

Portland RVators

Issue 94.5

May 1994

The April meeting of our group was at Mike Wilson's house out in St Helens, OR. Sandy went all-out for the eats, with a delicious variety of veggies, meats, and desserts. Yummy!

Mike had his horz stab/elevators on display, along with a wing spar with the ribs on it. Some of the neat ideas he used were cutting the smallest slot possible on the top of the elevators at the hinge points. This left access thru the bottom slots which were wider, while making the top a little more cosmetic. He also used lead shot and epoxy to do his counterweights, which worked well without the hassle of melting lead. There must have been lots of new builders there, they were all over that stab looking at how it went together.

We had about 30 builders show-up, which is good for so far off the beaten path. Thanks for having us Mike, let me know when you need to skin that wing.

Next Meeting:

Place: Vernonia Airport
Mike Seager's hanger
Vernonia, OR
503-429-1562

Date: May 14, 1994 (Saturday!)

Time: 10 am

The next meeting of the RV builders group will be a fly-in drive-in type at the Vernonia airport. For this reason it will be on Saturday morning May 14 instead of the usual Thursday night. Mike Seager will be hosting this time. Plan to be there by about 10:00, and this will give you some time to visit before going off to the fly-in at Schrock airport. We'll have the meeting portion of the gathering at 10:30 so those wanting to leave won't miss our discussion about next month's flyin.

If you will be driving in from the Portland area, go west on highway 26 out past the Banks area and go north on route 47 about 15 miles. When you get to the golf course

turn left on Timber Road and go about one and a half miles, then turn right on Airport Road (there is a new bridge there). Go one-half mile and take the first left. Mike's hanger is the large blue one on the south side of the field.

If you want to fly in and haven't been to Vernonia before, it is a turf field about 2900 feet long with low hills all around. Runway is 9-27. Use 9, right traffic, if the wind is calm. 27 is left traffic, and final will be a dogleg to miss the hill.

If anyone is flying or driving in and has a seat available, or if you would like to hitch a ride, give me a call at 590-3991 after work and I will try to match you up.

General Business:

Newsletter Due Dates:

Someone recently pointed-out that they didn't realize what the date below their name was for. It is the date that your subscription runs-out. i.e. If the date is 5/94 your subscription is due April of 94. I always make the date italics, underlined, & bold **5/94** if you are due. So keep an eye on that date!

T-shirts:

Randall brought a sample of a "logo" for our group to the last meeting. I thought it was great. We have since been to the designer to finalize it. I think our T-shirts are going to look real good this year, color and everything! The logo will also be usable for our newsletter, etc.

Calendars:

Still a few Van's 1994 RV calendars available. Everyone we sell from here forward goes straight into our kitty. So, get that second one for the office.

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Don't forget EAA Chapter 105 Meeting
7 pm Thursday, May 21
Twin Oaks Airpark

EVENTS CALENDAR

Coming-up June 24-26 at Twin Oaks, is the **1994 Oregon EAA Fly-in**. It's Chapter 105's turn to host, and should be an opportunity to see a large selection of different types of homebuilts and the great Ch105 facility. There will be food, camping, facilities, etc. **Don't miss it!!!**

Troutdale AirFair - This annual event will be the same weekend. This is a large, structured 'Airshow' with demonstrations, displays, etc. Check the rags for details on acceptable arrival times. They are offering free admission for homebuilts that fly-in for display each day!

2nd Annual Schrock/chapter 31 Old Fashioned Fly-in - Ken Scott says this is the nicest fly-in he has been to lately. Very nice private farm strip with potluck (main course provided), flour bombing (when is the last time you saw that?), etc. May 14, 4.5 mi from Corvallis on the 128 degree radial. Starts at 10:30, so you can head over there after our mtg. I will have some flyers at the mtg.

If you've seen one, you've seen them all

It was one of these beautiful spring flying days that everyone seems to write about. But this was not a book. Smooth and warm with visibility that went on forever. It was warm enough that we had the door open on the J-3 Cub as we cruised along enjoying the afternoon at 1500 feet.

I could smell the spring smells and see the green colors and mumbled something to the effect over the intercom. I was immediately snapped back to reality by my 13 year old son who was doing the flying at the moment. He reminded me that it's always green in Western Washington. Oh well, maybe I just hadn't noted through all the rain clouds I had been seeing lately.

We cruised along for a few more minutes, when my son said "Traffic at 12 o'clock coming our way". That got my attention! Even me, a digital watch kind of guy, knows what that means. I sat up in the seat and took the stick.

Sure enough, there they were, three planes moving real fast and passing to our right. I'll never forget that sight! The two planes in the rear were some kind of low wing retractable fiberglass types. I'm not sure what they were but you know fiberglass planes. If you've seen one, you've seen them all. But the plane in the lead was absolutely gorgeous! It was obviously all metal, with fixed gear, a bubble canopy and painted a beautiful overall white with maroon and gray stripes.

As they shot past I turned to keep them in sight. I was alarmed because not only did the fiberglass planes appear to be faster, they looked as if they were trying to ram the little metal beauty! I soon realized that I need not fear. Although slower, the metal plane was obviously much more maneuverable. He would let them get close behind and then do an Immelman, a tight loop or roll and they would over shoot. In fact, the more I watched, the more I sensed that the metal plane was toying with them. It was as if he was working their anger and speed against them. This continued for what must have been ten minutes, the pilots of the fiberglass planes getting madder and madder.

Suddenly, in the blink of an eye, there he was. That beautiful little metal plane was right on my wing tip. His flaps were down and the pilot was looking at me and smiling. I tried to warn him as I could see his two attackers coming, but he just smiled and waved as he began to slow down. I pulled my throttle back to stay with him and soon we were both nose high hanging on our props.

As the two fiberglass planes came-up beside us I could see their landing gear and flaps come down. Finally, as they rocked back and forth with their noses in the air, one of them fell into a spin and dropped out of sight. I watched him spin down as the other one poured on the power and flew away shaking his fist.

The little metal beauty then raised his flaps and pulled away in front of me like I was backing up! As he did, he pulled it around in a big roll. Then he pulled up into a steep climb with the remaining fiberglass plane in hot pursuit. This time he did not turn. Each time his attacker got close he simply pulled up into a tight Immelman that the fiberglass plane could not hope to follow. Higher and higher they went, right into the sun.

We strained to watch them and gasped in horror as they got higher. Something was wrong! It was my son who figured it out first. The fiberglass airplane was melting! The closer to the sun they got, the more his wings flexed and his tail drooped. And then, suddenly, he was gone. Like an ice cube that once was and suddenly is no more.

As we watch, the beautiful little metal airplane made a victory roll and disappeared into the sun. Neither of us will ever forget that flight or that metal airplane. Since that day I have seen it again and learned what it is. It's an RV kitplane sold out of someplace in Oregon. And the fiberglass planes? Well, you know. If you've seen one, you've seen them all!

By Greg Rainwater of the Puget Sound RVators

Builder's Tips:

Thanks to all who share them with us!

Riveting the Bottom Skin with Wing-walk Ribs in Place: *Don Wentz & Frank Justice*

Most builders now rivet on the top skin first so they can back-rivet it for a smoother finish. The bottom skin is riveted on last, after the aileron and flap mounting have been done. Riveting the bottom skins is not particularly difficult, especially if the wing-walk area ribs are left out until the end and then put in place one at a time and riveted. If the wing-walk ribs have already been riveted to the top skin and spar, riveting on the bottom skin is more difficult but not extremely so. To do this use the following procedure.

Take the wing out of the jig if you haven't already, and secure it leading edge down in some kind of cradle.

Secure the inboard skin to the rear spar only in a few places with clecos.

Lift up the skin to get inside with the bucking bar and drive all the skin to rear-spar rivets between the first outboard-pointing rib (#4 in an RV-4, #5 in an RV-6) and the root end of the spar.

Put a cleco in the second hole down (toward the leading edge) in all of the wing-walk area ribs, then drive a rivet in the holes just above them. Do not rivet the inboard rib now, it is better to do them later with a squeezer (after fitting the wing-root fairing).

Move the clecos down one hole and drive another row of rivets above them. Repeat this process until you get near the main spar. At that point you can reach in through the larger lightening holes and buck the rest of the rivets, including those on the main spar.

From there on you can rivet the skin normally by pulling it back from the outboard end for access.

I had the wing-walk ribs in place and Doug Miner helped me use this method. We were able to rivet the whole bottom of one wing, start to finish without any pop rivets, in 3 hours and 20 minutes flat, dw

Military Standards for Rivet Shop Head Dimensions:

Gil Alexander (via the internet e-mail rv-list).

I just read Bill Baines posting, and decided to go to the authoritative source for rivet dimensions. It's the Military Specification created by the US Army for use by all DoD agencies.

MIL-R-47196A RIVETS, BUCK TYPE, PREPARATION AND INSTALLATION OF

What is interesting about this document is that while we aim for a 0.5 D high (D is the basic rivet diameter), and a 1.5 D diam. formed (driven) head, the Military gives exact acceptable limits. If it meets these limits, it's good enough for a fighter, so it should be good enough to be structurally sound on our RVs.

For 3/32 rivets:

0.5 D = 0.047 in — Mil Spec min. height = 0.038 inches

1.5 D = 0.140 in — Mil Spec min. diam. = 0.122 inches

For 1/8 rivets:

0.5 D = 0.063 in — Mil Spec min. height = 0.050 inches

1.5 D = 0.188 in — Mil Spec min. diam. = 0.163 inches

For 3/16 rivets:

0.5 D = 0.094 in — Mil Spec min. height = 0.075 inches

1.5 D = 0.281 in — Mil Spec min. diam. = 0.244 inches

One other interesting item came up that I have not seen quoted anywhere else, there is a MAXIMUM height for the driven head! I am not sure of the reasoning for this, but they are:

3/32 max ht 0.050 inches

1/8 max ht 0.070 inches

3/16 max ht 0.105 inches

So fellow RV builders, aim for 0.5 D/1.5 D driven rivet heads, but don't rework them unless they fall outside of the tolerances quoted above. These tolerances are quite large, and I have a feeling Van knew this when he told Bill [a builder who was concerned about his shop head dimensions] "ignore it".

Another interesting Mil Spec requirement is that wet Zinc Chromate to spec. TT-P-1757 (most aircraft type zinc chromates) must be used when two dissimilar metals are being riveted (coat the rivet, countersink, and the hole and rivet while wet). On an RV this is the case where 4130 steel brackets are being attached to Alum, structures so use that zinc chromate wet when you rivet these parts!!!!

Project Status:

Randall Henderson

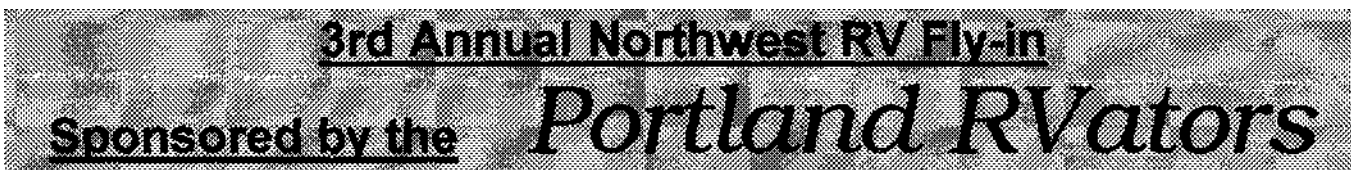
Don Wentz - I now have an airplane in my garage. A **whole** airplane. Ken Scott, Doug Miner, Brent Ohlgren, Mike Wilson, and Rion Bourgeois stopped-by last Saturday and stuck the wings in the fuselage. It is hard to describe how I felt when I climbed-out and saw the whole thing sitting there. Wow!

Everything fit well, which is good as I was very apprehensive about the location of the rear-spar attach points and the size of the spar socket/carry thru. After all, it has been 2 years since I did that work. The fuse bottom skins and everything lined-up well also. One thing I did wrong (until Ken saved me) is I didn't pay attention to which steel center strap went where. This is critical, so mark yours well (ie top aft, top fwd, etc.). They were engraved with this notation when Phlogiston match-drilled them, so it isn't too difficult. By the way, once we got the straps right, I was amazed that I could just about push the bolts thru by hand. My hat is off to Phlogiston for doing an accurate job of match-drilling the spars to the carry thru pieces.

I now have all of the surfaces mounted/adjusted, ailerons, flaps, rudder, elevators. Even all 3 of my electric trims seem to be working! I have the fuel connections, wing intersection fairings, and fwd tank brace done also. I happened to talk to Mike Seager right before I drilled my rear-spar to set the wing incidence. He made a good point about the outboard incidence being more important than the inboard, so I re-did the measurements. My right wing was perfectly straight from inboard to outboard (as measured with a level & block per Van's instructions), but my left wing had about a 1/8" twist. So I re-adjusted them slightly. Thanks Mike. Actually, I don't feel too bad about 1/8 of an inch off, wing tip to wing tip. I expected to find more.

Bottom line, it is very hard to realize your own progress as you are with the parts all through the process and it doesn't seem like change is happening. But boy, when you put some big pieces together like this, EXCITEMENT!! Randall mentioned a similar moment he just had - the first time he installed all the ribs on a spar. It really looks like a wing, especially after all the tedium required to prep those ribs! Thanks again to those who helped with those wings, your assistance and Ken's advice helped a bunch!

How are the rest of you doing on your projects? (Thanks for the updates Randall.)



We had a great discussion about this at the last gathering. Some items are firm-ed-up or decided. Now all we need are some volunteers and we are looking good! Let's all participate and have a great time.

- > My wife Janet has agreed to be in charge of the food. She's working to find a youth group that is willing to do the serving, etc. so that our spouses and ourselves can enjoy the RVs, not the serving tables. Menu will be hamburgers, hotdogs, watermelon, green salad, and cold salad. **All members bring a big bowl of cold salad, like potato, pasta, macaroni** (no green, Janet's doin that).
- > It worked well having 'dining flys' available for shade and covering the food. We can count on Trans-Western again, plus hope we get some others from the group.
- > Need some picnic or other tables. Joe Miller and Bill Kenny have already offered to bring some tables, so along with the picnic tables we can scrounge around the airport and the 3 I can get, we should be set.
- > The same location at Scappoose as last year is it. We will again have some open hangars for folks needing rest out of the sun & wind, and this is close to my hangar where we can stage the tables & stuff.
- > Rion has already lined-up the soda and dispenser!
- > I will arrange for 2 Port-o-lets, last year 1 didn't cut it!
- > I don't think we should bother with contests. The majority agreed to just look at RVs and visit.
- > Anyone that has something to sell is welcome to try, as long as they are an RV builder or owner. Exceptions should be decided-on by the group. I think we will see Van's out there with some stuff, and our own 'Official' Fly-in T-Shirts.
- > **VOLUNTEERS NEEDED:** (See volunteer sheet below)
 - To sell our T-shirts (sit at a table for 1/2 hour)
 - To park and greet arrivals (1/2 hour shifts)
 - To help set-up (show-up by 9 o'clock)
 - To help tear-down (stay til the end)

- > Last year we had to send-out 700 invitations. I was voted down on not sending-out invitations this year. But to try and keep it manageable, Mike Seager recommended we just use the list of current RVator subscribers. Good idea guys.
Randall volunteered to do the flyer. He will send it out to Mike. Mike agreed to duplicate, fold, stamp & send them out! Thanks Mike (his kids may get drafted to help!).
- > **The biggest job was deciding what day to have it!! The date is now set for Saturday. June 11.**

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Don't Want Ads:

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

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

Engine stand - I'm not using mine anymore so if one of you wants to, borrow it! Don Wentz, 503-696-7185.

2 new RMD Wingtip (in the fiberglass tip) landing light kits. Sell for less than new. RV-4 jigs no longer in use -Aileron, flap, rudder, elevator - all available for loan. 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. Wanted

- Avery dimple tool, borrow or buy for the RV3 restoration project. Gary Standley - 591-9040

RV Interiors ~ Variety of fabrics, vinyls, and leathers available, also foam densities, including FAA approved materials. Contact Bill Welch of Interior Motions (seats start at \$325/set) 813-725-2463

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VOLUNTEERS NEEDED:

With the coming of our June Fly-in everyone in our group can have the opportunity to make this time special for both you and our arriving RVators: Nothing feels better than arriving at an airshow with good ground instructions for parking plus a warm, smiling face to greet you after wiggling out of your RV that may have taken you the better part of your life to complete.

Yes, someday it will be you arriving that way. To make this event as warm and friendly as possible, I would like to have two Portland RVators, each 1/2 hour from 10 am until 2 pm, to help with operation ground control and meeting/greeting our guests. Let them know we appreciate their coming and point-out where things are located like fuel, food, restrooms, etc.

In an effort to keep things somewhat organized, Norm Rainey will be scheduling the times for your help. You can call Norm at 206-256-6192 to slot yourself in or complete the enclosed form and send to: Norm Rainey, 12110 S.E. Mc Gillivray, Vancouver, WA 98684

Scappoose RV Fly-in GROUND CONTROL & MEET & GREET Sign-up sheet.

We need 2 people for each 1/2 hour from 10 am to 2 pm for operating the "Ground Control" radio and officially meeting & greeting fly-in arrivals. We also need help selling T-shirts. Pis complete & return to Norm ASAP.

AS A REMINDER: _____ (My scheduled time to help)

_____ cut here _____

My name and the time I would like to help:

Name: _____

Time: _____