

The Newsletter of the Portland RVators; Builders and Fliers of Van's Aircraft RV Kitplanes



November Meeting

The November meeting was held at Brent Anderson's garage/shop, where he is well into his RV-4 fuselage. Brent provided us with good food and beer, and the 45 or so of us that attended warmed up his 1.5 car garage pretty well. Brent's fuselage was on display, upside down in the jig, with the aft skins riveted on and most of the forward sections clecoed in place. Brent had the right side cockpit skin off so everyone could see what nice work he's doing both inside and out.

Several topics were discussed, including Jerry Van-Grunsven's account of the builder in Chino, CA who built an RV-6, start to finish, in 128 days! And not a bare bones job either: this one had an IFR panel, upholstered interior, and very nice paint, according to Jerry.

There were several questions and suggestions relating to last month's builders tips, and as a result, I've expanded a bit on nut plates and non-standard rivets in this month's builder's tips section.

Meeting Notice

Place: Charlie Kaluza's shop
2729 SW Mountain Lane, West Linn

Date: December 8 (Thursday)

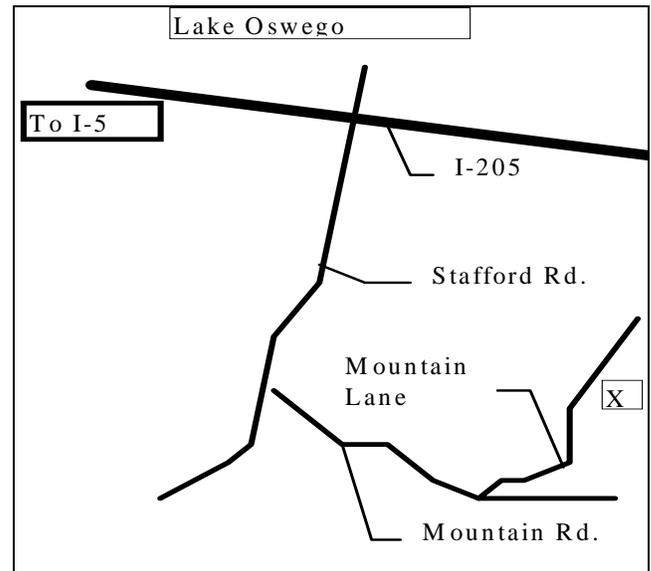
Time: 7:00 pm

This month's meeting will be held in the spacious and warm (get that; WARM) workshop of Charlie Kaluza south of Lake Oswego. Charlie has just recently set up his RV-6 fuselage components in the jig and is starting the process of fitting bulkheads and longerons. We thought we would do a brief tutorial on how to get all of those bulkheads aligned properly so the skins will be straight, as well as covering some of the peculiarities in the kit components and drawings.

To get to Charlie's house, get on Stafford Road from Interstate 205 and head south away from Lake Oswego and West Linn. Stafford Road crosses I-205 about two miles from where I-205 splits off from I-5. Go about one mile to Mountain Road and turn left (it's

easy to spot, Stafford Road makes a sharp right turn at that point.) Then go about 1/4 mile to SW Mountain Lane, which looks about like a driveway going up the hill to the left. Follow Mountain Lane up the hill and a little way down the other side. The address is 2979 SW Mountain Lane.. Take the gravel driveway to the right up to the house with the big peaked windows. The workshop is behind the house. If you get lost call 638-7820.

Be sure to bring any tools, fixture, templates, etc. that you can loan out.



General Business

Member List

It's been a while since the member list was updated, so I finally did it and included it in this newsletter. I'm sure there are still some mistakes and obsolete information in there. If your info needs updating just drop me a line, catch me at a meeting, or stick a note in the next time you send your dues. I'd especially like to gather more spouses' names, so I don't feel like such a clod when I call some member and their spouse answers the phone.

Top Ten List

TOP TEN MISTAKES I MADE IN MY FIRST NEWSLETTER

- 10. Said the meeting was Friday the 11th (if that's when you showed up, BUMMER!)
- 9. Called Brent Anderson's RV-4 an RV-6 (I don't understand why he got so upset about that....)
- 8. Called Jim Anglin's RV-6 an RV-4 (can't blame HIM for being mad)
- 7. And as if that wasn't enough, I even got the PHONE NUMBER wrong!
- 6. Said I'd make a better newsletter editor than Don
- 5. Keep forgetting I need to deposit the newsletter dues in the GROUP account instead of my own
- 4. Thought editing a newsletter would be easy
- 3. Thought that no one reads it anyway, so who's gonna notice a few little mistakes....
- 2. Said Don's pink hat was stupid
- 1. Naah, it's stupid all right

Oh well, as Don said, "If you don't participate you can't make any mistakes".

I do hope no one takes my good-natured ribbing about RV4s, pink hats, etc. as anything other than that -- I assume most people know I'm prone to that sort of humor, and no real malice is intended, but I once made a similar assumption when I was in the hangar of a Lancair builder (made some crack about plastic airplanes), and almost got myself thrown out of the place!

Calendars

Van's new calendar will be out this week; I should have a bunch at the meeting - \$6 each (special builder's group member discount!)

T-Shirts, Etc.

I still have some T-Shirts left, long and short sleeve, in small, medium, large and XX large. Sorry, no extra larges or sweatshirts left. I'll have 'em at the meeting.

What's next? Patches! Some people have expressed interest in a patch, for hats, jackets, etc., so I'll look into that, and try to have some information next time. If there's anyone who has connections in the "patch-making" business, give me a call.

I would like to comment on one thing in regards to this -- there has been some talk about the fact that I'm getting a lot of mileage out of the logo, what with the T-Shirts, sweat shirts, newsletter header, and possibly some patches, and I have heard some nasty rumors floating around about the whole thing. Well I just want to set the record straight right now: No matter what you've heard, I have NOT had the "Portland RVators" logo tattooed on my wife's butt! (She wouldn't let me)

Subscriptions Due:

Look at the date under your address on the cover. **THAT IS THE DATE YOUR \$8 IS DUE.** Mail to me (**Randall**) or give it to me at the next meeting (my address is the return address on the cover). If you are paid up but the date doesn't reflect this, please give me a call so I can correct it. I'm still working out the bookkeeping on this deal, so bear with me!



EVENTS CALENDAR

EAA Chapter 105 Meeting Thursday December 15, (third Thursday of every month), 7pm at Twin Oaks Airpark. Good programs, don't miss em. Last month's speaker was the Hillsboro Tower chief. Very entertaining, and a lot of information that's very pertinent to our local flying. This month is the Christmas potluck, so bring a dish.

EAA Chapter 105 Christmas Banquet Friday December 30, at the Rheinlander. Call Ed Stout (636-9772) by 12/28 for tickets.

EAA Chapter 105 Pancake Breakfast - Saturday January 7, (first Saturday of every month) at Twin Oaks Airpark, 8am. This is a fund raiser for Ch105 to help pay the rent. This is really becoming an event, so if you don't show, everyone will know you just aren't "with it".

November's breakfast saw the best turnout so far, and there were a lot of pancakes, eggs, bacon, and of course grits consumed, and plenty of hangar talk for dessert. December's breakfast wasn't as large, but the grits were better. (Rion remembered to salt them.) Dick Van Grunsven showed up with a dozen "No Grits" bibs. Floridian Bill Benedict promptly devoured a full plate of the delicacy.

Dan Delano was the only person to fly in, and due to the fog to the south, he landed from the North. This resulted in a MAJOR butt-chewing by Bob Stark, as the "neighbor" to the north dictates that no landings be made over her house. PLEASE remember to land from th South ONLY.



Wing Skin Backriveting (One Technique)

Bob Neuner

When it came time to start riveting the top skins on my wings I, like most builders, wanted to do the smoothest job I could. Most of the best riveting jobs I've observed at fly-ins were backriveted, according to the builders. I decided that's how I wanted to do mine.

I broke the large problem of Backriveting on a vertical surface into several small problems. **First**, since the wing can't be laid on a solid surface (like the elevator), the bucking bar has to have enough mass to remain stationary as the rivet set smashes against the shop head. If not, the rivet head might be pushed above the

skin. **Second**, the bucking device must be easy to handle. **Third**, the rivet set tool must be able to strike a relatively direct hit on the end of the rivet. It also needs enough force to form a good shop head without knocking the rivet over.

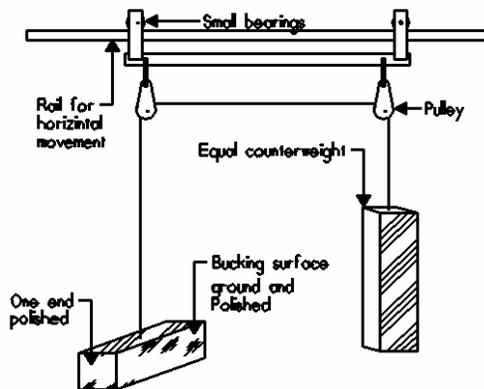
The Bucking Bar

To solve the first problem, I found two blocks of steel about 15" long and 2 1/2 inches square. I polished one end of one of the blocks by hand. It took about two days and way too much elbow grease. I then had one of the long sides ground flat and polished at the local High School Shop (a lot easier). This turned out to be an excellent bucking surface to do the majority of the skin rivets. There was enough mass to keep it absolutely immobile during riveting and a smooth, flat surface to do a good job.

I found an unexpected benefit of using a bucking bar long enough to span two wing ribs: two rivets could be bucked at once -- a big time savings. Later Randall and Rion were setting up and bucking four rivets at one time. They also bucked rivets along the rear spar, 10 or 12 at a time without lifting the bucking bar.

This massive brick of steel weighed about 15 lbs. It would have taken more muscles than I have to hold it tightly against the skin for rivet after rivet. This second problem was solved by suspending the bucking bar from two pulleys with an equal counterweight on the other end of a rope. This gave me effortless vertical movement.

All I needed now was easy lateral movement, and working the bucking operation would be easy enough for my wife to handle. (She actually did a much better job at it than I did). I suspended the pulleys from a bar about a foot and a half long, then hung the bar on a rail I made from 1X1 steel tubing. A couple of small bearings made the whole apparatus very easy to roll from side to side. (See Figure "A")



(Figure "A")

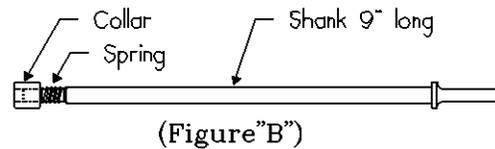
The Rivet Set

I first looked at the Avery wing skin back rivet set but rejected it. Avery's tool is a 12" rivet set with about a 4° bend at the very end. The end is also milled flat with a sharp ridge around the edge. I suspected that the bend was too close to the end to keep from pushing over the

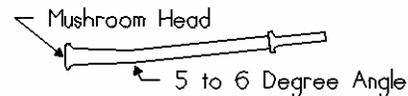
rivet. The sharp ridge also worried me. I talked to others who tried them and they confirmed my suspicions; it didn't work very well. Avery's regular "Back rivet" set, for riveting elevator skins looked more promising but was too short (See the Avery Tool Catalog). [Avery includes an offer with the tool to refund your money if you don't like it -- some like it, some don't. Ed.]

I found a 13" set with a bend at the end during a trip to Boeing Surplus. I cut off the bent end and turned it down to match the design of the short version of the elevator skin back rivet tool (see Figure "B"). There is no bend at all. On all of the rivets, other than those in about the last 8" of the wing ribs and along the main spar, the long, straight back rivet set worked great. The rib flanges did cause it to be deflected about 3° off dead-center but the flanges were springy enough to be pushed aside a little to correct for this. Even though the shank of the set was straight, I still got a direct hit on the shop head.

I used another "Boeing Surplus" find to rivet the last 8" of the ribs near the rear spar, and along the main spar. I was lucky enough to find a "mushroom" set with an 8" shank and a bend of about 5°, 3" from the mushroom (See Figure "C"). I used duct tape around the shank and rivet gun retaining spring to keep it from rotating while in use. [Last time I looked, Wacky Willy's (westside) still had some of these sets, for \$5 each - Ed.]



(Figure "B")



(Figure "C")

The whole apparatus was a moderate amount of work to put together, but produced great results. Each and every rivet is perfectly flush with the surface. There is almost no chance of denting or "smiling" the surface since the rivet set never touches the outer skin. It's also faster than the conventional method.

For those interested in using this setup I am certainly willing to share it. Randall is currently using it and Rion may be next if he doesn't make his own. It is easy to set up on almost any jig...takes only a few minutes.

If you want to try it, you can call me at home (771-6361) or see me at the meeting.

(Setting this contraption up in my shop was trivial, and using it was a dream. I recommend borrowing it if you can - rh.)

What's Really Going on Here?

[The following item was recently posted on the Internet. Ed.]

After being off the Net for one week, I logged on and found 100 messages in my mailbox, with all but one from the RV-list, and much of it this drivel about the Duckworks landing lights and how WONDERFUL and INNOVATIVE and LIGHTWEIGHT they are. Well I thinks its time to BLOW THE LID OFF and talk about what's REALLY going on here!

First item for your consideration: these so-called DUCKWORKS landing lights are not original at all. If you check out the landing lights on the XP-51, North American's prototype of the P-51, in the EAA's museum in Oshkosh, Wisconsin, you will find THE VERY SAME DESIGN! Mssr. Wentz' so-called engineering is over FIFTY YEARS OLD!

I know Wentz will tell you that he designed his kit before he ever went to Oshkosh and saw the XP-51, but consider these FACTS: the empennage of the RV-3, RV-4 and RV-6 all bear a striking resemblance to the empennage of the P-51 MUSTANG, and if you build a turtledeck on an RV-4, it looks frighteningly similar to the XP-51!!! Furthermore, Wentz has been seen having breakfast with the DESIGNER of the RV SERIES! And lo and behold, these very same Duckworks/XP-51 landing lights are now CONVENIENTLY found in the Van's Aircraft catalogue! And whose dad used to work for North American? None other than the EDITOR of the RVATOR!!! Are all these connections between the P-51 and the RV-4 merely a coincidence? or CONSPIRACY!

Ask yourself this question: is the RV-4 really a civilian aircraft, or a not so artfully camouflaged FIGHTERPLANE? Are we really mere homebuilders, or are we unknowingly acting as test pilots for the Air Forces of anonymous third-world countries, unwittingly paying for the privilege? Did an RV-6 in camouflage paint scheme recently appear in the pages of SPORT AVIATION, or was I just hallucinating? Then ask yourself these questions: what are those massive tie-down-ring hardpoints REALLY for, and why are they designed to support a thousand pounds? Were those bigger aileron bellcrank-rib gussets REALLY necessary to handle the pilot's stick force, or are they meant to handle the recoil of something a little stronger than the average tricep? Why is the secret R & D facility at Van's called the "skunkworks", and why is it so secret?

How can Van's Aircraft sell its kits at such reasonable prices unless it is getting MAJOR funding from the Pentagon? And if we are being forced to act as test pilots for the military industrial complex, then why shouldn't we get our kits for FREE?

RV builders UNITE!!!

Yours truly,

Rash Limbo

p.s. A diagnosis of paranoia does NOT prove they're not out to get you.



Interviews with an RV Builder

Bob Neuner

The following is the first of a series of brief interviews with active RV builders. Randall Henderson started interviewing members a while back. Now he has become "Editor and Chief" of this publication so I hope to continue the tradition. My goal is to provide a profile of the RV builder. I'll be reporting on the status of the individual projects as well as what kinds of people are building RVs. My first victim is Brent Ohlgren.

Name: Brent Ohlgren

Occupation: Sales Rep for a Professional Color Lab

Pilot Ratings: SEL, Working on Glider

Aircraft Building Experience: Worked in sheet metal before; Father was a Tinsmith

Project: RV6 (or maybe RV6A)

Engine/Prop: None yet

Project Status: Empennage & Wings Complete; Finishing Flaps & Ailerons; has Fuselage Kit

Workshop: Shares Bill Kenny's 40X60 shop and also works in his single car garage.

Special Tools: None

Expected completion: When it's done.

Profile: Brent was one of the original members of the builders group when we first met at Bill Kenny's house. He and Bill now do most of the job of building in Bill's large shop. Brent said that the two get together on Thursday evenings to work on their respective projects.

The wings he just completed have a "Navaid" Wing Leveler servo built right into them. This is a departure from the usual Fuselage mount. He has also installed Duckworks landing lights. Brent like most builders is leaving the Riveting of the bottom wing skins until later.

Brent hasn't purchased an engine as yet, but would like to install a 180hp with a wooden prop. He would like to eventually have a CS prop.

Brent has picked up a number of instruments already. Many of them by just watching the Oregonian. He has (4) Gyros, Airspeed, a Transponder, and a VAL Com radio. He also picked up a new full featured BF Goodrich Loran with a World Wide database.

In addition to building an RV6, Brent is a member of the TEK Flying Club. Like many of the members of the builder's group, he started out as a Radio Controlled model maker and pilot, primarily flying RC gliders.

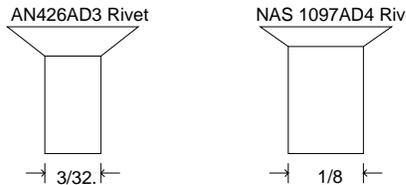


Builder's Tips

Thanks to all who share them with us!

"Cheater" Rivets

Down in California they call em "Boeing rivets, up here in the Northwest people call them "Lockheed rivets", but they're really just cheater rivets, and they can come in handy when you enlarge a hole, by letting the bit wander when drilling out a bad rivet, for example. They're rivets with a standard shank and a smaller head. The ones most useful to us have a 1/8" shank with a 3/32" countersunk head, just right for when you mess up a hole through your skin. Just don't start to **DEPEND** on these rivets. They're available through Aircraft Spruce and Van's Aircraft.



Another handy rivet is the NAS-1097AD3. These are 3/32" countersunk head rivets, but with a smaller than normal factory head. They work quite well for riveting on nutplates, since the material doesn't have to be countersunk nearly as deeply, so there is less likelihood of countersinking beyond the thickness of the material. Ken indicated Van's may be stocking these soon as well; I'm not sure where else they're available.

Randall Henderson

Oil Door Latch

While in Livermore an RV-6 builder (Gary VanRemortel) told me about a latch that can be used on the oil dipstick access door. It's a push to release type, that may be easier to implement than the hidden hinge-pin design I used. This will eliminate those unsightly exposed latches supplied in the kits, and make opening the door more convenient.

He found it as a part supplied by Skystar for the Kitfox he built a while back.

Camlock - KM610-64, available through Skystar or Barco.

Don Wentz

Avery Hand Squeezer

At the Copperstate fly-in, I got a look at Avery's new hand rivet squeezer. He really has done a nice job:

- Handles about 2 inches longer than the Tatco
- Cushioned hand grips
- Utilizes pneumatic squeezer yokes
- Quick-release pins for changing yokes
- Nice blank powder-coated finish

I'd trade my Tatco for one any day.

Dave Barnhart

Prepunched Skin Option

I went out to Van's yesterday to get the instruction sheet on the prepunched wing skins so I could fold that into what I am writing. Discovered that it is even better than I thought. I hate it when he does that after I have already passed a particular stage.

Anyway, the prepunched skin also has the aileron bell-crank access hole cut out and the skin is joggled in that area. This means that you do not have to do the reinforcing ring stuff on the skin and the reinforcing angle on the rib. Savings? about 5 to 10 hours.

Also, they include a full sized template for fluting the ribs. This will save maybe one or two hours.

With the total time saved now hovering at about 20 hours and the cost of the option at \$150, it is a much better deal than the Phlogiston spar. There does not seem to be any reason not to buy this option.

Interestingly enough, the instructions provided with this option are much better than most of what is in the construction manual. They are so good that there is no reason for me to expand on them in my own. Unfortunately, there is no way you can get this option after you have taken delivery of your wing kit and you should not even think about it. You would have to buy a new spar and spar bulkhead as well as the skins, since the old spar holes are not located accurately enough to work with the pre-punched skins, and Van cannot take back the old pieces for credit.

Frank Justice

Project Status

The **prototype RV-3 restoration** is moving along a bit faster now. **Gary Standley** reports:

The steel parts (engine mount, stick, flap control etc.) of the RV3 have been taken by Randall Henderson who is going to get them cleaned up and refinished for the project. This is one of the "grunt" jobs that Randall has willingly taken on. [*I am not a grunt - Ed.*] There are other parts needing cleaning up and painted also if anyone is interested. Mostly sheet metal parts. The tail will need to have the paint removed and prepared for prime and ultimate new paint.

On 11-16 Randall came over with visiting RVer Dave Bonorden from Austin, Texas. It didn't take long and we had a drill motor in Dave's hands drilling the fuselage main spar bulkhead. Rion Bourgeois also came over and everyone had a hand in getting the main spar bulkhead match drilled to the wing center section.

On 11-26 Rion, Arney and I delivered the odd wing to Jim Anglin's shop. Jim is a successful RV6 builder/flier who offered to finish off this wing with the new leading edge and top skin plus some other "fixes" the wing needs. Getting back to my shop there were lightening holes etc. to drill in seat ribs, fitting to the main spar bulkhead, drilled, de-burred and riveted together. This was the first experience Arney had riveting this type material. His background is hot riveting steel parts. Rion worked on the fuselage longeron which will tie the tailcone to the new fuselage structure. These parts are properly bent now and next work party we will put the forward fuselage skeleton together, drilled, riveted and maybe, look seriously at trying to attach the tailcone, at least mocked up. Should be an interesting time.

Regarding the next work parties. December 21 and 24 are being canceled because of the holiday. We will work on December 7 and 10 as planned.

Bill Kenny is back working on his wings after a bit of a hiatus. Wings are jigged up in a couple of nice welded steel jigs, the top skin and leading edge is riveted on one wing, and he's currently in the process of drilling the tank skins.



New Members

Carl Weston has purchased a set of RV-6 plans and an empennage kit, and is in the process of setting up his shop. The first time I met him was at the last builder's group meeting. I subsequently spotted him at the Oregon Air Fair, and also at the EAA Ch 105 meeting. I'm afraid he's been bit!

Roger Reimann got a ride in Norm Rainey's RV-6A a while ago, which he describes as a "short trip, and before you knew it we were in Seattle". Then his wife got a ride up around Mt. St. Helens from Dick Anderson, and he decided he had to at least join the group, even if he's not quite ready to start building yet.

Mike Graves just joined up, is investing in RV parts, has a set of RV-6A plans. Seems he's been interested in building an RV for a while, but sort of drifted away, and Bill Kenny talked him back into it. Good work, Bill!



Don't Want Ads

Let us know what you got but don't want, or vice-versa. Ads are FREE.

2 new RMD Wingtip (in the fiberglass tip) landing light kits. Sell for less than new. Brent Anderson 503-646-6380

Std RV-6 elevator trim control knob/cable. Slightly used, sell for \$\$ less than new, Evart Eyres, 503-648-3564.

Bulk purchase of Whelen 3-way nav/strobes at a discount. This is a one-time deal, contact Doug Stenger if you're interested. (503) 324-6993

Standard Gascolator and mount for RV, slightly used. Sell for 60% of new cost. Need, good quality (RC Allen?) Horizontal Gyro, 3000fpm VSI (too much aerobatics). Don Wentz 503-543-2298

Skip Dennis wants to "buy-in" to an RV project. He has 'some' time to help, but has more \$\$ that he is willing to pay into a project to help finish it. If you are to the point you may need a partner to help buy that engine and panel, maybe this could work out. Give him a call at 503-655-7226.

3-month old Ilmorrow 920, GPS-North American Continent database. Wally Anderson 623-2328 work, 342-5240 home

For Sale: RV6 tail kit, just barely started (Eugene). Jim Eggers 342-1939

New Tail section kit for RV6A with plans and manual. Perfect condition, \$850 firm, cash only. Craig or Rosemarie, 206-887-0823

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

