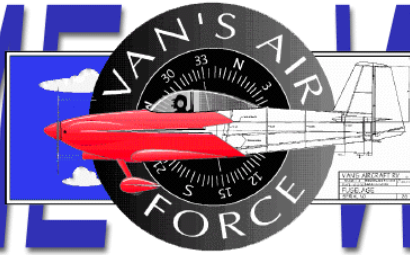


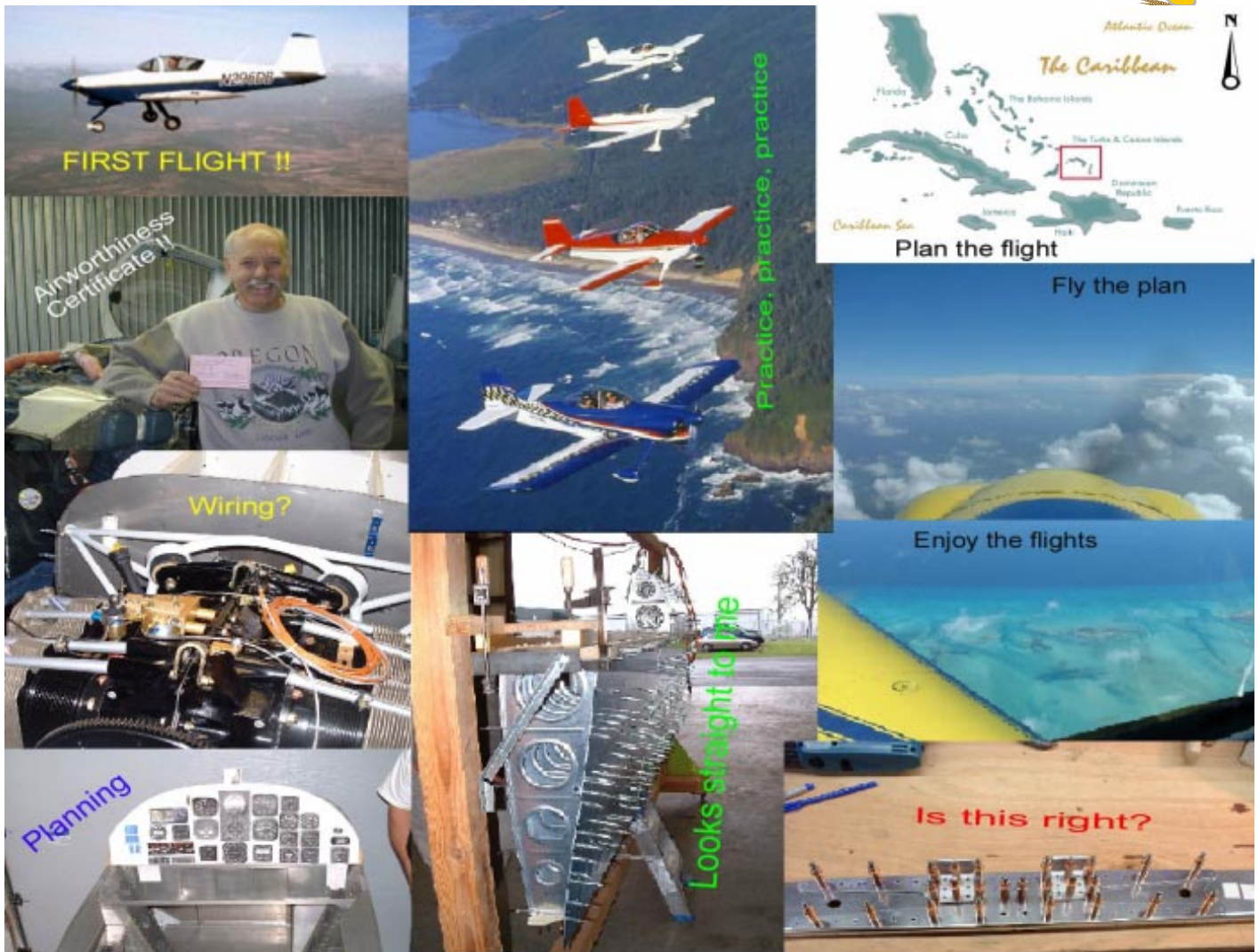
# HOME WING



[www.vanshomewing.org](http://www.vanshomewing.org)

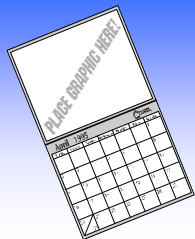
Newsletter of the Home Wing of Van's Air Force — Builders and Fliers of Van's RV Series Aircraft

## Builder's Motivation Day



Where are you in this montage above? Clockwise from lower right: editor's 9A HS spar (no); Kent Byerly's 9A wing; Len Kaufman's 8 fuselage; Joe Miller's Aerosport O-320; Brent Anderson in a moment he won't forget; Dan Buena doing the honors in his newly completed plane; Rob Hickman, Randall Henderson, Randy Lervold and Greg Robl (in the first customer built 9A) patrolling the Oregon coast; Turks & Caicos 2004; Caribbean over the nose; and some of the many wisps of islands in the Bahamas, from November 2000.

# Events Calendar



Meeting coordinator:

**Randall Henderson**

503-297-5045

randallh@attbi.com

## MONTHLY MEETING:

(2nd Thurs. every month, various locations, 7:00 pm)

Project: **Several RVs under construction at Scappoose (9A QB, 6A, and a 4)**

Address: [Scappoose Ind. Airport](#) (west side)

Date: **Thursday May 8, 2003**

Time: **BMD Rides starting at 5:30, meeting 7:45**

## Directions

From south of Scappoose or Vancouver, get on I-405, take the Hwy 30 exit (towards St Helens). From the HIO area, take Cornelius Pass to Hwy 30. Go north to the town of Scappoose. In the center of town, just past the Shell station, take a right at the light on Columbia Blvd. Proceed past 4 left turns, past the Pizza joint, and turn left on Airport Road. Follow Airport Rd about a mile to the first Stop sign. Right less than a block to a right turn (at Scappoose Airport Park/Camp). Stay right and follow the perimeter fence to the first keypad entry. Turn left 50 feet to the gate. We will open the gate for you; Duck's hangar is just inside to the left.

From north of Scappoose, get on Hwy 30 and head south. About 1.5 miles north of the town of Scappoose, there is a crossroads for Wickstrom Road. Get in the left lane and turn east over the RR tracks. (Note - if you miss the turn off the Hwy, proceed into town and turn left on Columbia, which is the second light). Follow that road 1/2 mile to the first Stop sign. Left less than a block to a right turn (at Scappoose Airport Park/Camp). Stay right and follow the perimeter fence to the first keypad entry. Turn left 50 feet to the gate. We will open the gate for you; Duck's hangar is just inside to the left.

## Agenda

Builders' Motivation Day rides will be starting around 5:30 and will leave from the large Tarmac area south of the hangars, walk to the engine-less yellow and white Davis DA-2 on the northeast corner.

Also feel free to visit 3 RV projects along the perimeter fence in the northwest hangars. Closest to the gate is

## EAA CHAPTER 105 Pancake Breakfast:

Learn to eat grits on the first Saturday of every month at Twin Oaks Airpark, 8:00 am, \$5.00 (usually lot's of RVs to look at, too!)

**This month: 5/3/2003**

## EAA CHAPTER 105 Monthly Meeting:

Third Thursday of every month at the EAA 105 hangar/clubhouse, Twin Oaks Airpark, 7:00 pm. [www.eaa105.org](http://www.eaa105.org) for details

**This month: 5/15/2003**

## EAA CHAPTER 782 Monthly Meeting:

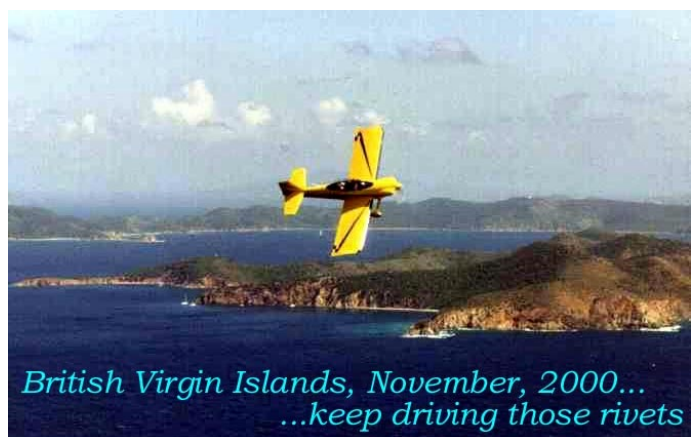
Last Tuesday of every month at Pearson Air Museum, 7:00 pm.

**This month: 5/27/2003**

## EAA CHAPTER 902 Monthly Meeting:

Second Wednesday of every month at Mulino Airpark 7:00 pm

**This month: 5/14/2003**



a 9A QB, 3 hangars down is a -4, and at the far north end is the Hall's almost completed -6A. There are at least 8 flying RVs based at SPB as well - The Duck's -6, Wilson's -4, Harmon's -8A and -4 (sold but still flying at SPB), Marcy's -6A, Dick Anderson's -4, Don Wirt's -6A (for sale?), and Brent's -6A.

At about 7:45 we will be starting the "meeting" portion of the meeting at Don Wentz's hangar. Please try to attend since this is our last meeting before the fly-in and we need to get things finalized.

Want to host a meeting? [Contact the Meeting Coordinator](#)

## This Month's Contributors



Randy Lervold - last? of three articles, tests new props . Randy still handles the newsletter e-mail distribution too.



Bob Haan has more tool tips this month- Home Grown Drill Jigs



Randall Henderson—monthly meetings and fly-out activities



Kevin Lane—editor, uncle, and long range RV traveler. The other Home Wing RVer that has landed in the Bahamas



Bob Neuner - tells you how to wire a second radio on a budget.



Michael Lane - cartographer, future pilot?



Mike McGee - editor with backup navigator. Headed back to those oh-so-blue waters once again.

## E.I.C.

-- Mike McGee

**This issue is dedicated** to all those lonely RV empennages that haven't seen the light of day for years. Those wing skeletons gathering dust and growing cobwebs. All that fiberglass goo stuff that draws a look of disdain and procrastination every time *you* walk by.

This month we fire up the Builder's Motivation Day engine to round up and spur those wayward souls whose drive for the perfect airplane has diminished. Those who by choice or by chance are distracted from the goal.

By now everyone in Home Wing has seen the flyer for Builders Motivation Day and as I write this the manifest slots are filling up with rivet bangers looking for a taste of what lies ahead. (needed: RV-4 driver.. cmon guys!)

Remember the 25 days from Oregon to Angel Falls, Venezuela and back in an RV-4 — via the Caribbean? Or the three pack of RV-6's that ventured north to Alaska? Or the tales of Dangerous Dan and the exploits of an un-named group at Oshkosh..er..Air Adventure, the greatest flyin in the world? Or simply hearing on the radio one Saturday morning that breakfast is in Puyallup... "Puyallup???" That's 120 miles away!?"

"Yeah... and that's only 40 minutes of tree-top-flyin' in your airplane."

"Oh..... yeah..... right, I'll see you there."

...and the return flight of four RV's blazing over the country side of southwest Washington. What a way to start a weekend. (*mowed grass making airplane noise*)

Have I mentioned that I've signed up for another trip to the Caribbean next spring? Right now there are 11 RVs in the group. So, back to the bucking bar or you'll be reading about it on a web page..

..again.

MGM

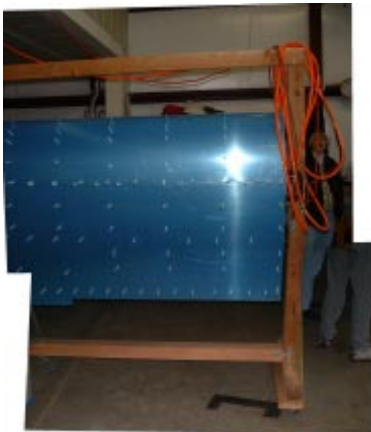
# April Meeting at Kent Byerly's **RV-9A**



## **Kent Byerly**

and his hanger at Aurora hosted the April meeting of the Home Wing. Kent is working on the wings of his RV-9A (slow-build style). About 35 people arrived at the Aurora Airport to look over his project and enjoy the dogs, chips and sodas.

Kent has an interesting wing jig that is set up on wheels so it can be moved as necessary in the active hanger. His hanger mate Jim, an RV-4 builder, owns the Piper short wing seen in the photo at the top of the page. This is just the ticket for my tiny garage/workshop where I have to share a building area with Diana's Miata.



Randy Lervold presided over the meeting and covered the upcoming **Builder's Motivation Day** as well as got the ball rolling for the Home Wing Flyin in June. REMEMBER-any current Home Wing member with a Van's builder number can get a Motivation ride



at the next Home Wing meeting on May 8th at the Scappoose Airport. Contact editor Mike McGee to get on the manifest and we'll try to put you in a plane like you are building.

## **The 12th Annual Northwest RV Flyin** at

the Scappoose airport will take the place of the June meeting. The Flyin will be on Saturday June 21st. Planes will start arriving not long after sunrise and if the weather gods are smiling we'll get upwards of a hundred planes. For the new guys, this is an outstanding showcase of local and regional planes as well as some who come half way across the country just for a hamburger. This is an outstanding follow-up for Builder's Motivation Day. *MGM*

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### **To help out with the Home Wing Flyin contact one of the following crew chiefs:**

- Setup/takedown - Joe Miller [jwmcmm@easystreet.com](mailto:jwmcmm@easystreet.com)
- Auto parking - Jeff Jasinsky [jeff\\_jasinsky@hp.com](mailto:jeff_jasinsky@hp.com)
- Aircraft parking - Len Kaufman [lakauf@earthlink.net](mailto:lakauf@earthlink.net)
- Ground radio - Mike Robertson [mike.t.robertson@faa.gov](mailto:mike.t.robertson@faa.gov)
- Food - Janet Wentz, Randy Griffin [djwentz@centurytel.net](mailto:djwentz@centurytel.net), [randy\\_griffin@hp.com](mailto:randy_griffin@hp.com)
- Publicity - Randall Henderson [randallh@attbi.com](mailto:randallh@attbi.com)
- T-shirts - Randy Lervold [randy@rv-8.com](mailto:randy@rv-8.com)
- Fly-in boss - Don Wentz [don.wentz@intel.com](mailto:don.wentz@intel.com)

Please take a moment to send one of the Crew Chiefs a note and a preferred time that you can volunteer a half hour to help us with the Fly-in. Yes, you 'can' volunteer for more than one area. Thanks, we need and appreciate the help! *The Duck*

# Quit Dreaming, Start Squeezing

--> RV-List message posted by: "Dana Overall"

We have a new delivery to the RV world, as of yesterday at 4PM. Daniel Wier stopped in with his new 7 emp., a handful of tools he has come up with on ebay, and one familiar looking rivet collection.



We started work on his emp. at 8:30 and fairly shortly thereafter, he was squeezing his first rivet on his RV. It wasn't very long afterwards he was bucking one of his first rivets (soon to followed by learning how to drill one out:-) Yes, all you prior pre punch guys, you put the rear spar in last on the work bench.



He's feeling pretty good about himself about now with that rear spar going in .

Daniel got to experience dimpling, bucking, squeezing,

drilling out, resqueezing and the use of that 3x, 4x, 5x, 6x....whatever X that bad boy gun of his it. It just looks at AN3s and they're bucked.

We started work at 8:30 and by 4PM we had deburred every hole and edge, primed it all, drilling wire conduit holes and riveted everything.



Anyway, what do you guys want to bet.....Daniel has it leaning up next to his TV during the Super Bowl wondering just what is more super.....that emp or that game. I know which one gets my vote.

Dana Overall, Richmond, KY

<http://rvflying.tripod.com>



We have a new delivery to the RV world, and it's proud Papa.

# In Search of The Ultimate Propeller: Part 3

By Randy Lervold

"In the last two installments of this series I established some clear objectives, designed a reasonable test regimen, tested my existing Hartzell prop as a baseline, and then installed and tested the Whirl Wind 150 composite prop. In this third and final(?) installment the Whirl Wind 200C 2-blade aerobatic prop is installed and tested, and some overall conclusions are drawn. Read on to see what happened..."

## Installation & testing of the Whirl Wind 200C



For background on the performance of the 200C, there was an article comparing the 200C to several other aerobatic props run in the June 2001 issue of Sport Aerobatics magazine that you might find interesting.

Amidst 400' ceilings and a steady drizzle the non-counterweighted 200C was installed on 3/16/03. There was nothing left to do after but-tuning everything up but go home and wait for a break in the weather. On 3/24/03 we took advantage of such a break and left work for a few hours for a more important mission, prop testing. The testing went well and we feel like we have solid comparison data depicted in the

tables below. I've only been able to snap a few bad pics, but will post better shots here at the first opportunity. Read on to see what we found.

## Test results

**CURRENT STATUS:** As of 3/26/03 baseline Hartzell data has been collected, the Whirl Wind 150 installed and tested, and finally the Whirl Wind 200C (non-counterweighted) has arrived and been installed and tested. Data is presented in the tables below, interpretation and conclusions are included at the end of this section. This process is now complete, or is it? Who knows, another prop test opportunity might present itself. Now that I have established some real comparative data I have received much feedback suggesting testing other props. While there are no plans for that as of this writing you never know what might develop. For now I'm happily flying behind the 200C.

### WEIGHT

Test: weigh each propeller assembly complete with spinner using digital race car scale. Note: this might seem an obvious test, but I wanted to verify the exact difference in weight and not rely on manufacturer's claims.

Since weight is an important parameter I wanted to get accurate data here too. I calibrated the scales twice and also measured other known weight items and it all cross-checked accurately. Stainless steel spinner screws weigh nearly a pound (laying under the prop in the pic) so if you ever weight a prop don't forget them. My scale showed the complete WW 150 assembly at 28 lbs. This prop swap will result in a net weight reduction of 28 lbs, or from my former aircraft empty weight of 1,116 to 1,087... wow! The 200C yields a 12 lb reduction which is still a decent reduction. Of course these weight reductions will change the CG. I measured the arm and created another W&B spreadsheet to compute CG and loading scenarios. Taking 28 lbs off the nose of course shifts the CG aft. In my computation I can still put a 240 lb pax in back, but aft baggage will be limited to about 40 lbs. The 200C will be somewhere in the middle. I will compare my theoretical calculation with an actual computation by weighing the plane again with the above mentioned scales.



..continued on page 7

They're the same scales I weighed the plane with the first time right after finishing it. See the Interpretation and Conclusion comments at the end for comments on the impact of the weight and CG change.

## Interpretation & conclusion

### Hartzell HC-C2YK-1BF:

- Heavy, and due to it's weight yields a very fwd biased CG in the RV-8 application. This can be mitigated partially by locating the battery in the aft baggage compartment but this is a compromise due to reduced accessibility and the longer/heavier cables required.
  - Performs remarkably well given it's pitch profile which is designed for slower aircraft
  - Not well suited for non-counterweighted crank O-360s due to vibration and resonance issues, especially if electronic ignition or high-compression pistons are used.
- Spinner assembly from Van's must be fitted and installed.

### Whirl Wind 150:

- *Significantly* lighter, 28 lb net weight reduction. This yields virtually the ideal CG location for the RV-8. With the heavier Hartzell when flying solo I could only trim down to about 90 mph when on approach and then had to hold back pressure on the stick to get approach speeds below that. With the 150 I could trim right down to 75 mph and still have one turn left on my trim knob. My spreadsheet shows that I can still put a 240 lbs pax in back plus 40 lbs in the aft baggage compartment and not exceed the aft CG. Lastly, and this is subjective, the plane feels more responsive in trim (not that it needs to), probably due to the mass reduction up front.
- *Significantly* quieter, 2,300 rpm resonance is completely gone. I wouldn't necessarily say it is any smoother, both props are smooth, but definitely quieter.
- Spinner assembly comes fully finished, just needs paint.
- This prop needs a high pressure governor. I recommend you only use this prop with the the Jihostroj (Czech) governor. I've seen one in person and it appears to be a very nicely built item. The simple fact of the matter is that due to it's smaller hub piston the 150 needs the higher pressure to operate reliably. There is no apparent downside to operating with higher pressures.
- The 150 is essentially a match with the Hartzell in climb. The data suggests the 150 may be slightly better but the test weight was also 56 lbs less, therefore calling it a tie seems reasonable.
- The 150 is 3.5 mph slower in cruise
- The 150 is 4.5 mph slower at top speed

In all, the 150 is an excellent choice for many builders, especially where light weight and quiet operation are priorities. The small performance differences will not be measurable or noticeable to many (most?) RV pilots. The weight reduction, and resulting improvement in CG and increase in useful load, is *significant* and should not be overlooked for the small speed differences. Is the 150 right prop for me given my objectives? I won't know until I test the 200C, but I sure like the way it feels on the plane!

### Whirl Wind 200C:

- 12 lbs lighter than the Hartzell. This difference was not as noticeable as the 28 lb reduction with the WW 150, but is there nevertheless to *decrease* the empty weight and *increase* the usable load of the aircraft.
- When flying solo approaches I was only able to trim down to 86 mph with the 200C which is slightly better than the Hartzell at just over 90, but not as good as the 150 at 75 mph. The plane was simply better balanced with the 150.
- The 200C was a dead match with the Hartzell in all three speed parameters: top speed, climb, and cruise with no measurable difference.
- The 200C is slightly quieter, but not obviously noticeable like the 150. It's interesting that the acoustic resonance is at a higher rpm than the Hartzell, I have no explanation for it, maybe the shape of the blade?
- Deceleration during any mode of flight is subjectively *very* noticeable with the 200C. Pull the throttle back with the prop spinning fast and it'll throw you forward *right now!* I'm sure this braking is due to the wide blade chord and is a desirable characteristic for aerobatic maneuvers. It can also be used to good advantage in an RV to slow down in the pattern or for steep approaches. Any constant speed prop will provide good deceleration compared to a fixed pitch, but the 200C takes it to another level. Take-off acceleration seemed a bit snappier too but was not measured. I'm told that if I had checked Vx performance the 200C would likely have shown an advantage, but I did not test it, nor do I fly in that mode much because it yields such a nose high attitude and also heats up the engine fairly rapidly.
- The 200C spinner assembly also comes fully finished and only needs paint.

...continued on page 8

**In Search of The Ultimate Propeller: Part 3 continued**

The Data:

<b>WEIGHT</b>	<b>Manufacturer's claim</b>	<b>Actual weight</b>	<b>Note</b>
<b>Hartzell</b>	<b>55 lbs</b> for prop alone	<b>59 lbs</b> prop & spinner	
<b>WW 150</b>	<b>29 lbs</b> prop & spinner	<b>31 lbs</b> prop & spinner	<b>28 lb</b> reduction
<b>WW 200C</b>	<b>47 lbs</b> prop & spinner	<b>47 lbs</b> prop & spinner	<b>12 lb</b> reduction

**CLIMB**

**Test:** time climb 2,000' to 5,000'

**Conditions:** W.O.T., full rich mixture, 2,700 rpm, maintain 120 mph (Vy)

**Notes:** RPM measured with optical prop tach, time measured with stopwatch, ROC then computed from time data. This is the *most difficult* test to fly correctly which is why I thought more runs would yield a more reliable result. In retrospect I wish I had taken more runs with both the Hartzell and the WW 150.

	Time	rpm	OAT	Avg.ROC	Weight	Note
Hartzell						
Run 1	1:48	2,695	39°	1,666 fpm	1,716 lbs	Max rpm allowed by governor
Run 2	1:49	2,695	40°	1,651 fpm	1,692 lbs	Max rpm allowed by governor

Average: **1,659 fpm** **1,704 lbs**

WW 150						
Run 1	1:50	2,705	36°/35°	1,636 fpm	1,667 lbs	2/8/2003
Run 2	1:44	2,700	40°/35°	1,730 fpm	1,640 lbs	2/8/2003
Run 3	1:48	2,700	39°/35°	1,666 fpm	1,637 lbs	2/8/2003

Average: **1,677 fpm** **1,648 lbs** Note lighter avg. test weight

WW 200C						
Run 1	1:51	2,700	40°/32°	1,621 fpm	1,672 lbs	3/24/2003
Run 2	1:53	2,700	40°/33°	1,592 fpm	1,666 lbs	3/24/2003
Run 3	1:47	2,700	43°/32°	1,682 fpm	1,660 lbs	3/24/2003
Run 4	1:43	2,700	43°/32°	1,747 fpm	1,634 lbs	3/24/2003

Average: **1,661 fpm** **1,658 lbs**

**TOP SPEED**

**Test:** note IAS and TAS

**Conditions:** W.O.T., 1,000' msl

**Notes:** RPM measured with optical prop tach. Results consistent with previous top speed measurement of 217 mph TAS taken on 65° day -- lower OAT will yield higher power.

	IAS	TAS	rpm	OAT	Weight	Note
Hartzell						
Run 1	219 mph	<b>219 mph</b>	2,698	39°	1,698 lbs	Max rpm allowed by governor
Run 2	220 mph	<b>220 mph</b>	2,696	40°	1,674 lbs	Max rpm allowed by governor
WW 150						
Run 1	215 mph	<b>215 mph</b>	2,705	41°	1,625 lbs	
Run 2	215 mph	<b>215 mph</b>	2,702	41°	1,622 lbs	Note lighter test weight
WW 200C						
Run 1	219 mph	<b>219 mph</b>	2,700	40°	1,701 lbs	
Run 2	219 mph	<b>219 mph</b>	2,700	42°	1,676 lbs	
Run 3	219 mph	<b>219 mph</b>	2,700	44°	1,636 lbs	

...continued on page 9

## In Search of The Ultimate Propeller: **Part 3** continued

### The Data continued:

#### CRUISE

**Test:** note IAS and TAS

**Conditions:** W.O.T., 2,500 rpm, 8,000' msl, leaned to 50° rich of peak

**Notes:** RPM measured with optical prop tach. M.P. measured with ship's gauge (Van's Aircraft), OAT measured with ship's OAT gauge (previously verified accurate).

	IAS	TAS	rpm	M.P.	OAT	Weight	Note
Hartzell							
Run 1	186 mph	<b>206 mph</b>	2,500	22.5"	15°	1,698 lbs	
Run 2	187 mph	<b>207 mph</b>	2,500	23.0"	16°	1,660 lbs	
WW 150							
Run 1	181 mph	<b>203 mph</b>	2,500	22.75"	26°	1,685 lbs	
Run 2	181 mph	<b>203 mph</b>	2,500	23"	27°	1,628 lbs	Note lighter test weight
WW 200C							
Run 1	184 mph	<b>205 mph</b>	2,500	22.75"	24°	1,687 lbs	
Run 2	187 mph	<b>208 mph</b>	2,500	22.75"	25°	1,651 lbs	
Run 3	186 mph	<b>207 mph</b>	2,500	22.75"	24°	1,642 lbs	

#### NOISE

**Test:** note sound pressure level meter reading at head level position in cockpit at various prop speeds

**Conditions:** 20.0" manifold pressure cruise setting

**Notes:** The Hartzell has always exhibited a "droning" at certain rpm. I was curious to note whether this was measurable or not -- as you can see from the data it is. Takeoff SPL with the Hartzell was measured twice at 114 db.

	SPL C-weighted	M.P.	Note
Hartzell			
2300 rpm	<b>112 db</b>	20.0"	Acoustic resonance at 2300 rpm
2400 rpm	<b>110 db</b>	20.0"	
2500 rpm	<b>108 db</b>	20.0"	
2600 rpm	<b>108 db</b>	20.0"	
WW 150			
2300 rpm	<b>107 db</b>	20.0"	5 db quieter!
2400 rpm	<b>107 db</b>	20.0"	Absence of acoustic resonance.
2500 rpm	<b>107 db</b>	20.0"	
2600 rpm	<b>106 db</b>	20.0"	
WW 200C			
2300 rpm	<b>107 db</b>	20.0"	
2400 rpm	<b>110 db</b>	20.0"	Acoustic resonance between 2400 & 2500 rpm
2500 rpm	<b>110 db</b>	20.0"	
2600 rpm	<b>107 db</b>	20.0"	

#### Results ranking:

	Hartzell	WW 150	WW 200C	?
<b>Top speed</b>	<b>1 (tie)</b>	2	<b>1 (tie)</b>	
<b>Climb</b>	<b>1 (tie)</b>	<b>1 (tie)</b>	<b>1 (tie)</b>	
<b>Cruise</b>	<b>1 (tie)</b>	2	<b>1 (tie)</b>	
<b>Weight</b>	3	<b>1</b>	2	
<b>Noise</b>	3	<b>1</b>	2	

..continued on page 10

## In Search of The Ultimate Propeller: **Part 3** continued

### Summary thoughts:

So what have I learned through all of this? Primarily two things: first, that it's a heck of a lot of work to do all this testing, maybe more than it's worth. Second, that the performance window (the differences between these props) is surprisingly narrow. I'm sure the aerodynamic gurus out there are snickering "I could've told you that" to themselves, but us homebuilders just have to keep pushing in our quest for optimization. I also learned that there are factors that may be more important than mere speed numbers. As of this writing I'm flying behind the WW 200C, but the way the plane *felt* with the WW 150, the way it was balanced, the instantly noticeable quiet, was the best of all three.

I think the results show that there is no clear "winner" in this test. Rather the best prop for your plane would depend on what your own priorities reflect. The cheapest is the Hartzell, but there are issues with vibration if you have electronic ignition or high-compression pistons. (my LASAR system is a huge step forward in efficiency and I'm not willing to give it up) The lightest and quietest by a wide margin is the WW 150, which happens to benefit the RV-8 particularly CG-wise. The WW 200C is as fast as the Hartzell, also lighter and slightly quieter, but more expensive. The results show that a clearly superior option in every aspect did not emerge, but hopefully the information will be useful to you in making the right selection for your own aircraft and typical mission profile. For me the 200C is a good all around combination of qualities that I'm quickly growing to like.

*Randy*



*For the entire write up on the prop test from start to finish including some details not shown in this issue check out Randy's web site at <http://www.rv-8.com/>*

*MGM*

# Could Ya' Give Me A **Haan?**

-- **Bob Haan**

**DOWN THE TUBES IS GOOD...**—*for accurate drilling.*

There are a number of instances where we need to drill a hole through an existing larger hole and accurately center this smaller hole in the center of the larger hole, plus not damage the existing larger hole by making it oversize. Drill guides are a solution but unless you have a lathe or live next door to Stan, it can be difficult to whip up a drill guide in short order.

**ID = INSIDE DIAMETER**

**OD = OUTSIDE DIAMETER**

To make a drill guide quickly, stock up on the brass or aluminum tubes found in the cardboard display boxes at the hobby shop or the better hardware stores. These tubes are made to nest inside each other or telescope together. The OD of one tube is the ID of the next larger tube. Using these telescoping tubes, you can create a drill guide in minutes.

For example, to make a drill guide for drilling #40 holes centered in #30 holes. First, select the tube that has an ID that matches the OD of a #40 drill. The hole in this tube will be the pilot hole for the #40 drill. Second, select the tube that has an OD that matches the ID of the pilot hole. In this example, the pilot hole is a #30. To complete the drill guide, assemble together or nest all the tubes between the smallest and the largest tubes which are the 2 tubes required to center the drill and to guide the drill. The completed assembly can look like a telescope. In use, you would collapse the telescope into a cylinder with a hole in the center.

A set of tubes to make a large number of drill guides costs about \$10,

*Bob*

## Alternatively Speaking..

compiled by **Kevin Lane**



Contact! Magazine is back with a new owner, Pat Panzera, and a new look. Contact! is the only magazine solely addressing alternative aircraft engines for the experimental market. It's articles contain plenty of meat and details for those individuals interested in the truly experimental aspect of homebuilts.

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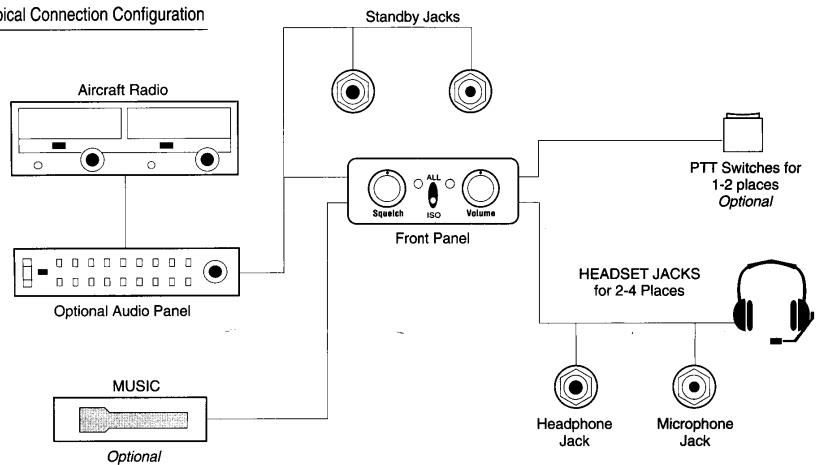
# Double Talk

By Bob Neuner

Background:

After my first flight I was asked to contact ground to taxi back to the hangar. Try as I might, no luck. I just couldn't reach the ground controller. The tower got me back to the hangar safely. It turned out that the little switchboard behind the knobs on my old King KY92 com radio was cracked. The folks at TVA avionics said they could get the parts in about four weeks. I couldn't stand to wait four whole weeks after the excitement of that first flight, so I ordered and installed a VAL 760. The KING would be fixed and used as a backup whenever I got around installing it back in RV6 130BN.

Fig. 1 Typical Connection Configuration



Two Radio Option:

The single radio was certainly adequate for getting me around for the first two years, but I always wanted the convenience and safety of two. Since I couldn't see adding an expensive audio panel, I had several choices for adding the second radio.

First choice would be to simply add a multi-contact switch and switch everything from one radio to the other as needed. That would work, but it would be much better to be able to occasionally listen to both radios at once.

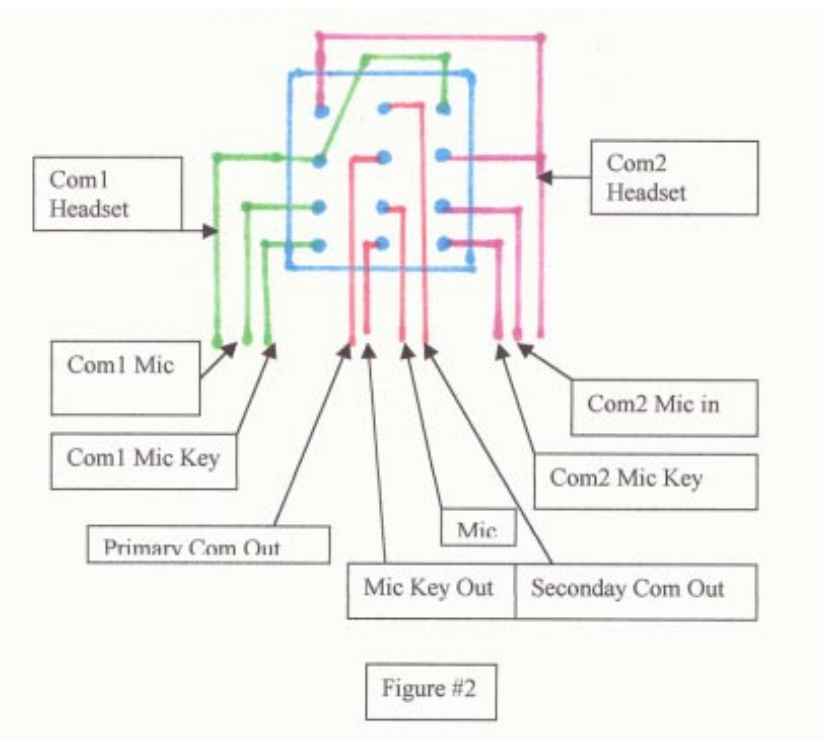
As a second choice, I asked an avionics installer if I could just wire the speaker wires together and just turn one or both of the radios on as needed. Other than that, I just needed to add a switch to the mic key circuit to transmit on one or the other radio. He recommended against it, since the VAL and King are dissimilar. One would probably draw the other down, and work poorly. I had a third alternative. I read an article by Jim Weir in *Kit Planes* that illustrated a simple adapter one could make to solve the problem of mismatched radios. That would work, but...

It would be even better if I could have one radio as the primary, where the other, secondary radio, would cut out when the primary detected a transmission. There are radios that have this feature built right in, but they're not in my current budget. There was a fourth possibility I hadn't considered. Many intercoms have a circuit to allow you to connect a CD player, Cassette, etc. (see figure 1). They also have a mute feature to mute this "auxiliary" input when a transmission to the com radio was received. I could feed the second radio into this circuit, and have my secondary radio setup. (see figure1)

I could also use the multi-contact switch, mentioned earlier, to make one the primary radio, and the other the secondary. Flip the switch, and reverse the order. Either radio could be the primary radio. The setup would actually be pretty simple. I bought a double throw four contact mini switch and a single throw, single contact mini switch. The

single throw is used to mute or not mute the secondary radio. The two radios are connected through the four contact switch, as shown in Figure 2. Result:

The installation works pretty well! I can switch either radio to the primary, or secondary. As the primary radio receives a signal the secondary is immediately muted, no delay. The only thing I would improve would be the recovery of the secondary circuit. There is a slight delay before the secondary radio recovers, it might be a second or two. It's a very minor annoyance. The features I like are that I have a fully redundant Com radio. It feels more comfortable when on long trips to know I could get home with no delay for a radio fix, should one fail. When flying with friends, I can stay in constant communications, and still monitor ATIS or AWOS along the way. When flying as a flight of one, I can be a good citizen and monitor 121.5 at all times.



Another option to consider if you have a handheld might be to wire a jack into the instrument panel where the handheld, CD, or cassette could be plugged. Anyway, this is one more way to get extra utility for a small price.



Bob Neuner RV6  
130BN

# Flying Activities

**By Randall Henderson**

Summer is fast approaching and with it of course the flying season. No doubt individual members will be going to many more events than I can possibly talk about here. Nevertheless I always like to keep a running commentary about some of the Home Wing favorites. Let me know if there's an event you think would be of particular interest to this group and I'll consider including it here.

**Flying Activities Coordinator:**  
Randall Henderson, N6R  
[randallh@attbi.com](mailto:randallh@attbi.com), 503-297-5045

Last year's **Langley Aero Club and VAF Canada Wing's RV Fly-In**, up at Langley BC was a big success, and they're on again this year for June 7th. There'll be seminars from the likes of Eustace Bowhay, "people's choice" awards, and camping on-field. Several of us went there last year and had a good time. It's also a good opportunity for people who haven't ever done a border crossing to get their feet wet with that whole exercise. See the web site [www.vansairforce.org/CYNJ](http://www.vansairforce.org/CYNJ), or contact Tedd McHenry, 604- 574-4764, [tedd@mchenry.ca](mailto:tedd@mchenry.ca). And be sure to print out a copy of the Border Crossing Checklist from the Flight Planning section of the Home Wing web site.

Of course June 14 is our own **Home Wing RV Fly-In** at Scappoose. If you know any RVers who might not have heard about this event, be sure to fill them in. And don't forget to sign up for a work shift! [www.vanshomewing.org](http://www.vanshomewing.org), Don Wentz, 503-543-3653, [djwentz@centurytel.net](mailto:djwentz@centurytel.net).



In past years a small group of us have taken off early from our own fly-in to head up to Salmon Arm BC to attend the **Salmon Arm Flying Club's Father's Day Fly-In**, doing our best to make the 6:00 p.m. spa-

ghetti feed, and camping overnight for the fly-in on Sunday. That's a neat trip, next month I'll be posting contact information and names of people who plan to go as I become aware of them.

As an alternative to Salmon Arm, a few of us are planning to head up to Bellingham on Sunday June 15, for the **Bellingham International Airport Air Fest**. Last year Randy L. stumbled across this event, and found it to be a really neat fly-in, with military flybys and all manner of aircraft in attendance, from antiques to spam cans to homebuilts.

## empty seat syndrome

Still building? Don't get left behind! There are often empty seats, so don't be shy about asking. The **oregon-rvlist** email list is the perfect forum for still-building types to look for rides (and for flyers to offer them). To subscribe, send email to [oregon-rvlist-subscribe@yahoogroups.com](mailto:oregon-rvlist-subscribe@yahoogroups.com), or visit [yahoogroups.com/group/oregon-rvlist](http://yahoogroups.com/group/oregon-rvlist).

(Continued on page 15)

# Flying Activities

(Continued from page 14)

The 2<sup>nd</sup> Annual EAA Chapter 105 Poker Run is planned for Saturday June 28th. Last year's event was a hoot, as anyone who participated will attest. Keep an eye on the chapter newsletter and also the June issue of the Home Wing newsletter for more on that. Or contact Jenny Hickman, 503-524-3190 for more info.

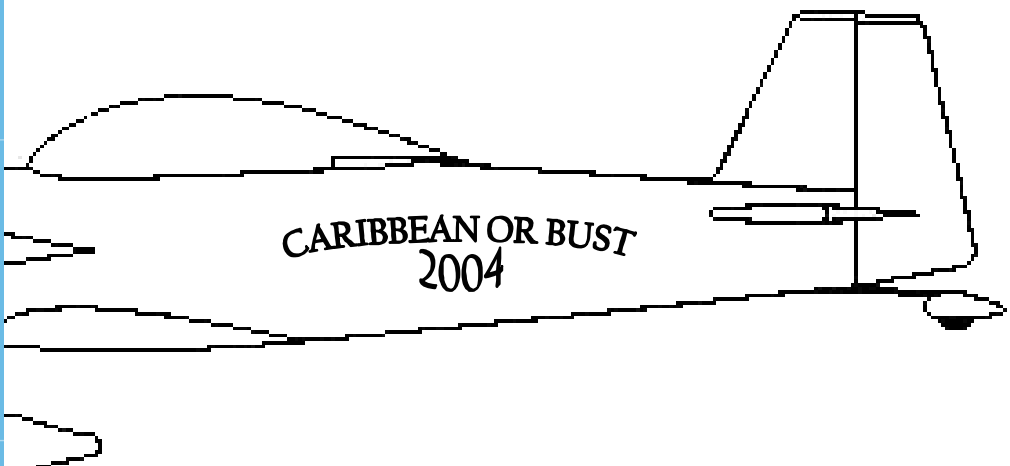


*Cactus Pete Air Race, Jackpot, NV, July 2001*

Also coming up in June/July: **The Cactus Pete Air Race** at Jackpot, NV is July 4, 5 & 6 ([www.geocities.com/canardcovers/RACE\\_Group.html](http://www.geocities.com/canardcovers/RACE_Group.html)), **EAA Arlington** July 9-13 ([www.nweaa.org](http://www.nweaa.org)), and **EAA Airventure Oshkosh** July 29-August 4 ([www.airventure.org](http://www.airventure.org)). I'll be posting more information about those and other events in upcoming newsletters.



And as always, the **RV Breakfast Club** meets on **122.75** at 7:30 a.m. Saturday mornings (weather permitting). Get up in the air and on frequency and we'll decide where to fly for breakfast!



# It Runs in the Family!

Michael Lane

*So the editor of Home Wing calls me and asks how he can get the latitude/longitude of some address in the Portland area. Without going into who I work for, I simply bring up a piece of software, type in the address and get him a lat/long which he later admits was within about 6 feet of the center of the driveway. After I remind him that my Geography degree is paying much better than his Computer Science degree he asks me to write this quick tutorial on how you can use the web to get a lat/long for a location and then use it in your GPS unit in your plane. So here's a few ideas to get you there...*



1. <http://www.maporama.com> - under the Maps heading enter the address of where you're going, hit GO, and you'll be returned a map if it was able to resolve the address you entered. If successful notice that at the bottom of the map is a lat/long in two different formats, one in degrees/minutes/seconds, the other in Decimal Degrees. The Decimal Degrees is within about 60' of the correct location so if you're flour bombing the house you might want a visual before letting go. Neighbors get pissed about that kind of stuff., collateral damage.

2. This method involves a couple of steps and will give you output in either Degrees/Minutes/Seconds, Decimal Degrees. Or UTM (NAD27). The idea with this one is you will be presented with a USGS topographic map after you locate the address from a different source, that source being for example, mapquest.com or Yahoo Maps. So first you need to locate the address of where you want to go. I'd suggest a web site like <http://maps.yahoo.com>, or <http://www.mapquest.com>. I would have added <http://www.mapblast.com/myblastd> but those damn MSN pop-ups just pissed me off. I digress. So locate the address. Leave this window open because you'll need the map for reference. Open a new browser window and go to <http://www.topozone.com/default.asp> and enter the town that your address is in. This will return a listing of maps that match. Pick the one that represents the correct town. Now you're shown a portion of a topographic map. I'd suggest clicking the 1:25,000 button at the top right of the map. This will zoom it in to a scale that might be more usable. Next pick the coordinate output that you would like and then click once on the map in the exact location that you're going perhaps having to reference the map that you got from the other source. This will re-center the map and give you the coordinate readout at the top. Voila.

This is the worst method and will more then likely not work. Call Kevin on the phone and ask him for the coordinates of whatever address you're looking for, he'll call me, and I'll be a nice guy the first time, after all he did take me to SNF a few years back, but the second request will bound to have a few cuss words, and then the third request will have something to do with giving you coordinates to the now half demolished Meigs Field about a mile from where I'm typing this. Thanks for listening and I hope to see you soon as I give that Top Gun wave from N3773.

Here's some output so if you need to double check your answers. The center of the Hawthorne Bridge in downtown Portland, OR is:

10 525810E 5039802N UTM

45.5132°N, 122.6696°W Decimal Degrees

45° 30' 48"N, 122° 40' 11"W D/M/S

**One last thing, if I Ran Van's I'd never let another can of yellow paint touch any of the planes that they show in brochures. (so, you prefer that swimming pool color?)**



# The Tool CRIB

Being a current Home Wing entitles you to access the group's tools, a major benefit. The Home Wing owns a growing selection of those expensive and seldom-used tools that are very nice to have access to. This program is managed by The Toolmeister: **Brent Ohlgren, 503-288-8197, obrento@aracnet.com**. Please help protect the group's assets, observe our Tool Policy:

## **Home Wing Tool Policy:**

- Everything goes through Brent — do not give the tool to another member.
- Brent will keep an accurate sign-out sheet for each item so he knows where it is at all times.
- Brent will inspect all tools upon their return. If there is any damage he will ask you to pay for the repair . More Tool Crib rules can be found at the Home Wing website

# EAA Technical Counselors & Flight Advisers

The following Home Wing members have volunteered as technical counselors

under the **EAA Technical Counselor program:**

- **Dan Benua** 503-621-3323 danb@synopsys.com (EAA Ch. 105, RV-6A builder, Hillsboro-Scappoose-Portland area)
- **Jerry Darrah** 503-254-9992 (EAA Ch. 902, A&P, Glastar builder, Portland-Troutdale area)
- **Randall Henderson** 503-297-5045 randallh@attbi.com (EAA Ch. 105, RV-6 builder, Hillsboro-Portland area)
- **Randy Lervold** 360-817-9091, randy@rv-8.com (EAA Ch. 105, RV-8 builder, Vancouver/Portland area)
- **Dave Lewis, Sr.** 503-690-8237 (EA Ch. 105, multiple RV builder, Hillsboro-Portland area)
- **Brian Moentenich** 503-666-7518, Brian.L.Moentenich@usace.army.mil (EAA Ch. 902, RV-6A builder, Portland-TTD area)
- **Mike Robertson** 503-681-5537 mrobert569@hotmail.com (FAA A&P w/IA, RV-8A builder, Hillsboro-Portland)



The following Home Wing members have volunteered as flight advisors

under the **EAA Flight Advisor program:**

- **Dave Lewis, Sr.** 503-690-8237 (EA Ch. 105, multiple RV builder, Hillsboro-Portland area)



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Home Wing web site..... www.vanshomewing.org

Webmaster..... Randall Henderson randallh@attbi.com

## Classifieds...

### FOR SALE/WANTED

**Duckworks Landing Lights** - Retro-fittable, light, easy installation. Kits start at \$75, check 'em out at [www.duckworksaviation.com](http://www.duckworksaviation.com)

Shop space for rent at HIO. Power and light available. Perfect for building RV parts. Contact Mike at 503-356-1923. 05/03

I don't know if you all have heard but I got the big "pink slip" last Wednesday morning (ouch)! Fortunately I had been already looking for a new job and they called me that same afternoon and hired me (talk about timing). So...I was in a layoff state (stupor) for about 4 hours which is as long as anyone should have to endure such uncertainty. Unfortunately, there are only so many aerospace companies in the world and one has to be flexible in order to keep working. In my case that means I have to move out of state to Florida (no more cold weather and close to Sun N-Fun, cool). In any case, since I'm only renting this house at Sunset Airpark, that means it will be available for someone who might be interested in living on an airstrip. The house should be available around late April or Early May and if anyone is interested the details are as follows:

Single story ranch style home with LARGE 2 car garage

Classifieds are free to Home Wing members. Ads will run for three months. Send to editor by e-mail or mail. Renewals ok, just let editor know. Date at end of the ad is last month ad scheduled to run.

(makes a great shop, RV-4s and -6s will fit inside with the wings ON)

Large living room, medium kitchen with attached dining area, 2 bedrooms (1 larger master and 1 smaller), 2 bathrooms, laundry/storage room with washer/dryer, access to main 3000 foot grass runway and large building available for use as hanger (negotiate with landlord). Water is supplied by a well and the only utility you have to pay is electricity. It's a pretty nice place built in 1964 with hardwood floors throughout. NO pets. If you are interested contact George or Patricia Marco at: 503.647.2621.

If you'd like you can call me (Dean Psiropoulos) at 503-970-3514 and I'd be glad to tell you anything you'd like to know about it, or show you around if I haven't moved yet.

**Experienced Builder Wanted**  
**Need experienced help building my RV6A. Slow build kit approx. 20% complete. Anxious to complete and fly. If interested please call Virgil Mays at (503)543-7697 to discuss project and compensation. Or e-mail to [vette-man@centurytel.net](mailto:vette-man@centurytel.net). 5/03**

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### Home Wing Membership Sign-up/Renewal

To join or renew, fill out this form and mail to **Randy Lervold, 5228 NW 14th Circle, Camas, WA 98607**, along with \$10 for renewals or new subscriptions. *Please make checks payable to either Randy Lervold or Home Wing.* If you are renewing you only need to give your name, payment method, and any other information that has changed. Please don't forget your e-mail address and newsletter distribution method.

*Use this form for address changes too!*

name –

address –

city-

home phone/work phone-

e-mail address-

EAA chapter –

Payment – cash( ) check( ) (payable to Home Wing)

Info change only, such as building status or address change-( )

Building – RV3( ) RV4( ) RV6( )/6A( ) RV7( )/7A( ) RV8( )/8A( ) RV9( )/9A( )

Status – empennage( ) wings( ) fuselage( ) finish( ) flying( )

\*note – only e-mail (acrobat PDF format) delivery of newsletter is available for new members, no snail mail (USPS)

- -above info to appear in a member roster listing available to members only

Mail to:

**Randy Lervold**

**5228 NW 14th Circle**

**Camas, WA 98607**

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**E-mail subscribers:** Look for your name and renewal date in the e-mail that the newsletter is attached to.

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