cools down, if ever. Jim also would like to know if there is any interest in starting a flying club. He has contacted David at EAA about how to organize one. Erik suggests that we should do the restoration and worry about what to do with the plane when it is flyable, but Jim is forward-thinking and believes that having a flying club will increase interest in the restoration. Some potential issues with a club based upon the 140 would be that this is a tailwheel aircraft, more prone to ground incidents, and accordingly more expensive to insure.

Finally: the WASP (Women's Air Force Service Pilots) fly-over in celebration of Edith Baugh Upson's 99th birthday. The flight will organize at Ryan Field at 0900 on Sunday 8/30. The flight will be of light aircraft in single-file at about 1,000 feet AGL on a loop avoiding controlled air space once out of Ryan's Class D. Erik will make an announcement on the website.

New Business: This actually was not discussed at the meeting, but it should have been. It's getting to be that time of year when we start to think charitably. We have been sponsors of Southern Arizona Teen Aviation for several years and they have been very successful at getting these young men and women enthused about general aviation. The group includes 2 newly-minted pilots, 3 Aerospace Engineering students at Embry Riddle and U of Alaska, a very determined young lady who has her heart set on being an A&P, and a bunch of rivet-happy kids having a great time building an (RV-12is) airplane that each will have a chance to fly!

Our last donation of \$3,000 (along with others) made it possible to purchase several kits on the current airplane (#2) before selling #1. The faculty of SATA is purely volunteer; all the money goes to Van's for aircraft parts, plus a few needed tools and supplies here and there. At the September meeting, we will ask for another donation. Our last donation of \$3,000 (along with others) made it possible to purchase several kits on the current airplane (#2) before selling #1. The faculty of SATA is purely volunteer; all the money goes to Van's for aircraft parts, plus a few needed tools and supplies here and there. At the September meeting, we will ask for another donation.

Meeting was adjourned at 1140. The next meeting will be held at the Ryan Field conference room on Saturday, September 19 at 1000 hrs. There will be a featured presentation, topic TBA.

Respectfully Submitted by
Secretary Bob Miller

"Ryan Field KRYN Local Runway Safety Action Team ZOOM Meeting"

Topic: This event is successful with active participation & collaboration among air traffic control, airport management & airport users.

On Wednesday, September 9, 2020 at 10:00 Arizona

Online Meeting - ZOOM Meeting Only

Tucson, AZ 85735

Select Number: WP07101523

Gloria Calhoun, Air Traffic Manager, Ryan Field FAA Contract Tower. The purpose of this Local RSAT meeting is to unite those individuals and organizations that are actively involved in air traffic operations and movement of aircraft, vehicles, and equipment on the Airport Operations Area (AOA). We look for participation from all major airport interests including tenants, fixed base operators, users, airport operations and maintenance personnel. Participants are asked to help develop recommendations and solutions to enhance surface safety. Those recommendations serve as the foundation for a site-specific Runway Safety Action Plan.

The agenda items for the meeting include a discussion of runway and taxiway changes, markings, signage, lighting, visual aids and procedures. The team will also discuss open and recently closed action items, and review runway incursions and surface deviations that have occurred in the previous 12 months.

Local and transient airport users, tenants, fixed base operators, airport operations and maintenance personnel are welcome and encouraged to attend.

In "Additional Event Documents" below, find links to Local and National safety material.

The meeting will adjourn at 11:30 a.m.

EAA webinars are free to all aviation enthusiasts. Pre-registration is recommended since space is limited to the first 1,000 registrants. Upcoming webinars include the following topics and presenters:

9/9/20

7 p.m. CDT

Keeping your Rotax Alive

Qualifies for FAA WINGS and AMT credit.

Prof. H. Paul Shuch

Like most aviation maintenance technicians, Prof. H. Paul Shuch cut his teeth on Lycoming and Continental engines. In the decade since he bought his first Rotax 912 powered airplane, our presenter has learned a lot about these quirky engines, which now power 80 percent of the light-sport fleet. From operating tips to maintenance tricks, he shares his experiences with you in this FAA WINGS and AMT award webinar.

9/15/20

7 p.m. CDT

[Unusual Attitude Training Versus Upset Prevention and Recovery Training: What's the Difference and Why Does it Matter?](#)

Qualifies for FAA WINGS credit.

Randy Brooks and Norm Dequier

All pilots must demonstrate recovery from unusual attitudes and stalls during training, and regularly at the professional level. Yet, loss of control in flight (LOC-I) has been the leading cause of fatalities in every sector of aviation worldwide for several decades. Randy Brooks and Norm Dequier will discuss what is missing in current pilot training that allows this persistent threat to continue.

9/22/20

7 p.m. CDT

[So You Think You Can Make a 180 Back on Takeoff? An In-Depth Look at Engine Failure Options](#)

Qualifies for FAA WINGS credit.

Charlie Precourt, Chris Glaeser, Rick Marshall, and Terry Lutz

Test pilots and EAA safety committee members Charlie Precourt, Chris Glaeser, and Terry Lutz will provide instruction on the use of the EAA Flight Test Manual test cards for climb and glide that will enable you to determine your own aircraft's capabilities should you find yourself in an engine failure.

9/23/20

7 p.m. CDT

[Founder's Innovation Prize Grand Championship Preview](#)

Terry Lutz

Several Founder's Innovation Prize Grand Championship contestants will share the latest on their solutions that will ultimately reduce the number of fatal amateur-built accidents caused by loss of control. This event will revisit some of the strongest entries from the previous four years, and you will get a sneak peek into next year's postponed Grand Championship event.

9/24/20

7 p.m. CDT

[EAA Young Eagles Workshops: Day Camp Program for Chapters](#)

John Egan and Megan Hart

Chapters staff John Egan and Megan Hart introduce a new offering for chapters: EAA Young Eagles Workshops that will provide a turnkey day camp program for chapters that want to take their youth engagement to the next level. They will discuss the goal of the program and how chapters can get involved.

10/6/20

7 p.m. CDT

\$500 HUD

HOMEBUILDERS WEBINAR SERIES

John Muzzoli

This is a presentation on a \$500 Head Up Display that is legal to use in any airplane. It is a free and open-source system that builds on the data available from ADS-B receivers.

10/7/20

7 p.m. CDT

The Looming Mechanic Shortage

Qualifies for FAA WINGS and AMT credit.

Mike Busch

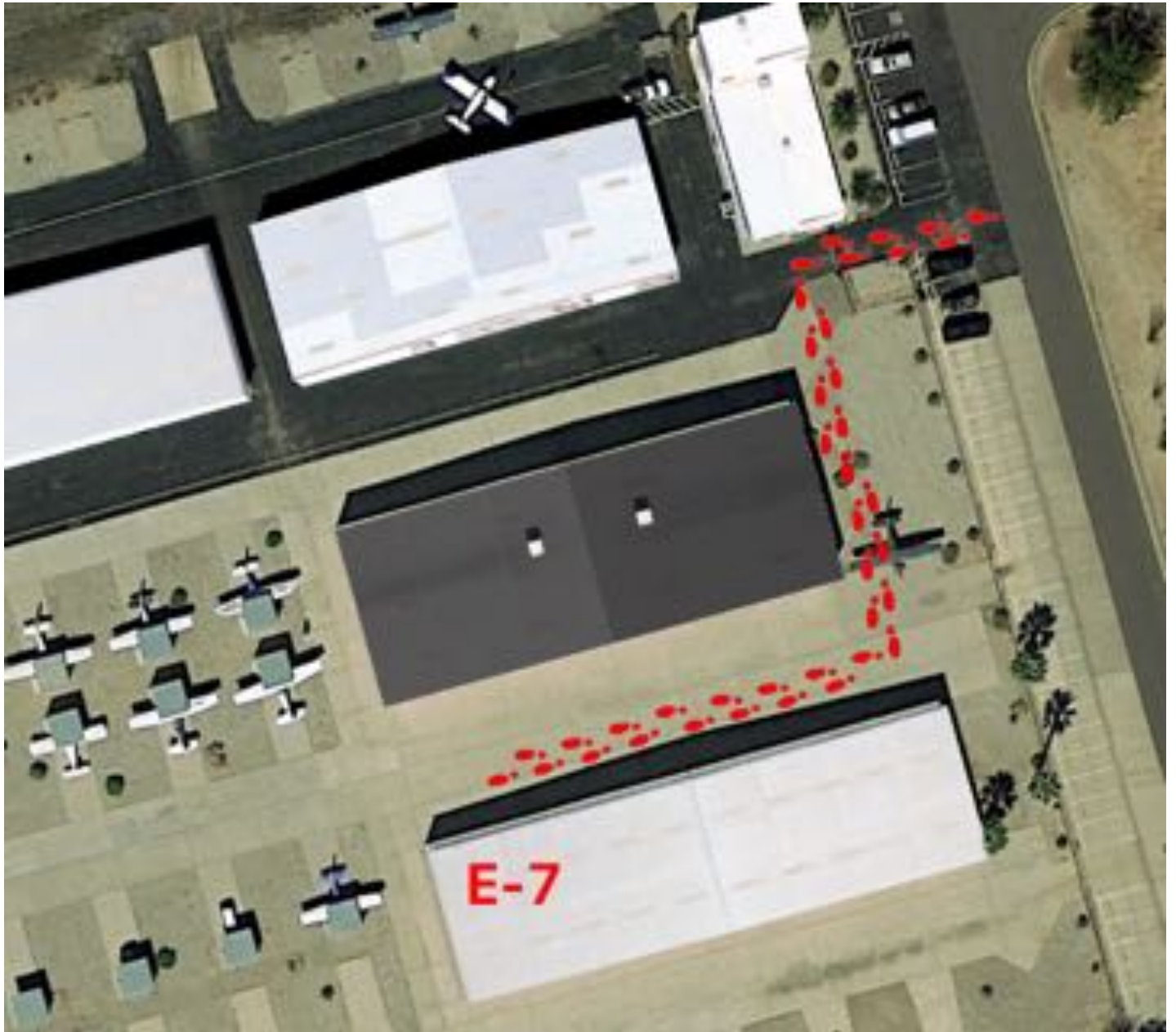
What if your airplane breaks and there's no one to fix it? Many maintenance shops have gone out of business, not because of lack of demand, but because they can't find enough qualified mechanics. In this webinar, maintenance expert Mike Busch A&P/IA relates the experiences of a number of his colleagues who own and operate maintenance shops, and the difficulties they have had with staffing. Mike discusses why the continuing deterioration of the maintenance infrastructure for piston GA airplanes should be of concern to every aircraft owner.

Location of the EAA Chap 81 hanger

Drive down South Aviator Lane to the end. Park just south of AirWest. There is a walk in gate just south of the auto gate. It is not locked. Walk through the gate, and turn left. Walk past the first hanger on your right. The EAA hanger is on the Northwest corner of the second hanger, E-7. Chairs are available or Bring your own chair

See the two images below!





Classifieds

Remember that you can place an add in the newsletter (it will appear on the Chapter 81 web site also) to sell those items in your hangar. Then, you can buy more shiny stuff to put in your hangar! Send email to newsletter81@eaa81.org with a pic, description and contact information.

011 Zenith Zodiac 601XL w/B modifications. EXTREMELY nice looking plane. 158 hrs, Jabiru 3300, MGL Glass panel plus a mounted tablet, autopilot, plus all the other stuff. \$44,500

If interested, contact Jimmy
860-946-7194
jimmyg2000@att.net



Important updated information!



Lyndell Taylor
ltaylor017@yahoo.com

Desert Sport Flyers suffered a setback in March when during the annual inspection a crack was discovered in the top cap of the center section main spar of the club's aircraft. The manager elected to disband the club at that time. However, some of the club members felt that the club should be continued with new organization documents and new management. Since that time, the new organization has been formed and will operate under the same name (Desert Sport Flyers). There are some options available for obtaining an aircraft and the club will soon make its decision as to what aircraft it will choose. The new managers are: Jessica Cox, President; Mark Gregory, Secretary; Steve Hulland, Treasurer; Jerry Witt, Maintenance Officer; And Bob Rill, Director at Large. If anyone is interested in membership in the new club, please contact one of the new officers.

Lyndell D Taylor

Stephen Zigelstein

2007 Johnston Tiger Cub, Single Seat LSA, Rotax 503 DCDI, TT ACFT/ENG 70hrs, Basic VFR instruments, Custom 9 gal aluminum tank, Cleveland Brakes, Custom cargo storage compartment behind seat, Folding wings, Can be flown with Doors open or Off , Stall 27 - Cruise 75 MPH
Asking \$9K

Stephen Zigelstein. Best way to contact me is Cell Phone



Long Ez Project for sale

I will no longer be able to get my pilot's license due to medical issues. The URL below will take you to my website that shows most of the components included in the sale. The price is \$2500, but I am open to partial or complete trades(looking for enclosed trailer or SCCA project car), open to all offers, the worst I can do is say no. I can store this project until spring if needed. Please email with any questions, or use the reply box on the website.

<https://longezforsale.godaddysites.com/>

Thank You,
Allen (aabebay@evertek.net)

Purchased RV12iS Empennage/ Tailcone and Wing Kits from Van's Aircraft in 2018. Completed the Empennage at Synergy Air and Tailcone in Arizona. Only sorted and labelled all Wing Kit parts and fittings. The cost of all the items is \$11,400. Also have the complete tool kit for the RV-12iS, including a pneumatic squeezer - \$2000 + value. All available for \$8,000. Tool Kit is free and there is no tax applicable. If interested, please contact John Twyman at: Tel: 520.207.5002 (voice only) or Email: john.w.twyman@gmail.com



Check out our Chapter Facebook Page!
<https://www.facebook.com/ea81.org>

**Please send items of interest, classifieds, etc
to**

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 or to Dave's address on front page.



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