



The Newsletter of the Home Wing of Van's Air Force; Builders and Fliers of Van's RV Series Aircraft

JULY MEETING

Our July meeting was held at Kevin Lane and Brian Moentenich's Hangar at the Troutdale airport. We started the meeting early and had a barbecue using the fly-in leftovers. Everything turned out great, and we ended up making a profit on the fly-in! Whew! We thought the rain had washed us out... Kevin and Brian are each working on their RV-6 finishing kits. They're neck and neck, and we should see them flying any time now...

Meeting Notice - Frank Justice, Meeting Coordinator
(503) 590-3991 Frank_K_Justice@ccm.ssd.intel.com

Place: Brent Anderson's Home
1580 S W Dellwood Ct; Portland
Date: August 14th (2ndThursday of the month)
Time: 7:00 PM

This weeks meeting is being held at Brent Andersen's home. Brent is working on his RV-4 finishing kit. To get there, take Hwy 26 to Cedar Hills Blvd. Go South on Cedar Hills to Huntington (if you reach Walker, you've gone too far). Turn Right onto Huntington. Go about 6 blocks to Dellwood and Turn Left. Go to Dellwood Court and turn Right. It's the yellow house at the end of the cul-de-sac.

SUBSCRIPTIONS DUE

Look at the date under your address on the cover. **THAT IS THE DATE YOUR \$10 IS DUE.** Use the form at the back of this newsletter to subscribe or renew. *If you are paid up but the date doesn't reflect this, please give the Editors a call so they can correct it.*

EVENTS CALENDAR

EAA Chapter 105 Monthly Meeting

Thursday, August 21st (third Thursday of every month), 7:00 pm at the EAA 105 Hangar/Clubhouse, Twin Oaks Airpark.

EAA Chapter 105 "Breakfast at the Aileron Cafe"

Saturday, September 6th (first Saturday of every month) at Twin Oaks Airpark, 8:00 am.

=====

FROM THE "BIG MESS"

Jerald and Kathy Hall, Editors

Well, we finally made it to Mecca! Oshkosh 97 has come and gone, and oh what a time we had... We flew commercially to Chicago, then rented a car. We arrived on the Saturday before the Fly-in, so we drove up to Wisconsin Dells and spent two days playing in the sun. We went to a water park, boat trip, thrill show, go carts, and mini golf. This is a wonderful place to take the whole family and is only about a two hour drive from Oshkosh. We didn't stop there, but Six Flags Great America, Gurney Mills outlet mall, and Mall of America are all within a couple of hours of Oshkosh, so for future years, if you want to turn the fly-in into a family vacation, there's plenty for all. We then drove to Oshkosh and spent five days combing through every plane and vendor booth. There was so much to see and do...there just wasn't enough time for everything! Van's met their 25th Anniversary goal by having 287 RV's fly in. That was double the number that showed up last year. We're hoping to have some detailed article's in the next newsletter...get to typing guys!

PAINT CLINIC NOTES

by Steve Kimura and Don Matter EAA

Chapter 1183 Corvallis.

Some of us recently attended a paint clinic held at LCC and organized by the Creswell EAA chapter. Don Hatler, Randy Stockberger, and myself attended the Saturday seminar taught by Dean Bergen, who heads up the automotive and aircraft maintenance programs at LCC. Dean has painted many an automobile and aircraft in his career. He certainly knew his stuff!

In our workshop, 16 of us rookies learned about safety, techniques, paint technology, and recommended products and their use. Then we each got to paint a piece of aluminum, starting with soap and water and ending up with a beautiful clearcoat finish! I think we all gained a tremendous amount of confidence for properly protecting and painting our own aircraft.

So here are the gory details:

We first covered safety information: the HMIS (Haz. Mat'l ID System) and the MSDS (Mat'l Safety Data Sheet), Both are available for all chemicals and will tell you all the hazards associated with any chemical. There's plenty enough hazards with today's modern paints, but don't worry, read on...

Basically, anything with a catalyst has isocyanates in it. With adequate ventilation and a respirator such as the 3M Easi-Care disposable, the urethanes can be used safely. The masks like the 3M unit with activated charcoal are only good for 40 hours after you open the bag that it ships in, even if you store it sealed in the bag. Small amounts of spraying with something like Veriprime would be OK with a mask that's been open or in use for a while, as long as there is ventilation. For a large job such as finish painting a plane or car, Dean recommends a painting suit, spray sock (for your head), goggles, gloves, a good respirator that is less than 40 hours old, and ventilation. If you can afford it, forced fresh air respirator systems are the best, but they range from \$400 to over \$1,500 for a setup.

History of paints:

Lacquer: Solvent-only drying process was adopted by the automotive industry because of its quick drying time.

Enamel: Used solvent and an oxidation process in the curing of the paint.

Acrylic Enamel: Uses oxidation and chemical reaction. Cheaper than urethane, but still good durability.

Urethane: State-of-the-art in terms of durability and quality of finish (gloss), but slow to dry. Urethanes can be used in either single stage (primer and top coat), or two-stage (primer, base color coat, and clear top coat). In a two-stage system, the base coat is fast drying and easy to apply, possibly an acrylic enamel, and the clear coat is a urethane. Urethanes will dry without hardener or at low temperatures, but they will not have the correct "crosslink", which is required for the paint to have the durability it was designed for. Urethanes are also the most toxic paint, incorporating isocyanates, which are very nasty and precautions must be taken.

Primers (here's where all the RV builders had their eyes almost pop out): The general rule is that any self-etching primer will not be a moisture barrier, and require a topcoat to offer full protection. Epoxy primers do provide a moisture barrier, but the hardener contains isocyanates, which require more safety precautions. By comparison, self-etching primers such as Veriprime are relatively safe, although the chromium content is hazardous.

Surface prep:

1. Clean, clean, clean. Start with soap and water to remove water soluble stuff.
2. Use a wax and grease remover for other contaminants. This solvent is formulated to dry slowly and float contaminants to the surface, where you can wipe them off. Water should now sheet off, not bead up.
3. Do your sanding and filling.
4. Clean again.
5. Clean with a "final wipe" product just before painting. This will remove things like fingerprints, and is formulated to dry fast so it does not soak into fiberglass or body filler and cause problems with adhesion of the paint. Final wipe will also take moisture with it when it evaporates.
6. Tack rag lightly (note; tack rags should be opened and aired out for a day before using).
7. Paint.

Recommended processes:

Top coated finish: Alumiprep, Alodine (optional), epoxy primer, top coat.

Polished Aluminum: Metal conditioner, clear alodine, enamel clear.

On our test pieces of aluminum, we did the soap and water, then wax & grease remover, then alumiprep

PAINT CLINIC NOTES.. .cont'd

(etching), then epoxy primer, a tinted sealer coat, base color coats, then clear coats.

Products:

Wax & Grease removers and Final Wipes: There are many products on the market, some of which are water borne products, some wax & grease removers that can also be used for final wipe.

Primer: Dean prefers Diamont DE15/16 or Glasurit EP. The Glasurit primer sample he passed around showed that the proper application is so thin you can easily read through it. In contrast, the Veriprime "correct" sample was very thick and opaque (i.e. heavy!). The Glasurit product is zinc rich, does not require a top coat, and has a very short induction (between mix and spray) time, and a short recoat time. All epoxy primers are catalyzed and require 60 degrees F for complete crosslink. EP will also work very well on steel.

Paints: Diamont or Glasurit base, followed by Diamont DC88 clear or 929-54 clear.

Other notes:

* Don't use fisheye remover. It will contaminate all your equipment and your shop, and cannot be removed. It reduces fisheyes by flooding the paint with pure silicon, but in the process it will weaken the paint and make it harder to apply successfully.

* To get rid of pinholes in fiberglass, use a polyester spray filler (such as Glasurit 1006-23), and a 2-part primer/surfacer over that.

* Always cut quoted pot life in half for usable painting time.

* Good body fillers: Golden extra or Feather Fill.

* Source for all this stuff: Industrial finishes in Eugene. (I've gone there and it's a great store with good prices -sk)

* Spray guns: non-HVLP is better for clear coat. HVLP is good for metallic base coat. Favorite: DeVilbiss JGA-503 (\$170) with a #43 air cap. A GEO HVLP FX82 is also good. (I have heard someone say that the Sinks model 7 is "the best" -sk)

* Pearl paint colors are not affected by gun pressure or application technique like metallics are.

* Clear-coat finishes can be rubbed out fairly easily with 1000 grit wet sandpaper followed by 1500 grit polishing compound and a buffer.

'Whatever painting products you use, you should stay with the same brand for the whole process. Some may be incompatible with others.

*An excellent reference is "How to Custom Paint, Techniques for the 90's", by David H. Jacobs, Jr., a Motorbooks International publication.

THE DUCK EATS CROW...

by Don Wentz

Let's go way back 3 years to when I was first flying my RV. I had learned to fly at a school that didn't use headsets, and since I had flown very little since getting my license, I had very limited exposure to headsets. I had worn David Clarks a few times, but found them clunky, heavy, uncomfortable, and too expensive to actually buy some for my RV-6.

I had to have something though, so I bought some of those \$69 specials out of a magazine. I actually found these to be very comfortable and light, and with the addition of Oregon Aero 'Mic Muffs', thought they worked very well. Mic Muffs are very good at keeping background ambient noise out of the mic, so when passengers would use their own headsets (usually DCs without mic covers) I would have trouble with the squelch - too low for them, too high for me. This caused me to discourage the use of other headsets and 'force' passengers to use my spare set. They would always tell me that they preferred their own, but I always figured they were just used to them, and they weren't all that different.

Come the July YE event at Scappoose, and the mic is not working in my spare headset. I borrow some DCs from Robert Donatz, which I wear since my lighter headsets seem to fit the kids better. Gee, these seem quieter and the speakers are clearer... For the trip up to Arlington later that day, Rion loaned me his, with the 'Soft top' on them. Again, I found them to be much clearer sounding and significantly better at keeping the high background noise out of my ears! They were still WAY uncomfortable when compared to my lightweight

THE DUCK EATS CROW...cont'd

cheapies, and I found myself squirming in them after only a half hour flight - heavy and tight. Now we're at Arlington and I decide I should price new headsets, since my initial attempt to fix mine failed. I look at the DCs - same clunky old style (sorry all you DC stalwarts, that's how they feel to me, they certainly may work fine for you), and ooh, those prices! I look at the Flightcom and other 'lookalikes at lower prices'. Same clunky look/feel.

Then Randall insists that I look at the Peltor sets, claiming lightness with superior noise/sound qualities. I hear from some users that the mic boom is a weak point, but other than that, they are great. So back to the booths we go. Pacific Coast Avionics has the NEW Peltor 7006 (vs the 7004) and as it turns-out, this is new and improved with a much slicker mic boom, dual volume knobs (stereo), and 4 db better noise suppression. I try them on, and they ARE light and pretty comfortable. They are down to the display set, which they want \$220 for. Rion quickly gets them to \$205, and I go for it.

On the ride home I have some trouble adjusting to the altogether different sound of my airplane. What used to be the 'roar' of the engine/prop is now more vibration and everything outside of the headset sounds different. I find that I need to get a Mic Muff on it as a lot of background is let-in by the foam only mic cover, but the fit and everything will be great. Just to see if they are that much quieter than my 'favorite' headset, I ask my 10-year-old son Douglas to trade me headsets. Wow, the difference in noise levels is significant. Douglas immediately states that he will keep the Peltors for the rest of the flight!

So, I guess I will have to admit that there is a big difference between 'cheap' and 'real' headsets (besides the price :-). Now, how do Janet and I decide who gets the Peltors on the way to Oshkosh, where I buy the second set!!!

As it turned-out, the mic went bad in the other set of cheapies on our 3rd leg somewhere over Nebraska, so I got the Peltors all the way to Osh! We got a second set at Pacific Coast Avionics for \$199, so are both happy. BTW, on the first leg out of Osh, Janet didn't have the Mic Muff on hers, and when I would cover her mike with my hand and talk into mine, it was VERY obvious where all the noise was coming from. We put the muff from the other old headset on and things got much quieter when the mikes were keyed. I recommend you stop by Oregon Aero at Scappoose Airport and get yourselves some.

BOLTING ON RV-6 WINGS

by Scott Gesele N506RV (final painting, final assembly)

Last Sunday I mated my wings to fuse for the final time. I had heard that the close tolerance bolts are a pain in the &##. The following procedure worked VERY well for me:

1) Install the wings and temporarily pin the center splice plate with hardware store 3/8 bolts, a bolt in every other hole. Grind one bolt to a point and use it as a drift pin. The hardware store 3/8 bolts are a little smaller than the close tolerance bolts Van's supplies. Make sure you don't have any paint in the holes in the splice plate.

2) Leave the temp splice plate bolts in for now and install the AN3 & AN4 bolts throughout the rest of the center section. I started at the top, next to a splice plate and worked outboard, then down at the fuse side, then inboard. For this, drift pins (AN 3 & AN 4 bolts ground to a point) helps. Some bolts just don't want to go in. Tap a drift pin in next to the offending hole, the offending bolt should slide right in. On the bolts, BoeLube was applied to the threads and a silicon spray lubricant applied to the shank. Leave all nuts off for now. Some bolts will require a hammer to tap them in. Just don't go crazy with it. The more bolts you install, the easier it gets.

3) Now for those close tolerance bolts. Get yourself a small block of dry ice and freeze those bolts prior to installing. One at a time, remove the temporary hardware store bolts and spray a shot of silicon lubricant in each hole. Install a frozen close tolerance bolt, work very fast as they warm up quite rapidly. I did have to use a hammer to drive the bolts in, but they did go in without much trouble. I installed the four outboard 1/4" close bolts first. That set the alignment for the remaining 3/8 inboard bolts.

4) After all bolts are in, install the nuts, using proper torque. Before I get flamed with dry torque vs. wet torque, if your concerned about it, clean all exposed threads first. Remember the bolts were installed in lubricated holes.

5) Van's shorts you on the quantity of 3/8" washers. I found that I typically needed one washer under the head of the bolt and two under each nut. I'm writing this as my washers are being sent second day from Wicks.

BOLTING ON RV-6 WINGS. ..cont'd

6) I envy those building a -6. The nuts are almost impossible to install on a few of the bolts in the main gear mounts on a -6A. With serious contortions and patience, all can be installed.

7) All my bolt heads face aft. The bolt heads in the main gear mounts must face aft, so I carried this convention throughout.

8) The dry ice helped a lot. Just work fast to get the bolts driven prior to them heating up. I didn't need to hold the heads of the close tolerance bolts when torquing the nuts. The fit was that tight! !!!

9) Take your time. Start to finish, it took me about 8 hours to mount the wings.

10) The RV looks real good sitting in the hanger, painted, with the wings and tail on :))

Hope this helps.

SEMINAR -don't miss this one!!

by Brent Anderson

The Aeroelectric Connection presents a Weekend in Portland with Bob Nuckolls, renowned authority on aviation electrical systems.

When: Saturday and Sunday, Sept 28 -29, 1 997.

Where: Best Western Hallmark Inn on Cornell Road across from the Hillsboro Airport

Who should attend: Aircraft builders, Certified Aircraft Owners, FBO electronics technicians, and anyone interested in vehicular DC Power systems including autos and boats.

Door Prizes will include: Magellan GPS 2000 receiver and more.

Cost: \$75.00 with Satisfaction Guaranteed. Bob says, "All products and services from the Aeroelectric Connection are offered with an assurance of satisfaction. If you don't believe the seminar was worth \$75, then let

me know what you believe it was worth and I'll write you a check for the difference before you leave".

Register now: space is limited. Forward your reservation requests by sending a check to (or providing your visa or mastercard info to:

Aeroelectric Connection
6936 Bainbridge Road
Wichita, Ks 67226-1 008
Phone: 3166858617
E-mail: nuckolls@aeroelectric.com

Topics presented are shown below, but the primary mission is to answer your questions:

Saturday Agenda 8:30 AM-5:00 PM

Morning Session

- Failure Mode Effects Analysis- Confidence by Design
- Parts Selection: What's all this "aircraft quality" stuff anyway?
- DC Power Fundamentals- Understanding "the Force"
- Batteries
- Engine Driven Power Sources

Afternoon Session

- Grounding
- Over Voltage Protection
- Electrical System Instrumentation
- Wire Selection and Installation
- Wire Termination and Connectors
- Circuit Protection
- Switches, Relays and Contactors

Sunday Agenda 8:30AM- 12 Noon

- Lighting and Lighting Controls
- Antennae and Feedlines
- Engine Instrumentation
- Tools, wiring techniques, parts selection philosophy
- Door prize drawing

About the Presenter- Bob is a pilot, engineer, teacher, and author on certified and experimental aviation electrical systems with over 35 years of experience in the field. He has published his own definitive text on the subject, and written numerous articles appearing in widely read aviation publications.

=====

HANGAR HUMOR

by "The Tidbits Paper" Steele Media, Inc.

An airplane, piloted by a Canadian named Makepeace, flying over German territory on January 6, 1918, suddenly was attacked by German fighters. Captain J. H. Hedley was also in the plane with Makepeace. They were flying at about 15,000 feet. Makepeace took his plane into a nearly vertical dive to try to evade the enemy. With the suddenness of the maneuver, Captain Hedley was caught off guard and pulled out of his seat into the atmosphere. Makepeace believed his comrade to be lost forever and continued his quick descent for several hundred feet before leveling off the plane. Amazingly enough, the plane's steep dive created a powerful suction in which Captain Hedley was caught. He ended up coming down behind the plane to land on the plane's tail. He grabbed on and eventually was able to climb back into the aircraft and his seat. Makepeace was able to land the plane safely behind Allied lines, extremely happy to see his friend again.

WANTED Ads are FREE.

Desperately seeking workspace for RV project. Please call Don Wert at 503-295-6455. 8/97

=====

THE TOOL EXCHANGE

7776 club Toolmeister is Brent Ohlgren, 288-8197. Let him know if you have jigs, tools, shop space, etc. to loan, exchange, or otherwise provide - at NO COST - or if you are looking for something specific to borrow. And whether your item is listed here or not, go ahead and bring it to the meeting. /

Home Wing Tools available: HVLP Paint Sprayer, Hole template for instrument panel, Wire crimping tool and die, Brake lining rivet set tool, and Tune-up and Annual Equipment (Compression check, Mag timing light, Timing dial, Mag adjustment tool, Plug gapper, high voltage cable tester, and Plug vibrator cleaner). Brent Ohlgren 288-8197.

Packaging for a Lycoming Engine - cast styrofoam case and shipping stand. Ken Scott 503-648-1 594.

Cutting wheel mandrel, custom made by Stan VanGrunsven to use for cutting your canopy. Knob on the outside makes it much easier to hold steady and not screw up that expensive piece of Plexiglas. **WHO HAS THIS?** Call Brent Ohlgren 288-8197.

Joggle tool. Rion Bourgeois 646-8763.

PropTach (optical electronic tach, use to calibrate your tachometer). Butch Walters 360-636-2483.

Engine Stand. Don Wentz 503-696-7185.

Engine Hoist. Norm Rainey 360-256-6192.

Precision chemical scale, for measuring pro-seal. Brent Anderson 646-6380.

Surveyor's transit level - handy way to level wing and fuselage jigs. Bill Kenny 590-801 1 .

Back Riveting Contraption - large, counterweighted bucking bar and suspension system, and offset back rivet sets. (See "Back Riveting Wing Skins, December 1994 issue). Bob Neuner 771-6361 .

Lead crucible with electric heating element for melting lead for the elevator counterweights. Doug Stenger 324-6993.

Table saw taper jig, for tapering wing spar flange strips. Cart Weston 649-8830.

FOR SALE/ RENT Ads are FREE.

FYI. Prop inc is having a 30% off summer sale on all RV series propellers. Sale price only \$675. For more info call 541-265-3032. Whirl Wind Propellers Corp. 8/97

New MA-4-5 carburetor, Model A1 0-3878, removed from new Lye O-360, \$600. New engine driven fuel pump, Model LW 15472, 4-6 psi, \$80. Dan Benua 503-297-4045. 8/97

I was just in Costco Beaverton the other day and saw that they were selling a Delta bench top bandsaw for \$110. This looks like a really good deal. This is exactly the same saw I've used throughout most of my project (after I returned the %\$#@! Sears one). It's a 10" throat, single speed. The regular price in HW stores is around \$179. Since it's single speed, it's not much good for steel, but works fine for aluminum. Randall Henderson. 8/97

RV-4 tail and wings. I have made the decision to sell my RV-4 project to start the RV-8. The tail is finished except for the fiberglass. I assembled the spar from the kit. James Baker 541-884-5900 bakerv4@kfalls.net 8/97

Air brush kits. Handy and cheap. \$9 each. Stan Van Grunsven 360-254-3492. 5/97

O-360-B1A 180 hp, overhauled by A&P-IA and Premier in Troutdale. Conical mounts, constant speed capable, new fuel pump, new Slick mags (AD), new oil pump gears (AD). Engine looks great. 0-SMOH. Includes starter, alternator, MA4-5 carburetor. Everything signed off and yellow tagged. \$15,250. Also have IO-360 200 hp engine 0-SMOH. Same quality workmanship, out of Mooney. Call Jim at (503) 637-6621 or email at RV6Jim@juno.com. 5/97

RV-6 kit. \$8,000 Complete. Also an RV-6A Conversion kit that has been started - other extra's included. Harmon Lange 503-397-1478. 3/97

ATS Hand Rivet Squeezer, 2" deep swivel head yoke. Model 501 1-1. \$75. Bill 503-829-2856 after 6pm. 3/97

Duckworks Landing Lights. Retro-fittable, light, easy installation. Kits start at \$69 (discount for PtlD RVators). Don Wentz 503-696-71 85.

"Home Wing" Newsletter Subscription/Renewal

Please fill out and mail to **Jerald & Kathy Hall, 32034 J.P. West Rd., Scappoose, OR 97056-2600**, along with \$10 for renewals or new subscriptions. Please make checks payable to Kathy Hall. If you are renewing, you only need to give your name, date, payment method, and any other information that has changed. Use this form for address changes too.

Name _____ Spouse's Name _____

Address _____ Home Phone _____

City, State, Zip _____ Work Phone _____

Pmt (\$10/yr) Check d Cash Q Info change only a E-mail Address.

Project (RV-3, 4, 6, 6A, 8) _____ Comments? __

Progress: _____

Tail In Progress _ Finished _ _____

Wings In Progress _ Finished _ _____

Fuselage In Progress _ Finished _ _____