



RVator's Log

Newsletter of the Twin Cities RV Builder's Group

Shop Notes

- Doug

March 2024

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Upcoming Events

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

Saturday, April 6th at 10 am. Details on page 11

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Van's Air Force**

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Just in case you have been hunkered down in the basement working on your RV the past few months, it's 2024! And... if that is not sobering enough, it just so happens to be an election year. And... with all of the inherent hoopla that brings, right at the top of the "hoopla" list is "AGE." You know what I mean... "Your guy is too old." "No, no, no, your guy is too old." So if your guy is too old and the other guy is too old, what about us RV drivers of a "certain" age? Are we getting too old?



So who is that nerd in that 58-year-old photo with the high-water pants proudly standing in front of that ancient Cessna 150? I'll let you figure that out. Back then, being God's gift to aviation, the last thing on my mind was being too old to fly.

So how old is too old? I few months before I retired from that now obscure hometown airline, it was my leg on a dark and stormy night landing on 12 right at MSP. The wind was howling, it was pouring rain, the windshield wipers were flapping back and forth and I could hardly see where we were going. We were rockin' and rollin' coming across the fence and I was thankful that the 757 handled like an RV at slow speeds. We plopped down somewhere close to where we belonged, into reverse, on the brakes and as we made the Alpha 4 turnoff and the blood pressure wound back down, I thought to myself, "Self, you know maybe this really is a young man's game."

Our builder's group dates back to the late 1980's and since then there have been a number of our RV builders/pilots who have "aged out" and retired in one form or another. Sometimes it has been medical issues that had forced their hand. Or simply the decision is made at some point that it is time to hang it up, sell the RV and go fishing.

At 75, I am just beginning to realize that there is a finite point to one's RV flying. Tom Berge and I have talked about this a lot. I have discussed this with my long-suffering co-pilot/wife. Right now, I cherish every opportunity to fly my RV-7. I am adamant that I HAVE to fly at every opportunity I can to stay as safe and proficient as possible. That means practice, practice, practice. But I am realistic that it can't go forever. But for now, I feel great, flying is still a blast and I'm looking forward to a few more trips and a few more pancake runs.



Several years ago, I saved this post from Van's Airforce. The author is Randy Pflanzner who built two immaculate award-winning aircraft, a F1 Rocket and a RV-12. For your consideration:

Flying Passion – A Cautionary Tale

I will try and keep this as brief as I can. If you are a current builder and not flying much, or the owner of a finished bird and you fly less than 50 hours per year, this tale is for you.

Like many of you, I took my good health a little for granted. I took all the precautions, ate right, didn't drink or smoke, and visited my doctor regularly. I was a picture of health right up to 58 years old, then WHAM. Long story short, in 2012 I dealt with the aftermath of having Stage 4 cancer and the impact chemotherapy treatments had on my body. I was able to initially deal with these challenges and even built my RV-12 as a mental recovery treatment but ultimately, I had to give up my passion entirely in 2016. Fortunately, in my 30 years of aviation, I was able to achieve nearly all my goals and dreams. I built multiple times, won an award at AirVenture, and visited 42 of the lower 48 states.



Randy's RV-12

My point to all this is to remind you that your aviation future is not a foregone conclusion. God has a way to setting you on a different path than what you have planned for yourself. Get that RV out of the hangar and go places, fly, enjoy the freedom, whatever drives your aviation passion, just DO IT. Tomorrow may not be an option.

Do I miss aviation? Every single day. Every time there is a CAVU day, or I hear an airplane fly overhead, I think of all the great times I had going places, meeting great people, and seeing our country from 3K feet. I miss it dearly and would love the opportunity to engage in my passion once more. But that's not going to happen, and it's an outcome that all of us ultimately face somewhere down the road.

Now, I didn't write this so anyone would feel sorry for me. Don't. I'm doing fine and I use my energies on different passions now. I bought a business with my two sons and it's going great. I also have four grandsons under 4 years old that love to go fishing with

Poppy. My life is wonderful even without aviation. But don't take circumstances for granted. Get your bird finished or drag it out of the hangar and dust it off. Top off the tanks and launch!

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TCRV builders news.....

A warm welcome to these new members!!!!

Barb Sorochak, Rochester, MN – Barb's late husband Sonny Martin was an early RV-12 builder. Barb continues to fly Sonny's -12.

Daniel Bathke, Bloomington, MN – is new to the RV world and is looking to meet up with local builders. He has yet to make a decision on the RV of his dreams.

Tony Kirk, Temperence, MI -

Tony is currently building an RV-12is, N124TK. He works on Van's Aircraft Tech Support team (working remotely from his home in Michigan). He is also a DAR in the Eastern Michigan FSDO.

His Bronze Lindy winning RV-7 was featured in Kitplanes <https://www.kitplanes.com/stick-to-the-plans/>



Bob VanMeeteren, Reedsburg, WI - I turned 50 last year and decided when I went to EAA this past summer that I was going to begin building an RV14A. I walked into EAA and went directly to Vans and put a down payment on an empennage kit. The next day I was able to take a test flight in the RV14A which was amazing and sealed the deal! I began flying in 1992 and worked as a charter pilot and flight instructor before going back to school and getting married, I have worked in healthcare for the last 25 years, raised a family, and set flying aside. Today, my wife and I have four daughters and the youngest will go off to college this coming fall. The timing was right for me to begin building an airplane. It was now or never. Fortunately, my wife has been very supportive.

The RV14 seems like a great airplane for my wife and I to travel and see the children wherever they end up living. It will also work well for area flight breakfasts on summer mornings and possibly a date night for a \$100 hamburger. The RV14 offers great speed and performance but also can be a great cross country aircraft. To me, it is everything that I am looking for in an airplane. Being able to build on my time is very exciting to me. I love the idea of having something to do after work and on the weekends that does not include sitting in a recliner watching television. I have never built anything before and have no idea what I am doing. I have been impressed by the detailed plans that Vans has created and have managed to get the vertical stabilizer assembled with clecos. I am waiting for my dimpler to dimple the VS skin before riveting. The 14 is wonderful with all of the pre-punched perfection that you get from the factory. I have quickly learned that if it does not fit perfectly, I probably have something backwards or upside down. Following the empennage, I plan to order the quick build options for the wings and fuselage.



Bob and his family

I am looking forward to meeting the members of the Twin Cities RV Builders Group. Having a group of people to bounce questions off of will certainly help. I looked at the parts that were sent to me with a healthy amount of fear and intimidation. I was scared to begin working on the tail section

because I had no idea what I was doing. I was able to find some very good YouTube videos that shared the basics of riveting and dimpling and general metal working. The "Kitplanes Magazine Metal Magic" series on YouTube are amazing!

Charles Jasicki, Brooklyn Park, MN – The punch list is getting smaller every day. The latest project is the landing gear to wheel pant fairings. Charles is hoping to start painting early this summer.



Odds and Ends – Spring 2024

- Tom Berge

The last time I soiled this page with my ramblings, I mentioned my balky alternator. I had cleaned all connections, and the world was in order. Or so I thought. The pesky thing went offline, again. My



thoughts were still a bad connection but maybe I had to expand my thinking a bit. Nancy Burkholder mentioned she was willing to lend me her uninstalled regulator from B and C. I spent an hour switching out the unit, which I should have put



in a more accessible spot. Hold on while I make a note to myself for my next project. A quick engine start showed good voltage and a quick flight confirmed success. But it was not to be, and I found myself back to square one.

I pulled the alternator and brought it to a local alternator shop. They checked it every which way they could, and the report was perfect. Hmm. Well, let's see. I had put in a new split rocker master switch cleaned all connections, replaced the regulator, and had a professional check the alternator and still the dirty dog remained uncooperative. While hanging the unit back on the engine I thought perhaps the plug was at fault. Don Goodrich had asked about that but I was certain I had snapped the plug in so all should have been good. This time though, before plugging the thing in, I took a small pair of needle nose pliers and closed the gap in the female connectors. While I hesitate to declare victory, I've had 8 flights and no issues so far, so just maybe..... of course, now my fuel flow died. It's always something.

A few weeks back I was asked to go look at an RV8 in Colorado. We flew into Denver and started a cross country road trip back east bound. Seems if I recall correctly, we passed the middle of nowhere and then a while later we finally arrived. It was a long road trip, dirt roads and all. The RV was a basic, polished example. The metal work was exceptional, the fiberglass not so much. The panel was very simple with an electrical system to match. A quick test flight showed no bad characteristics and a smooth-running engine.



Lookin' good from 20 feet away!

The inspection was moving along with small issues, such as leaking fuel tank access covers and sending units. Not a big deal. Several of the service bulletins had not been complied with. No surprise there. I crawled under the left wing and noticed that while the top of the plane was polished, the bottom was not. I also noticed what appeared to be polishing residue collected on the bottom of the wing. Moving onto the right wing, I noticed the "residue" again, but his time thought, wait a minute. I reached up to wipe it off and to my surprise, it didn't. I tried scraping it off with my fingernail, nope, no luck. Then the realization hit me. I bet this is corrosion! Thanks to the wonderful technology of cell phones and texting, I sent a picture to Don Goodrich to confirm my suspicions. His reply was to the point, "yup".



Yep, that "residue" is serious stuff.

Taking a broader look at the underside had both wings, flaps, ailerons, horizontal stab, and elevators covered with corrosion. The fuselage was fine since it had a layer of oil to protect it. I've never seen this before, hence my slowness in recognizing what it was. Houston, we have a problem. Of course, now the inspection changed direction. We pulled the cowl to check out the engine compartment and the first thing I noticed was the extensive exterior rust on the bottom of the cylinders. Bad rust. This plane had been in a corrosive environment at some point. Even though the thing supposedly lived in a dry environment, apparently not all the time. I talked it over with Don, then called Midwest Aircraft Refinishers in Hibbing and the news was not good. No matter what we would do to stop the

corrosion, it would always come back. This was a very nice build, but cancer was allowed to invade the structure. We walked away.

Lastly, for the third time in the past twelve months, I was contacted to help with a prop strike. This RV had landed on an ice runway with no issues, but when the wheels got into snow and got stuck, power was applied and with this being a tail wheel,

the tail went up and of course, the prop went the other way. The only saving grace was the prop being composite and after dialing the crank, showed no damage to the engine. My first attempt to find a replacement prop to help get the thing off the lake was unsuccessful but my second call struck gold. It pays to have friends. Two days later, the RV was back home and the expensive task of getting the prop repaired has begun. Friends are invaluable.

How to rebuild the most hated starter in RV-Land

- Pete Howell

About 50 hours after Don Goodrich and I (OK, mostly Don) overhauled my O-320, I noticed a small crack in the nose of my Sky-Tec LS starter, so I stopped drilled it. 10 hours later, I took another look – it moved past the hole – no problem, I missed the head of the crack – so I drilled it again. You know how this goes – the crack kept spreading.....

No problem – @2800 hours, this thing owes me nothing – I’ll just go to Spruce and get new one. Well sometime in the last 18 years they started making these things out of platinum, because they want over \$1200 + a \$200 core charge. No way I could sneak that past Andi (even if she was sleeping). They also specify that the core must have a good casting, that means no cracks.



Time to get creative.....Internet research showed me that these LS starters were nothing more than a Ford Permanent Magnet Gear Reduction (PMGR) starter used on Crown Vics and just about every other Ford in the 90’s – with the addition of a super expensive nose casting.

I checked eBay and found some junk for \$200 and some nice rebuilds for \$650, but still.... I figured I could clean, IRAN, and re-lubricate the entire unit to go another 3000 hrs, how hard could it be?

The RV world seems to hate these units b/c they take more current to spin and the cracking issue that I experienced – typically caused by a kickback or backfire, either noticed or not. I don’t recall having either, but still got a crack. You will typically see people call them junk and hear “just go buy a B&C!” Like I said - I won’t badmouth this thing at 2800hrs! They are a few pounds lighter than the big starters and for a mid-compression O-320 they seem to spin just fine, and I needed the weight off the nose.

I did still have a problem – I needed a new nose casting. eBay was not helping, but I did make a call to Dave over at Wentworth – he said they had a bunch of starters and they were all \$249 – come on over. So I did, when I got there, we looked thru the box and we only saw one that really worked, and it was covered in mud. The shop guys said the electrical parts were probably junk – I said I just needed the casting – Dave said take it and if you can make it work, call me and I’ll charge you \$50 – SOLD!

Now came the fun part! These things are really easy to take apart. Remove the big Phillips head screws, then remove the wire to the motor, and finally just separate the solenoid. This solenoid is replaceable for about \$30, look for a Crown Vic unit. Mine was still good to go.



The back of the unit has 2 long bolts – the bigger heads here. Remove those and the motor unit will separate – my unit was full of 18 years of gunk – have rags ready! This will expose the planetary gear set – the little gears will fall out (this is the GR part!) and there is a ball bearing in the very center – don't lose it! The rubber spacer is easily removed.



Casting Side



Motor side



Look at the motor body – remove the little bolts – this holds the end cap to the brush assembly.



Carefully lift out the brush assembly – it will be a gunky mess- sorry, and the spring-loaded brushes will snap to the center – note if they are excessively worn. Mine looked great – but replacement brush assemblies are available and cheap.



The bendix gear on mine was worn after so many hours – I found a replacement online for \$10. Use a wrench and hammer to remove the c-clip from the shaft. Wear safety glasses.....



The armature just slips out of the motor casing – you just have to overcome the force of the field magnets (this is the PM part!). The commutator area (bottom of pic) can be cleaned up with some fine scotchbrite and alcohol.

At this point I used brake cleaner and Simple Green Aviation to clean everything else. Once that was done, I checked the nose bushing and the tail bushing for wear, and both were in good shape – I figure the motor has 3500 starts at 10 seconds per start so 35,000 seconds or ~10 hours of operation. The old engine leaked a bit keeping it well lubricated, so..... it was just getting broken in!

Everything Exploded!



Assembly really is the reverse of removal – I just took a bunch of pics along the way to help guide me. I used white lithium grease to lubricate everything.

New bendix installed and nose casting loaded ready for the motor.



The brushes can be a bit futzy to get installed around the armature. The springs can be removed and reinserted to facilitate the installation. Bolt on the endcap and the motor can be joined with the casting. Finally reinstall the solenoid, and you are done.



Mine spun like new after the rebuild – I think the lube job and cleaning up the armature really helped. I’ve got 20 hours on it and all is well.

Pretty easy job and for \$50 I have a new nose casting and box of spare parts. That beats a \$1400 bill any day.

I’m happy to answer any questions on the starter and might even help you rebuild one if you bring it to the hangar!



True story from your editor's NWA days – Pulling up to the gate one night, our marshaller was doing his thing but we had to stop short because a baggage cart was in the safety zone (that's a no-no.) But he keeps directing us in and we're waving and pointing to the cart off to the left and he's getting more and more agitated and still keeps waving us in. Sucking up a cart into our left engine is a bad career move so we just sat there pointing to no avail. Must have been shift change as our "employee of the year" blew up, threw the wands at us and stomped off!! A more even-tempered replacement finally got us to the gate!

Twin Cities RV Builders Spring Meeting

Saturday, April 6, 2024, 10:00 am

Doug and Paul's hangar
41C Mooney Lane, Lake Elmo Airport (21D)

If you are a RV pilot, RV builder, or RV wannabe you have questions. So we are long overdue for an ***RV Roundtable***. Our resident tech counselor and expert on all things RV, Tom Berge, will head up a discussion of those nagging building and flying questions. Let's talk engines, props, canopies, avionics, you name it. Why we might even talk primers!!!!

If you are new to the group, just started building, or a grizzled RV driver, join us and let's kick around some serious Q & A. If you have a special question, we'll be collecting your input a few days prior, so watch your email for a method to ask your question.

As always, coffee, juice, and the usual goodies will be on hand!! Low cal as always!

Everyone is invited whether you fly an RV, spam can, or even have to drive! Lot's of good food and fellowship is on the agenda. See ya then!!!

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.**

Also.. spring is eminent so please park on the hard surface.

