



RVator's Log

Newsletter of the Twin Cities RV Builder's Group

March 2023

In this issue...

RV Updates	...3
Greg Long's RV-12	...4
Sparks!!	...5
Tom's Odds & Ends	...7

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Upcoming Events

TC RV Builders "Spring" meeting. Doug and Paul's hangar, Lake Elmo Airport

**Saturday, April 1 at 10 am.
Details on page 9**

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**Minnesota Wing
Van's Air Force**

Pres: Doug Weiler, 651-398-1184, dcw@mnwing.org

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Shop Notes

- Doug

Yes, I have said it before.... I hate painting. House painting, car painting, airplane painting... it's all on my "hire a professional" list.

Way back when, I actually attempted to paint a VW Beetle. I commandeered by dad's garage, rented a compressor, and bought some auto paint of which I knew nothing about. I think I may have sanded down the car and cleaned it up a bit prior to shooting it in WAY too cold of temps. It came out all lumpy with the texture of a rotten avocado. Fortunately, I sold the car before it all peeled off.

When I restored a Cessna 140A and then our Cessna 180, I did take the leap to paint both interiors using the rattle can method. Looked pretty good at the time. A dope and fabric job on an Aeronca Champ was a more serious undertaking and by the time I had sprayed 20 coats of dope on the Champ, I vowed that was enough for one lifetime. When the RV-4 project came along, I rented somewhat and stumbled by way through the interior painting but there was no way on earth I would consider the exterior. Thus began a painting saga which turned out to be one of the worst experiences of my life.

I first flew the RV-4 in June of 2003. My plan was to fly it for a time unpainted and then take it to a professional shop to transform it into a thing of beauty. By winter of 2004, I was ready for Wipaire to do the project. On the appointed day I flew the -4 over to Fleming Field on a cold January morning and rolled it into their nice warm hangar and began to take off anything removable in preparation for them to get started. An hour into the project, I heard a distinctive "snap" and to my utter horror saw a 8 inch crack in the rear canopy! Long story short, paintjob cancelled! I flew it back to Lake Elmo totally bummed. Three months later of grueling work to install a new canopy, I was ready to try it again.



Number 2 daughter-in-law enroute from Sioux Falls



My RV-4 circa 2004... in Mike's hangar in Tuscaloosa

After a series of scheduling conflicts and communication debacles, I decided to pass on Wipaire and look for another paint shop. A beautiful red RV-8 had recently won Grand Champion at Sun 'n Fun and I found out it had been painted by a shop in Tuscaloosa Alabama. Back in 1978, I had my Cessna 140A painted by Tuscaloosa Aircraft Painting and I thought this was the same shop. Calling around I found out that they had gone out of business, but one of their employees

by the name of Mike Taylor had started his own shop and had turned out the award-winning RV-8. I got in touch with Mike and told him what I had in mind. The price seemed reasonable (\$7500... hey it was 20 years!) so a date was made for me to fly down and let him do his magic. Everything seem on the up and up, so on May 2 of 2004, I headed south to Alabama.

I landed around noon and taxied to the only FBO on the field. Back when I had the 140A painted, Tuscaloosa Aircraft Painting was housed in a large state of the art paint facility on the other side of the airport. But that hangar had been closed for quite some time and I wasn't quite sure where Mike had set up shop. When I asked the folks at the FBO I was here to deliver my airplane to Mike's paint shop, they gave me a quizzical look (not a good sign!) and pointed me off in the direction of a couple bedraggled looking hangars. So I taxied over expecting to find someone there but the place was deserted. Hmm... why was I beginning to get a bad feeling about this. I called Mike and he said he'd be right over (which turned out to be an hour). Finally, he showed up and opened the hangar door and we rolled it in. I was expecting perhaps a little more "activity" but it soon became apparent that Mike was the only employee (although he did say he has a "helper.") But, since he had painted a Grand Champion surely he must know what he's doing. So we sat down and I showed him my 10 pages of plans for the paint design and told him I really wanted a super-duper job. Not a problem he said, and promised he would have in done in 4-6 weeks. He did seem like a bit of an odd duck. A little immature... maybe a little vulnerable... hard to say. But I wrote him a check for a 50% deposit on the project, left my baby in his hands, got a ride over to the terminal and flew Northwest back to MSP.

Fast forward six weeks to mid-July. I had not really contacted Mike and just assumed that work was moving along and that the -4 would soon be finished. I began to call him and repeatedly got no answer. Hmm... that was strange. After several days with my calls getting nowhere, I called the FBO which was across the taxiway and asked if they knew where he was. They had no clue. Now I was really beginning to wonder what was up. Mike had about \$3750 of my money and I was really expecting some good news. Plus, he had my airplane! Finally, after several days of trying he finally answered the phone!! It was ten in the morning and there was music playing in the background. Honestly it sounded like he was in a noisy bar... at 10 am...!! So I asked how's the paint job coming? Well... he hemmed and hawed.. he hadn't really started it yet much. WHAT??? Now I am getting hot. So what's going on? Seems like his helper bailed out on him but he's going to get started REAL soon. I probably should have REALLY hit the roof, but my better angels prevailed and thought I'd give him a chance to get on the ball rolling.

So this went on for several more weeks. I'd call every couple days and he never answered the phone. Finally, one morning he picked up (with a honky-tonk piano in the background!) He was working on it once in a while but it was just him. The excuses were sounding pretty hollow by now. I told him I'm coming down to get my airplane, finished or not. "No, no, no," he said, "I'll get right on it." I told him I was still coming down and we are going to have a serious conversation and he would have to convince me he was REALLY going to paint my airplane or I was going to put it all back together and fly it home.

Like any other freaked-out RV builder, I called Tom Berge. Would he come with me to rescue my RV-4 and back me up if things got nasty. If course, Tom is always looking an adventure. I got him a NWA buddy pass and the next day we were on the way to Alabama.

We arrived in Birmingham, got a car, and drove to Tuscaloosa. At the appointed time we showed up at Mike's paint hangar. He was there along with his sister (I was not quite sure why she was there). For the next hour, he pleaded with us not to take the airplane



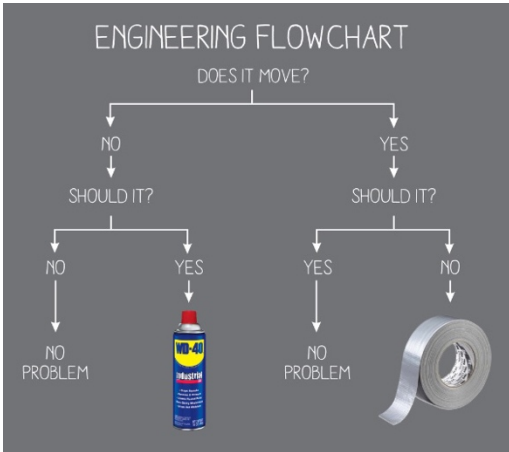
The final paint job.... Looks great but it was SO painful!!!

home. His sister told a long story about a divorce, a drinking problem, lots of financial issues (he even broke down in tears) and yes, yes, he would get right on the project and finish my paint job. I finally relented and decided to give him one very last chance (my recourse was for Tom and I to spend a couple days putting it back together and then I would have to find another paint shop, etc. etc.) I was going to call him EVERY morning at 10 am and he had better be working on my airplane. I really had a ton of doubt, but I told Tom let's give him a chance to redeem himself. So back in the car, back to Birmingham and back to Minneapolis.

By now it was August and I did call him every day to be sure he was not working on my airplane at the honky-tonk bar but at his hangar. He sent pictures and it looked like progress was being made. He did ask for more money at some point as the paint supply shop had him on a cash-only status.

I said absolutely no.... I paid you \$3750 so where's that money? Never got a straight answer.

Finally, five and ½ months later in mid-September, he said it was done. I took a week off work, flew back to Tuscaloosa and there was my -4... looking really, really, nice but still in pieces. I spent 4 days getting it all back together, paid Mike the remaining money, cranked up and frankly could not get out of Tuscaloosa fast enough.



Come to find out later, my -4 was the last airplane he painted. Other RV builders had given him deposits and he used that money to head off his creditors (and probably buy supplies for my airplane!). I heard the state of Alabama got involved and he was indicted on fraud charges. I was probably lucky to get away financially unscathed.

The whole RV-4 paint job fiasco was one of the most stressful times I had ever experienced. A few years later, I vowed I would just keep saving up to have the RV-7 painted by a large reputable shop such as Wipaire. Which is exactly what I did. No more “one-man shows.” A lesson learned....

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TCRV Builder's Update

-Doug

The RV world has been buzzing in the post COVID world. Van's has logged record orders, wait times to get kits and parts have been frustrating (but at least getting better), and the availability of gently-used RVs on the open market have often been limited.

The Twin Cities RV Builders Club starts its 33rd year in 2023. Yep, you read that right!!! Back in the old days we used to kid folks that getting a intro ride in an RV was the “\$50,000 airplane ride.” Sorry guys... \$50,000 will not cut it to build a new RV, but that has not slowed things down one bit. Thus, as club we continue to prosper with over 290 members and almost 100 flying RVs. Thanks to all of you for your support over the years.



And now for the latest from our members:

John Gappa, Peterson, MN reports taking a break from building over the past 2 1/2 years to remodel and sell one of his homes. But he's back to building recently and to building it feels great to be back working on the plane!!!

Chris Baye, North St. Paul, MN is a CFI and willing to provide services in RVs. Contact him at christopher.baye@gmail.com

Jerry Altman, Roberts WI, reports... Registration completed, waiting to move to a hangar if I can find one once the

snow melts and my driveway dries out. I have a couple leads at New Richmond and one at Lake Elmo. Hopefully one will work out. Once moved then the wings go on and weight and balance.

Dick DeCramer, Webster, MN has sold his RV-6 and his RV-8 “slow-build” is at the 95% completion point.

RV-14 flyer **Jon Owen out in Laverne, ND** is now working on an RV-10

Charles Jasicki, Brooklyn Park, MN is close to mounting his wings and tail

David Hedin, Duluth, MN is working on his RV-14A “slow-build” project. The empennage is mostly done, and he is working on wings currently with the fuselage kit expecting to be crated in late March or April.

Jeff Turner, Woodbury, MN is waiting for a break in the weather to start Phase 1 testing of his RV-14 N39JT. His RV-10 empennage kit is here but not yet started.

Ted Biro, Minneapolis, reports....

I'm building an RV8 with two former squadron mates from the military - Carl Lojovich and Dave Raab. In December we traveled to Eugene, OR and spent a week with Synergy Air, learning to use the tools and techniques of airframe construction while working on the empennage kit. By the end of the week it had been completed. In January we purchased a hangar at South Saint Paul Airport. Since then we have been occupied mostly with getting the workspace set up and ready for construction and assembly of the wing kit.

And lastly.... Welcome to new member Erik Hasse, West Fargo ND working on his RV-14 wings in the far north!!

What our members are building and flying....

Greg Long's RV-12 – N719VA

- Frank Huber

Once Greg got serious about building after dreaming for years about it, he settled on Vans due to their reputation and available models. First he looked at the RV-9A but the RV-12 seemed like it was a kit he could actually finish.

Greg received his first kit, the empennage, in February 2013. This was after he retired in July of 2012. Building was on one side of his 2-car garage and in their walk-out basement. With help from friends, Greg moved the wings, tail feathers and fuselage to his newly acquired hangar in December 2021 and he finished the assembly there.



Working on side skins

The RV-12 is a series of 6 kits which includes everything needed. Greg ordered the fuel tank pre-built so he wouldn't have to mess with the awful tank sealant. This was Greg's first homebuilt plane and it was a constant learning adventure with new tasks and skills he had never done before. The most difficult part for him was getting over the anxiousness, dread and procrastination of new seemingly difficult items like the fiberglass work. Sometimes he would work hard for weeks and other times he did nothing for weeks and even months.

Greg found many little obstacles like fitting 10 pounds of wiring through many 5 pound hole openings or his hand just would not fit

well to reach inside to connect something. He found the plans for the 12 to be quite detailed, great help via social media and having complete kits of parts helped a lot.

Greg chose the Rotax 912ULS, 100 HP carburetor engine with the 2 blade Sensenich ground adjustable prop. The Rotax is the only option from Vans due to the 12 being a light sport. Vans is now offering a 3 blade prop option and the 912iS 100HP fuel injected version. Greg



Panel coming together

chose the Dynon Skyview HDX touch system with two axis autopilot. There are no steam gauges and just one touch screen. He is using a mini-iPad with FlyQ EFB as a backup system. His Com is the Garmin GTR200B with built-in Bluetooth, intercom and second frequency. Nav is the integrated Dynon GPS plus in/out ADS-B. He has a handheld com/VOR radio as a backup.

At this point Greg is thinking pretty seriously about polishing the aluminum with color highlights on the fiberglass and 3M 2080 vinyl striping. He may decide to paint it later.

N719VA is currently based in his hangar at Ankeny Regional Airport KIKV, Ankeny, Iowa, which is only a 20 minute drive from his home. Greg completed the PAP, Performance Acceptance Procedures, a document supplied by Vans, that



One half of an RV-12 in the front yard!



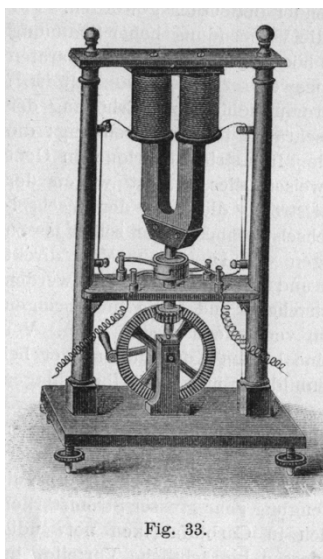
That says it all! Congrats Greg!

outlines the required 5 hours of flight testing before a passenger may be carried. With the Phase I flight testing completed, Greg flew his first passenger, his wife, on January 1. He hopes to fly to Oshkosh this summer. He also plans to fly Young Eagles with his local EAA Chapter 135. Otherwise he is planning on local flights to keep his flying skills up, pleasure flying around Iowa with occasional trips to fly-ins and eventually longer distance and duration trips. His wife enjoys flying with him, so they hope to have some nice multi-day adventures.

Where is that spark coming from?

- Doug

From Wikipedia:



Production of electric current from a moving [magnetic field](#) was demonstrated by [Faraday](#) in 1831. The first machines to produce electric current from magnetism used permanent magnets; the [dynamo](#) machine, which used an electromagnet to produce the magnetic field, was developed later.

The machine built by [Hippolyte Pixii](#) in 1832 used a rotating permanent magnet to induce alternating voltage in two fixed coils.^[2]

Fig. 33.

Yep, magnetos are old... really old! The vast majority of light airplanes still depend on those rotating magnets to whip up enough spark to spark your aviation spark plugs. Delco division of General Motors first experimented with electronic ignition in cars in 1948. In 1963, the Pontiac division of GM first offered an optional electronic ignition system. But light aircraft have relied on Hippolyte Pixii's flinging magnets since the Wright Brothers. Only recently have FAA-approved EI systems appeared on certified aircraft. Us amateur-built folks have been using EI systems for 20 years but if you are a new RV builder still mystified by just how an EI system would work your new project, here is a great article from Van's Airforce. The author is long-time contributor George from Raleigh, NC who goes by "gmcjetpilot"...

This topic can be opinionated and passionate. I have my bias but I'll be transparent.

1) ALL EI's do basically the same thing. Give a "fatter", "hotter", "long duration" higher spark energy over a magneto. One prime advantage over magnetos. Spark energy can only be so much. Anything above what is useful is wasted.

2) ALL EI's have some function to advanced timing at lower power (lower MP and RPM). This is another prime advantage of EI's over magnetos. Aircraft EI's use simple RPM and MAP to advance. Cars also use O2 sensor and KOCK sensors with other inputs. For aircraft engines operation at fixed RPM most of the time not needed or can not use KOCK sensors (too loud air-cooled) or O2 (leaded gas). How a brand of EI schedules timing varies. Most can be adjusted, one cannot.

3) Simplicity of EI's is another prime advantage of EI's. No moving parts, points or rotor/distributor cap. They all use some type of magnetic or hall effect sensor to trigger timing of spark. Some use magnets in ring gear holder "flywheel" with pickup mounted to engine. Others mount the mag/hall effect sensor on the accessory case, driven by magneto drive (PMag, Surefly, Lightspeed optional mag drive trigger). With these, the only wear part is the gear/shaft/bearings, but those are simple and reliable, well proven with magnetos.

4) ALL EI's need battery power except for one, which has self powered ability. So your option is to have standby power for emergency or run one EI and one standard MAG. 80%-90% of the benefit in regards to performance of EI is achieved with one (1) EI. If you run a Mag with EI the Mag is going along for the ride once the EI starts advancing, however you get that self powered redundancy. Back up power is more weight (extra battery) and more wires and switches. Not a big deal. One brand of EI has built in backup power switching but you still provide that backup battery.

5) Almost ALL EI use automotive plugs and adapters verses MASS ELECTRODE aircraft plugs. Difference? Auto plugs (usually NGK) allow wider gap to take advantage of the larger spark ENERGY; Aircraft plugs are very expensive. NGK's are very inexpensive.



Champion Aircraft Spark Plugs

\$55.95

Sporty's Pilot Shop

DENSO Iridium Long-Life

Spark Plug: OE

Performance, last 100K+ Miles, SK20HR11, 3421

\$11.79

Hmm... \$55 or \$11???????

Auto plugs is another prime advantage of EI's over magnetos and, larger spark energy fires across a larger gap.

6) Two brands of EI's have an option for EI + EFI (electronic fuel injection): SDS (Canada) and EFII (USA). Both offer the EI only option.

7) Some offer both an experimental version and STC version that can be used on standard cert aircraft. (Not a factor for RV builders but worth mention.) As with most things where you have non-certified and certified versions of a part, the certified version will cost more. However, in one or two cases I think having their experimental units based on certified versions limits them, in my opinion.

8) Top or popular EI brand names that come to mind in my causal order of preference (I have dual P-Mags):

E-Mag (P-Mag) –

Feature mounts direct to and driven off engine, self powered over 900 RPM, ease of wiring and installation, well made and supported with service history. Negative of checking bearing every year is a no brainer and over blown, but it is a factor, but not a big deal IMHO. It is installed and you forget it, like a MAG, although recommended runup procedures recommends checking L & R for both operation and L & R for self power. Brad and customer service is top notch. There is a 3rd party company EI Commander that allows cockpit monitoring of P-MAG. Again I don't want to mess with my EI after set up. BTW people claim the advance is too aggressive? It is easily adjustable, but base timing or programing with laptop. This is the easiest to install and performance is as good as any other EI. Although marketing will say otherwise. Again limit to how much energy you can use or need. More is wasted. People get triggered (pun



intended) over the manufacture recommendation to check the shaft bearings every condition inspection. It is not big deal and they are reliable. Some do not do the inspection. Some claim the 2nd party in cockpit EI Commander that allows monitoring the PMAGS in flight can indicate bearing wear. Some do NOT check the bearing every condition inspection. Lastly, early teething issues were long sorted out. This is a mature design. I will disclose I bought mine 2nd hand from a builder selling project. So I got a sizable discount. Repeat: Brad and customer service TOP notch.

SDS –



Ross has posted extensively about his development here on VAF. It uses flywheel timing pick ups. This is his 2nd generation and since released made more changes. The look of parts are great.

Canada, shipping support may be a small issues. For this to work you need a large pulley ring gear "flywheel" and drill and mount magnets. Not a big deal. However, you do have more wires, external brain box, wires to coils. If workmanship and routing of quality aircraft wire with good connections, it should be very reliable. However, this is battery powered so you will need back up. I like Ross included backup power input into his system. This sets it apart from other battery dependent systems. However back up power is fairly easy to add to any EI. Backup power regardless requires an extra BATTERY and weight (but not too much). Ross from his post an exchanging comments on other forms is solid and should give great customer service.

Lightspeed –

Klaus Savier has been around a long time and it features CDI, Capacitance Discharge Ignition. It has ability to adjust timing advance in flight



(which could be good or bad). I have talked to Klaus and liked talking to him. I never owned or operated his product but many have over the decade or two he has been selling his EI. He has the OPTION to put the trigger pickups in the magneto drives off accessory case vs. flywheel pickup. NOTE: CDI is unique to Lightspeed, all others use "INDUCTION" ignitions. You can research the pros and cons. CDI has advantages, but not sure it is taken full advantage of in a slow RPM 4 stroke aircraft engine. Klaus has had complaints from, comments I read over many years. I have talked to him as potential buyer and found him helpful and very knowledgeable.

PS Prices vary but all are expensive, and the difference is fairly small.

Odds and Ends – Spring 2023

- Tom Berge

Surefly –



New kid on the block. Came out with certified unit out the

gate. Not sure if they can run only with magneto in other hole or they have STC approved backup power. They are NOT self powered and do not allow user programable timing advance curve. You can select fixed timing. They do only offer recommend and only offer harness for aircraft plugs. This is unvaried but a source says based on the components they use, spark energy is on the low end for an EI. but more than magneto. This may be why they only recommend aircraft plugs (which are easier to fire with smaller gap but smaller spark); Or it could be a nod to being certified and they can't be bothered with variations. They do look pretty. However, if I am going to mount something off accessory case I want it self powered (PMAG).

Electroair –

This is the grandchild or the original Rose electronic Ignition.



The current design is nothing like original which was clever but crude by today's standard for experimental EI's. The new design is aircraft quality. Their claim to fame is they have approval to be installed on standard certified airplanes. I talked to one of the owners not long ago by chance. Nice guy. They know airplanes. They also claim extremely high spark energy. Again limit to how much you need or can use.

EFI-



I know very little about them, but their website is impressive marketing. I think some VAF Fo-

rum member or members have this brand. I also called them and got interesting info I can't verify. They claim the hottest of hot sparks. They also offer EFI (fuel injection). Interesting. NOTE ON ADV....With fire breathing High Compression Engines detonation is a real concern. That is why Mags are run fixed at 25 BTDC or less typically. That is fine at full power but at altitude at 65% power, that spark is late, not very efficient. ALSO magnetos have to jump three GAPS. One is the rotor to the cap. The other is the spark plug. The last is the points. At low atmo pressure when flying at high altitudes you can get arching of the points. That is why there are pressurized magnetos. Again all that eliminated with no point or distributor.

We have choices!



I was talking recently with a pilot interested in perhaps building an RV. Just the kind of conversation I love to engage in. We spoke about buying an already built example plus the process of starting with a kit.

During the conversation, the build cost entered the fray. I built my last RV 20 years ago which turns out to be a very long time. My caller mentioned that to build an RV would cost just below \$200k which I was certain was absurd. Sure enough, after going to Vans website adding up the big pieces and putting in a now normal glass panel ended up around \$180K including a paint job. Other than current builders, who knew? No wonder the selling price of completed RV's is so high. Everything has just skyrocketed in price out there. I've heard of this thing called inflation, but this is crazy. My first RV finished in 1991 cost me \$25k with a run out engine and a not bad panel, though not IFR equipped. My current RV cost me...., well I actually don't know since I thought I didn't need to know and that has worked out fine for me. Ignorance is bliss.

So, this conversation got me to thinking about 369TB. Over the last few years, I've been upping my insured value in an attempt to be more in line with costs. After this latest conversation, I've clearly been too conservative. I recall many years ago at one of our RV meetings, we had Scott Smith from Sky-Smith insurance giving a talk. The main thing I took away from the presentation was to make sure the coverage matches the value. Both too little or too much coverage had bad ramifications. Too little hull coverage leaves you exposed to having the plane totaled. You get a check, and they get the hull which they can then turn around and sell to help recoup their costs. If the damage is repairable at a not too bad a price, they do well, and you are out of an airplane with a check too small to build another. Of course, you could just not file a claim, but then why have hull coverage?

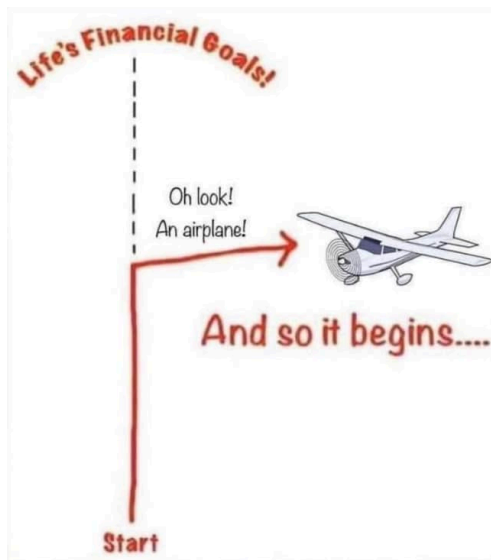
With the cost of everything going up with no end in sight, now I have the prospect of increasing my hull value. We've all seen aircraft insurance steadily rising, sometimes more than steadily. Unfortunately, my choices are limited. I guess I'll bite my lip really hard and bring the hull up to at least cover the cost of material to rebuild. Just in case. Perhaps readers out there with completed RV's should take a hard look at your own stated values. Could you rebuild after a loss? There are lots of ways to lose your RV. If the hangar falls down on it,

hangar insurance doesn't cover it. At least that's my understanding. Then there's always the tornado that strikes while tied down outside.

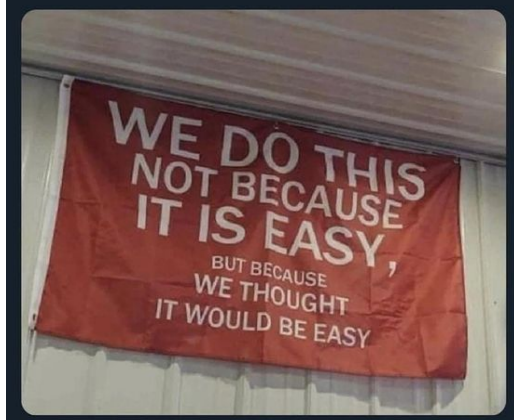
On another subject, I recently worked on an RV9 with a pretty good fuel leak. Out doing stalls during training, the strong odor of fuel wafted through the cockpit. Not good, we thought. Back at the hangar, I crawled under the panel trying to locate the leak. Nothing obvious, so I turned on the boost pump. I still couldn't find anything, but the new owner said there was lots of gas coming out of the cowl. Really not good. So, at least I knew where to look. This cowl was held on with screws, a lot of screws. There are better ways than lots of screws. Anyway, after cowl removal, the leak was located at

the gascolator. I removed the cup and looked at the O-ring thinking it looked a bit small. There was no doubt the leak originated there. I tracked down the correct part, ordered 2, one for him and one for me, just in case. The shipping cost way more than the O-rings. Comparing the new and old pieces did show a slight difference. After installation of the new part, the leak was gone. Did some previous owner replace the O-ring with something from a hardware store? Maybe. Make sure you get the correct parts when doing your own maintenance. These things may be experimental, but gravity doesn't care what type of airworthiness certificate you have.

Some last thoughts.....



Today's inspirational message :)



Twin Cities RV Builders “Spring” Meeting

Saturday, April 1, 2023, 10:00 am - noonish
Doug and Paul’s hangar, 41C Mooney Lane, Lake Elmo Airport

Yep, this has been a crummy winter for flying. But the end is in sight!. Let’s get together and pretend we’re on the cusp of a great spring flying season!



Pete Howell will be back after having to postpone his talk last December. He first flew his RV-9A in 2006 and is coming up on 2700 hours total time (and on the original engine!) He has cross-crossed the country many times and few builders have put their RV to such good use! Pete will discuss his 16 years of RV traveling (all VFR by the way) and his plan to keep that Lycoming humming along.

Plus... always time for your questions on building and flying. And a special welcome to any new members!!!!

Coffee, juice, “low-cal” goodies as usual.

Directions: From I-94 go north on Manning Avenue (County Road 15) about 3 miles. Turn right at the second entrance to Lake Elmo airport just before the railroad tracks. Go east past Lake Elmo Aero and follow the road to the left. Go just past the old Civil Air Patrol hangar on the right. Then turn right on Mooney Lane. We are the fourth hangar on the left (41C.) **Call Doug if lost: 651-398-1184.**

See you there!!!!!! **BTW, please park on the hard surface!!!** (Restrooms are at Lake Elmo Aero)