



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

MAY MEETING

The May meeting was held at Doug Stenger's home in Manning. Doug has a HUGE shop and provided us with a very interesting meeting. He's currently working on a Harmon Rocket. Several of his building techniques were discussed. He has a homemade joggle tool which he uses on all the skin joints to give them a flush surface. To make a wider wing skin lip, he reverses the inside fuel tank rib. And he chrome plated an exhaust to reduce the heat getting into the engine compartment. But we all wondered why there were 5 wings in his shop...who has to fly the one-winged plane!?! If you're interested, Doug hires himself out at \$15 per hour to help people work on their planes. Those who've hired him rave at what a great deal it is having such expert hands around.

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

There will not be a June meeting due to the Scappoose fly-in. We'll see you all there! See Don's article on page 2 for more information.

EVENTS CALENDAR

EAA Chapter 105 Monthly Meeting

Thursday, June 19th (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, July 5th (first Saturday of every month) at Twin Oaks Airpark, 8:00 am.

Home Wing Van's Air Force 6th Annual Fly-in

Saturday, June 21st at the Scappoose Airport

Northwest EAA Fly-in in Arlington, WA

July 9th - 13th in Arlington, WA. For information, call 360-435-5857, or look up www.nweaa.org/nweaa/.

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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.*

FROM THE "BIG MESS" *Jerald and Kathy Hall, Editors*

Well, here we are again...the summer fly-in season! This month is our fly-in...hope to see all of you there! We should have good weather this year, since it's not on the Rose Parade weekend (although it got sunshine, so I hope we don't get it's rain).

Jerald is working on the fuselage skins...we spent the morning dimpling and priming them. As I'm typing this, Katie is in the garage with dad...laughing at the funny sound the metal makes...kids are so cool!

We purchased the HVLP paint sprayer. Stan Van Grunsvan is using it now, so we'll get details on how well it works soon.

SIXTH ANNUAL HOME WING RV FLY-IN

by Don Wentz

As we discussed at the last meeting, we will need volunteers for several activities as usual, I will try to outline them here.

Auto Parking - need 2 volunteers/hour - This could be 1/2 hour shirts.

Aircraft Parking - need 2 volunteers/1/2 hour - I think we will need 2 persons directing aircraft to parking at all times from 10 to 12. This is a fun task, and is to protect not only the people, but also to keep visitors from driving their RVs into problem areas, from blasting grass and dirt all over, etc. Be sure to have them shut down just off the taxi way and push the planes into a parking spot. On leaving, have them pull them to a safe spot before start-up, again for safety and to keep from blowing crap all over.

Aircraft Greeting - need 2 volunteers/hour - These folks will help push planes into parking and give the arriving pilots a 'hello' and quick description en where to go for refreshments.

Young Eagles - Since our Chapter is not having anything organized for the official YE day on the 14th, we would like to do it on this day, since we will have lots of aircraft available. So look for YE opportunities. Joel Haugen will have a loading area set-up somewhere, so give a YE flight or 2 while you're at it.

Food - In past years my awesome wife Janet has coordinated this with help from others. This year she will not be able to do any of the legwork due to her knee operation. She will be able to get the Church kids to help again, and she will use her records from the last years to work-out the menu with Kathy Hall. Brent Ohlgren will do the shopping at Costco based-on their lists.

Mike Seager is working on the address list for invites, the RVator contained the announcement as well. Rion has gotten the Pop machine from PepsiCo again.

As in years past I will work to coordinate the efforts at the airport, including the usual picnic table roundup.

NOTE - Since we have had marginal success with Volunteer lists' in the past, I am asking for each of you to

step up and spend a 1/2 hour shift doing one of the tasks outlined above. There are over 100 members in this group, and there is NO reason that a few of us should always be doing everything. When you ha' finished your 1/2 hour, grab the nearest member you see and ask them to take over. If you are asked, DO IT. 1/2 hour is not that much time and will pass very quickly.

A few of us will be there at Sam to complete set-up. We will have coffee and donuts, so come early and lend a hand so you won't miss any arrivals (and, if you've never had an RV ride yet, one of you can have my right seat when I go for a ride - after all, I do have to 'fly in', I'm not just going to push it over from my hangar!).

The Duck

FLY-IN AT WALT CANNON'S

by Walt Cannon, RV-6 N36WC, Wcannon313@aol.com

Hi Folks! Just wanted to give you a quick rundown for the newsletter on how the fly-in turned out.

We couldn't have possibly been blessed with better weather, CAVU, warm, and relatively wind free. People started arriving around 10:30 just as I was getting the grass mowed in the parking area. We enjoyed grading the arrivals as people dealt with the relatively narrow gravel strip and the approaches from both the East and West ends. They ranged from squeakers right on the numbers to floaters partially down the runway, however all proved that RVs are compatible with small strips as no one had any problems. More and more planes arrived until we had a maximum at one time of 16 RV-4s and RV-6s. The Blackjack squadron arrived with a 5 ship formation and made some very nice fly-by's and we were treated to some smooth (and legal!!!) 2 ship formation aerobatics. The count of airplanes finally reached 19 split about equally between those coming from the Seattle and the Portland area.

People that brought lunch had it while sitting in the grass and telling lies about airplanes while others started to depart for food and the flight home about 2:00.

All in all a very enjoyable day and one that I plan to continue as a yearly tradition, maybe even an over-nighter. However, one thing is for sure, we will never have that weather again!!!

THE FINAL STAGES*by Kevin Lane, RV-6A N3773*

Memorial Day weekend was an RV milepost marker, not one, but two RV's out of the garage and into a hangar. Brian and I are very close in our building schedules and we thought it best to borrow a trailer just once. Bill Kinney has quite the trailer and we soon realized it probably weighed as much as Brian's minivan. Bill got us hooked up with lights using the continuity tester/blow yet another fuse method, so Brian could at least turn on his headlights to simulate brake lights from behind. Saturday morning I got out the Sawzall and hammer and removed the rear wall of my garage. Jim Franich and Chris Lund (who was moving that morning too-sorry Chris I'm, ahh, busy, wish I could help!) stopped by and helped hand-carry my fuse with empennage out into the alley and onto the trailer. I decided to risk the over-legal width, and while I was at it, the same with the trailer lights. My 3/4 ton truck could easily pull the load, but yet again another plug/socket style. So we paraded up Sandy Blvd at 20 mph through Hollywood clear out to Trout-dale. Then a second trip for the wings and over to Brian's house for his fuselage. We were lucky all day just missing the showers, which at times we could see up the road just ahead of us. The day went well, no dents, no injuries, I have 17.2 miles on the airframe now. It was fun to move on to a next major step. I enjoyed having the volunteer help and knowing they were sharing that pride of getting an RV that little bit closer to being airborne. I guess that's how barn raisers felt after helping their neighbor.

Working at the airport is simply very cool. Brian and I are the only homebuilders out there that we know of with the exception of a professional builder. What a difference from working in your little space at home. Open the doors wide, watch aircraft take off, gawk at other men's toys (pressurized Baron AND a Decathlon-and the car under wraps across from us). The turbo Viking owner next to us said, "wow, you're going to have brand new airplanes when you're done". But the best part is being able to walk over and look at another RV, ask the owner how he did that, why he did that, how would he do it next time, and then borrow his tools to do yours. Yes, the pleasure in building an RV is in the fact that you can't do it all yourself. Well, you can, but why?

Yes, I know it's a dopey analogy, but within a week my RV has shed its cocoon and sprouted wings. The poor thing has no legs though, just crutches! Stop and visit, TTD D-10, (new blue hangars, NE corner airport).

HANGAR HUMOR*found on the internet*

Actual maintenance complaints submitted by US Air Force pilots and the replies from the maintenance crews.

Problem: "Left inside main tire almost needs replacement."

Solution: "Almost replaced left inside main tire."

Problem: "Test flight OK, except autoland very rough." Solution: "Autoland not installed on this aircraft."

Problem #1: "#2 Propeller seeping prop fluid."

Solution #1: "#2 Propeller seepage normal."

Problem #2: "#1, #3, and #4 propellers lack normal seepage.."

Problem: "The autopilot doesn't."

Signed off: "IT DOES NOW."

Problem: "Something loose in cockpit."

Solution: "Something tightened in cockpit."

Problem: "Evidence of hydraulic leak on right main landing gear."

Solution: "Evidence removed."

Problem: "Number three engine missing."

Solution: "Engine found on right wing after brief search."

Problem: "DME volume unbelievably loud."

Solution: "Volume set to more believable level."

Problem: Dead bugs on windshield.

Solution: Live bugs on order.

Problem: Autopilot in altitude hold mode produces a 200 fpm descent.

Solution: Cannot reproduce problem on ground.

Problem: IFF inoperative.

Solution: IFF inoperative in OFF mode.

Problem: Friction locks cause throttle levers to stick.

Solution: That's what they're there for.

THE ANNUAL*by Don Wentz*

Well let's see, what did I do to it this annual? One thing I DIDN'T do - the gear legs!! I guess the third time was the charm, as, despite my best efforts (which Jerald can attest to), they haven't cracked again. One thing I DID do I have been wanting to do almost since I finished the plane.

I use the Airflow Performance Fuel Injection system, which has performed very well for the 400 hours I have flown it. They recommended that I install it using a direct, un-screened, un-filtered RAM air setup, which I did, although I did have an alternate air with a screen over it that I used on the ground. However, I never really felt comfortable running it that way. So this year I finally changed the intake system.

I removed the tubing that ran from the air scoop back to the injector. In it's place, I built a cone-shaped housing, inside of which is a cone shaped K&N air filter. The K&N filters are known in high-performance cars and motorcycles for their excellent filtering characteristics and reduced airflow restriction. They are also made from a cotton that can be washed, oiled, and re-used, so the cost is very low. The cone housing then interfaces to the fiberglass intake scoop in the cowl.

How does it work? Well, it seems to work fine. There may be a slight RPM gain during takeoff, but it seems to be the same as before in cruise and full power operation. So, now I can relax and breath easy, knowing that I won't ingest a bird or any dirt in my engine. One last feature is a small door on the side of the cone, that closes under RAM air pressure, but can open in the rare event the intake scoop was to get blocked by ice or whatever.

The full annual was very uneventful, with complete inspection of the airframe, using a 4 page checklist that I have developed over the last 2 years - let me know if you want a copy as a starting point, it has made my annual not only easier, but much more thorough since I can't forget to do things.

I did replace the tires, after 380 hours on the original set, which I hear is a good long run. Yes, they were very smooth, with a few cords showing even, but including a single rotation at last year's annual, I got good, even wear.

I also replaced 4 of the spark plugs with new ones. I cleaned and gapped and sorted the 8 used ones for the best 4 among them, but a problem I had been having since late last summer was still there. The engine would run very rough when first started. The roughness would never go away completely, even warm. I couldn't find any real evidence of a problem with the cylinder, I pulled the valve cover and looked at the valves and springs, looking for sticking or looseness, anything. Never did I find anything wrong, other than sooty deposits on the sparkplugs. Even using the EGTs I could only see 15-20 degrees less on that cylinder versus the hottest, which I attributed to normal variance. I only have a single CHT, so wasn't able to get any data there. But I am sure I swapped the spark plugs, right? Well, I was sure I had, but I swapped the plug for the 5th best of the used ones, and now my engine is back to it's smooth, sweet running self. Even though I wasted a fair amount of time trying to figure this out, I don't really mind as I learned a lot more about these engines in general, and the scrutiny gives me a little better confidence in mine.

I also found that my mags were approximately 3 degrees off from each other, timing-wise. I had always had one mag that didn't drop the same as the other during mag check. Now they both drop the same.

I should mention that I used the Home Wing's new tune-up equipment and found most of it to be very helpful. I don't think much of the spark plug vibrator cleaner though. I think it is malfunctioning. If the next user feels it is as well, we should try to send it in for a swap or refund. It was nice to have access to the tools however, so I hope some more of those in the group use them too.

Another long term issue I have had is cooling. I know that many RV-6 owners complain that they cool 'too well', but I can push the oil temp past 220 easily on a hot climb. It's usually manageable, but could be better. So, I went on a baffle sealing mission. I tried hard to seal some of the poor fitting baffles at the front of the engine, and put some small blast-tubes to the electric and engine-driven fuel pumps. I also built a good sized scoop to force more air through the front mounted oil cooler. So far this seems to have made a small improvement.

Why, since most RV-6s cool well, doesn't mine? Well, due to the configuration of my 4-pipe exhaust and how it fits around my injection unit, I had a problem fitting the width of the pipes out the bottom outlet area. I got the width by spreading the glass scoop outlet wide enough and making the sides of it slope, rather than being straight-up like the std configuration. This reduced the height of the opening to 2.5 inches, which is definitely a thinner opening than std. The width is about 15 inches.

Issue 97.06

This made the total square inches of the opening less than design intent, and with those large openings at the front, the cowl was gulping-in more air than it could exhaust, reducing the airflow from the top, down through the cooling fins in the cylinders. Remember, without a significant pressure difference between the intake and exhaust sides of the engine/cowl, there won't be enough cooling air through the fins.

I have long suspected that this smaller outlet was the cause of my elevated temperatures, and after a flight without the bottom cowl screws installed, which allowed the bottom rear of the cowl to sag and add over an inch of additional air outlet height, I have proven it. The engine ran much cooler on that flight.

What to do about it? For now, nothing. It is a little better than before with the efforts I have made, and I can do fine with a little care when it's hot. Next annual? That may be a good opportunity to try one of those new tightly fitting baffles that reduce the amount of cooling air needed. That, matched with smaller cowl intakes, may make my outlet just the right size...

One last item on the 'would like to do list'. Most RV-6/6a builders put insulation and carpet on the floorpan, reducing the clearance of the floor to the bottom of the rudder pedals by about an inch. I have always felt that my rudder bars were too low making it difficult to use the rudders without inadvertent pressure on the brakes. This doesn't help any part of ground ops. Solution is to raise the rudder cross bar mount points by 1-2 inches. I plan to do this and definitely recommend it to anyone building a -6/6a.

Finally, at someone's urging (can't remember who) I installed my rudder to tailwheel steering chains with an extra link of slack, as they claimed this made steering easier. My -6 has seemed to have very good ground manners, but I thought it would be interesting to take-out

June 1997

a link and see what a tighter set of steering cables would do (besides flop around a little less in the air). Well, I can tell you that I am putting the extra link right back in. I find that ground steering, while tighter and you feel pressure immediately when you push the pedals, is much more difficult, the plane is more 'darty' on the ground, starting a turn is more difficult, and smoothly finishing a turn is WAY more difficult. I also now have to use the brakes a lot more.

My theories? I think that the leverage of the springs/chains on the tailwheel steering horns is very limited, thereby making steering by tailwheel alone not very effective. I believe that by having the springs looser, the rudder itself is far more into play during taxi, leaving the tailwheel to help with turning, after the rudder is already applying pressure in the right direction. Am I all wet? Could be, but I don't really care since I have been able to prove through actual use that there is a significant difference between loose and snug rudder/tailwheel chains and ease of ground handling. I pride myself on how little I need to use the brakes to maneuver my taildragger on the ground, which might help explain my long tire life, who knows. So, heavy recommendation, leave those tailwheel springs loose!

Canopy seals. On the tip-up, you need to use a material that can compress at least 1/2 inch, and still be able to 'rebound' quickly. The sides of the canopy tend to rise more than a quarter inch during flight and you get noisy airleaks if the foam stays compressed. I bet the rear of the slider and RV-4 canopies experience a similar phenomenon as well.

There, those are some of the things I have been looking at with my plane. I hope my experiences can be of some benefit to those of you who are building/flying RVs as well.

The Duck N790DW, 400hrs.

FIRST FLIGHTS

John "Jack" Anderson - RV-6A

Jack and Florine are members from Boulder, Nevada. Jack had his first flight on Monday, April 28th. Florine reports, is so pleased with his plane." Congratulations! We'd love to have more details. He

WANTED Ads are FREE.

Carburetor suitable for 150-160 HP Lye 0-320. Conical Engine mount for RV-4. Russ. 503-606-0342.2/97

Wood prop for RV-6A w/180 hp Lycoming. Prefer climb prop, but will consider cruise prop. Russ. 503-606-0342. 2/97 .

Volunteers: We are rebuilding the original RV-3 for donation to the EAA museum this summer. It is now in the Chapter 105 hangar and work parties meet every Thursday night. Contact Don Wentz (696-7185) or Gary 10/96

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THE TOOL EXCHANGE

The 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 503-648-1594.

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. Mike Seager currently has one of them, I have the other, I also have some graduated diameter screw dimple dies that Stan made - useful for dimpling the tight spaces in the wing spar aft of the fuel tanks. Randall Henderson 503-297-5045.

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.

Aileron bracket locator tool. Adjustable aileron push-pull tube (for measuring the exact length to cut the real ones). Randall Henderson 503-297-5045.

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 590-8011.

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.

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 extras 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 RV-6 with

Lycoming O-320, 160 hp. \$49,000. Farn Reed 541-471-6289. 2/97

Lycoming O-320 A2B. 150 hp. 1400 hrs on first run. Salvaged from takeoff accident in BD-4. Prop struck mud at low power.. .crank runout dials okay. Rear carb model not suitable for RV-6A. \$6500. Russ 503-606-0342.2/97

Two David Clark H10-30 headsets with soft covers. Used approximately 4 hours. \$130 each. Craig Gee. 360-887-0823. 2/97

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

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"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 _____ ,

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

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

Progress: _____

Tail In Progress Finished _____

Wings In Progress Finished _____

Fuselage In Progress Finished _____

Finish In Progress Finished (i.e. flying) _____