

Portland Area
RV Builder's Group
Newsletter

Issue 93.7

September 1993



July/August Meeting:

The July/August meeting was held at the Vernonia Airport in conjunction with the Vernonia Jamboree Days Fly-In. Mike's RV hasn't progressed much, but I hear his new shop is a beauty! I was on vacation and couldn't convince Janet that we needed to get back a day earlier, so I missed-out.

The main item during the meeting was Brent Ohlgren signing-up volunteers to do auto parking at Van's Homecoming on Friday, August 27. We have enough that we each only need to do 1/2 hour this year, which is an improvement, believe me.

The volunteers/times:

- 4:00 - Brent Ohlgren, Don Wentz
- 4:30 - Bill Kenny, Doug Stenger
- 5:00 - Randall Henderson, Rion Bourgeois
- 5:30 - Steve Harris, Evert Eyres
- 6:00 - Mike Seager, Kefton Black

See you at the Homecoming!!!!!!!!!!!!

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Next Meeting:

Place: Independence Airpark

Date: September 9

Time: 6 pm

The Independence EAA chapter has agreed to host us for a fly-in meeting! They will center their meeting around RV stuff, and have some completed/near completion projects to look at. The agenda will mostly be a discussion about Oshkosh, and a lot of looking-at and BSing about RVs. They also moved their meeting up to 6 to allow us more daylight flying time.

This will be a fly-out event, so we need to meet at Twin Oaks beginning at 5 pm to *plane-pool*. Hopefully we can get some of the completed RVers in the area to give some of us builders a ride down there. Additionally, many in the group have access to other aircraft and can offer rides. Riders be sure to help with the fuel costs.

Try to arrange your ride ahead of time, but come to Twin Oaks even if you don't, as there should be some seats available. There may be a 172 leaving from Aurora with extra seats, so call me ask about that one if it is more convenient.

Let's have a good turn-out for this event, and get the fall building season of to a big start! // *the weather doesn't cooperate, we will stay at the EAA hanger for the meeting.* See you there!

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General Business:

To all you other newsletter editors, please change our mailing address to the one on the cover sheet of this newsletter. We have had an editor change recently.

Subscriptions due!!!

Last year Steve got most of you to pay-up pro-rated to August. This means many of you are now due to renew. Any of the rest of you that want to pro-rate to next August can pay \$.67 X # months from your renewal date to next August. You can find your renewal date under your address on the cover sheet. \$8 for a year.

New Address list:

It has been a year since we published the last member list. Since we like to know how to get a hold of each other when we need some advice, the next issue will contain a new list.

Builder's Tips:

RV-4 Builder Richard Bibb from Denver posted this info to the electronic mail network:

Batteries and alternators:

Folks around here have been using Gel Cells that were originally intended for garden tractors. These cells function in RV's which are used for aerobatics, they are claimed to be more vibration proof than car usage gel cells, fit into the box Van has designed, and the price is right ~\$58.00. Now I will have to look up the specific manufacturer, but my guess is that most Battery shops will have a listing for garden tractor gel cells (Exide 300 - 300 cranking amps - is one I heard of-ed).

A couple of folks have placed plug-in connectors for trickle battery charging. The method varies but the bottom line is to use a pair of small connectors, fused and permanently mounted so you don't have a problem with connecting wires and loose wires. Now if you have AC power available a small trickle charger would be fine to keep the charge up. Or, if you have sunny days a solar pane! from Radio Shack would also work. Put it on the roof of your hanger and wire it down to your plane. Don't forget to fuse the wiring.

A friend and Chapter member gave our program last week on generators and batteries. (He owns an alternator repair shop here in Denver, been doing it for almost 40 yrs). He said that any regulator that will put out 13.8 to 14.2 volts will work. Bob also said use an alternator that normally has an external regulator. The reason is you can switch the field and if your regulator does go bad or your alternator goes bad you can turn-off the field and effectively shut down the alternator. (Three failure modes with an alternator, (1) doesn't put out enough current; (2) diode fails and ac felt at the battery; (3) overvoltage.) Overvoltage will boil a battery, once dry the voltage goes very high and things like radios smoke. The reason to use a normally external (gee I could tear an alternator apart and run a special wire out) is what if your alternator goes bad on a trip, then you would have to tear it apart at some FBO. Also it makes it easier to change regulators.

Final note. All alternators need to have a blast tube for cooling. The proper placement for the cooling air is to be towards the rear (opposite end of the pulley) of the alternator. The alternators are built with the diodes (they need to run coolest) at the rear, with the cooling air drawn thru the back to the front. So... putting the

output of the blast tube directed towards the fan/pulley is incorrect. Also try to run the alternator at -7500 rpm during cruise. (Use the small diameter starter ring/pulley from Lycoming).

I think local experts Bill Benedict and Carl Battjes will concur with most of that input, ed.

Counter-Weighting the Elevator Tips: Two methods

This discussion came-off the email network also:

Where to find lead for balancing the elevators.

1) Lead is used to balance your wheels, you could take the weights off your neighbor's cars, or go to the tire store and ask for some used weights. *This is the method I used. I knew someone with a lead melting pot, which helped, ed.*

2) Most gun stores have lead, one trick is to get lead shot no. 7 or 9 and use epoxy to hold it in. Mix the shot with the epoxy, it will need a slightly larger volume due to the space the epoxy takes. A friend has flown his RV-4 since 1985 with this method of counter balancing. Of course, you can still melt it. They usually have ingots of lead also. *The epoxy/shot is a great idea, because a) you can buy shot in bulk at the gun shop, b) you don't have the danger of all that hot lead, c) you don't subject your aluminum to the heat, d) probably a piece of cake to add more. ed.*

More hints: Use hardware store stainless bolts/ nuts/ washers to install before adding the lead (to give the lead a grip - see plans). Fill the inboard (visible) section first, totally, so you can file it to a nice finish, then you can fill the outboard section as needed for final balance.

Finishing the Elevator Tips: **Randall Henderson**

Having just finished capping off the forward end of the fiberglass elevator tips, I feel compelled to share the method I used with other builders. The manual vaguely offers a couple methods, but none of those looked very elegant to me, so I went with this method, a slight modification of the one Earl Brabandt came up with, and I really like the way it turned out.

Fair warning - you gotta use FIBERGLASS and RESIN. I know, yuck. It's in such small amounts though that it isn't that bad, and you'll have to get into it eventually. Besides, it's as good a time as any to

pick up the basic supplies for fiberglass work.

I picked up all my fiberglass supplies at TAP plastics over on SE 38th and Powell. You'll need polyester resin & hardener (epoxy resin can be used too I suppose), Microspheres (tiny glass spheres used as a filler), and some glass cloth (I used a weave, but Earl says a mat works better).

This method assumes you already have your fiberglass elevator tip fairings attached to the elevator. Put the elevator in the V-block jig or brace it some other way so that the open end of the fiberglass tip is facing up, then trace out the shape of the opening onto a piece of paper. Transfer that shape to a piece of glass cloth, then draw another line approx. 3/8" larger on all sides around the original shape on the cloth, and cut out the piece along the outer line. Mix up some resin and brush it onto the cloth, but ONLY INSIDE THE INNER LINE, maybe even 1/16" inside that. Once the resin has set up, you can turn the unresined edges of the cloth up so it makes a little flat bottomed 'cup'. Make small cuts around the edges as needed so they'll turn up nicely without wrinkling, use

resin to glass that into the end of the fairing, flat bottom down, or aft, so that it makes about a 1/4" deep cup inside the fairing. Let that set up, then make up a mixture of resin and microspheres. There aren't specific proportions for this, I just ended-up dumping microspheres into the resin until it was about the consistency of a really thick milkshake. It seemed to be something over one part microspheres to one part resin. If your "cup" ended up open on the inboard side where it's closest to the counterweight lead like mine was, stuff some rolled up glass cloth in there to keep the mixture from dripping down inside the elevator. Pour the mixture into the little cup that is now the end of your fairing, filling it up even with the end of the counterweight arm. After it's cured, sand it to the right shape, and fill in any large bubbles or imperfections with bondo or more of the microspheres & resin. Small imperfections can be finished off nicely with a sanding primer like featherfill.

Thanks for the tip Randall. How about some of the rest of you?!? ed.

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Arlington West Coast EAA Fly-in:

I went, saw some great RVs and other aircraft (notice that immaculate turquoise Super Cub?!) Had a nice discussion with Steve Barnard about a "quick-build" wing kit he is working-on (RV-6/6A only). Call him or Theresa at 916-676-5601 for details.

The airshow was great, I especially liked the GeeBee (got to see it to believe it), and Bud Granley's brutal wring-out of the Lewis Aviation YAK-55. That thing turns SOOOO hard! Van's RV-4, now with smoke, was a very smooth, enjoyable demonstration of just what these slick little planes can do on 160hp. The smoke is a definite addition.

Don't know what was for sale, spent all my time looking at, what else, airplanes, don w.

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Project Status:

Well, this may not be an RV.... But Steve Harris flew he and I over in his Tri-Pacer to see that 80% scale P-51 project. This is the all metal, scratch-built, very accurate project being done by 2 brothers, one a design engineer at Intel, the other a long-time pilot and previous builder of a Smith Mini-plane that he still flies. Into the 8th year of construction, they just mated the wing to the fuselage. Compared to our RVs, it looks BIG. They figure that, including painting, it is about 3 months from taxi tests. Really an incredible project. It will be based in my hangar at Scappoose for the initial test phase, as Parkside is not a suitable airport (although Steve's Tri-Pacer handled it with aplomb). We should have a meeting out there and check it out. Man, if they can build that thing, we better not whine about building our kits! ed.

A few of us 'helped'¹ Ken Scott put his wings on for the first time last Friday night (about 3 helped, 5 kibitzed!). You should have seen the grin on Ken's face when they slipped right in! His RV-6 really looks like an airplane now, getting closer all the time.

Brent Anderson has all of the preparatory bulkhead stuff done on his RV-4 fuselage and will be in the jig soon.

Brent Ohlgren sold his house and has to finish the wings within a couple of months so he can move the project.

Evert Evers is satisfied enough with the test flying on his RV-6 that he has put it in the paint shop. He said he 'kind-of gave the painter some ideas' and let him loose! He may be as surprized with the results as the rest of us!

Dennis Jackson is almost ready to test run the engine in his RV-4.

Rion Bourgeois has his spar in the jig and is drilling ribs in place on his RV-4.

I have ordered my Prop (sorry gang, I had to wimp-out and get a Warnke wood prop. \$4K more for C/S just was too much for me to bear.) The good news for RV-land is that I am prototyping an extension from Lynn Woofter Mfg. to allow use of the C/S RV-6 cowl. At least I have the right cowl if I want to change to C/S later. I ordered a starter and alternator from Mark Landoll, both complete (including external regulator) with brackets for \$295. I also ordered a crossover exhaust from Vetterman (he claims increased cruise economy with x-over, better take-off/climb with 4 singles). I expect to hang the engine the weekend of homecoming.

Chapter 105 Homebuilder's Forum • 9/18/93

Bill Benedict (ch. 105 pres.) asked our builder's group to participate in this event. I volunteered participate on a panel discussing the merits of Builder's Groups (like ours). More panel members would be nice.

He also requested that we set-up and run a demonstration of metal aircraft construction (why would we know anything about that?!?). Brent Ohlgren has volunteered to do some work on an actual RV-6 component, like a flap, during the event. We also want to set-up something that gives folks a hands-on opportunity. My initial thought was to set-up some tables with 'stations', where you would read plans, measure and mark for cutting, line-up and drill/clecoe some holes, deburr (exciting!), dimple, countersink, and finally, rivet, using squeezers, Avery tool, and airgun. All of these activities and more could be mostly self-help, with some of our members supplying encouragement and advice.

What we need to supply as a group are:

- 1) Tools.
- 2) What to have them make (just random holes, etc?).
- 3) Preparation of the 'stations'.
- 4) Van's will supply the scrap materials.
- 5) ????

This will be a fun activity to share some of our hard-learned knowledge, and to help raise some funds for Chapter 105. Volunteers? Ideas?

We will be discussing this at the meeting.

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Want Ads:

Let us know what you got but don't want. Ads are **FREE**. What a deal.

Military grips with buttons/wires. These are somewhat smaller (which is good) than some of the others I've seen. Contact Kefton (Blackie) Black for info. 503-621-3125.

Frank Justice has a spare wing jig available, along with some excellent supplemental RV assembly instructions. 642-5713.

Rion Bourgeois has a LARGE pneumatic squeezer that he used on his spars. Available for loan. 646-8763.

Duckworks Landing Lights. Retro-fittable, light, easy installation. Kits start at \$69 (discount for PARVBG members). Don Wentz, 503-696-7185 for info.