

HOME WING



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





Meeting coordinator:
 Randall Henderson
 503-297-5045
 randallh@home.com

MONTHLY MEETING:

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

Place: Van's Aircraft "Skunkworks",
Date: Thursday March 9, 2000
Time: 7:00 pm

The March meeting will be at Van's 'Skunkworks' (prototype and engineering shop), on Sunset Airstrip in North Plains OR. The RV-9A production prototype will be on display, and as always, some of the guys from Vans will be there to fill us in on all the latest developments. This will be a bit of a nostalgic meeting — the last one here before Vans moves operations over to Aurora.

From Portland:

Go West on US 26 to the North Plains exit. Turn left off the exit to cross the overpass (Glencoe road), and take the first right which is Beach road. Turn right again at the first street (316th) and go down to the end of the road. Van's shop is at the end of the road on the left.



From Hillsboro:

Go north on Glencoe road, turn left on Beach (just before the AM/PM), then right on 316th, last shop on the left.

From the Air:

Sunset Airstrip (10R3)

Tentative future meeting schedule:

- April: EAA Chap 105 with presentation from John Caldwell of AAMR
- May: t.b.d.
- June: Fly-in, date t.b.d., no meeting

Meeting places are always needed; if you'd be interested in hosting a meeting please contact Randall Henderson at 503-297-5045 or randallh@home.com

EAA CHAPTER 105 Pancake Breakfast:
 First Saturday of every month at Twin Oaks Airpark, 8:00 am, \$4.00 (always lot's of RVs to look at too!)
This month: 3/4/2000

EAA CHAPTER 105 Monthly Meeting:
 Third Thursday of every month at the EAA 105 hangar/clubhouse, Twin Oaks Airpark, 7:00 pm
This month: 3/16/2000

EAA CHAPTER 902 Monthly Meeting:
 Second Wednesday of every month at the Mulino Airport in the OPA building. For info call Gary Sparks at 503-251-0843
This month: 3/8/2000

February Meeting Recap

The Home Wing's February meeting was at the home of yours truly. Chili and cornbread were consumed by all. As usual, aviation information was also exchanged by all.

On display were my RV-8 at finish kit stage, and my recently completed panel. Randall's biggest thrill was a test ride on my folding bicycle which I would not let him leave with. I figured everyone is sick of pictures of my plane by now so none were taken of the meeting.

See you at the March meeting!

...ed

Editor's Hangar

Check out that cover shot! Guess who? Give up? That gorgeous airplane, and that calendar quality photograph, belong to our own Kevin Lane. See the follow-up story on his paint job and graphics in this issue.

For those of you like me wondering where such a stunning setting could be, much less one where you could land your airplane, the answer is the Alvord Desert in Southeast Oregon. Maybe we can prevail upon Kevin to tell us about flying in there at the next meeting.

...Randy

The Paint Story... continued

By Kevin Lane

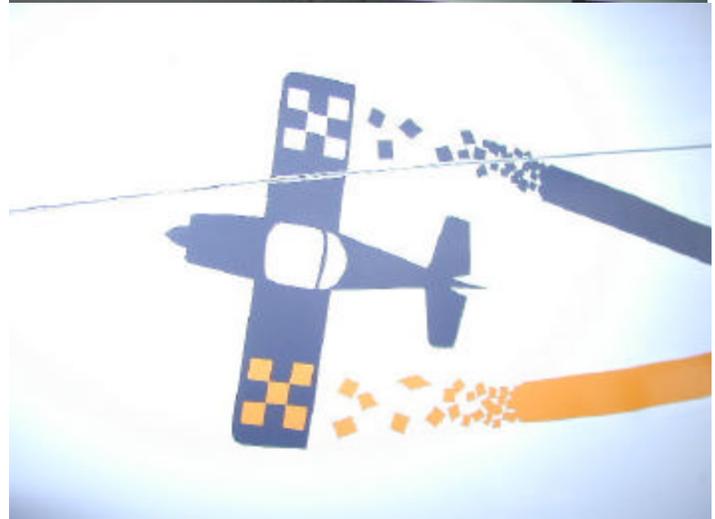
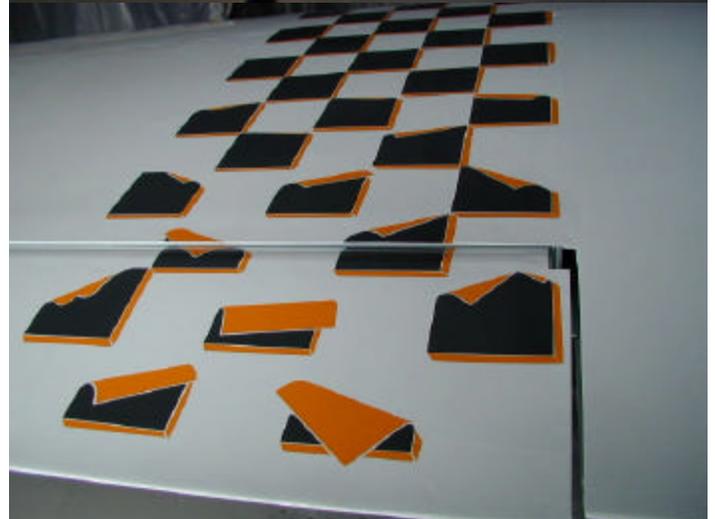
After many hours of paint prep and agony I had my plane back home. “Moby Dick” were the first words to come to mind, or perhaps “white elephant”. It was white all right, everywhere. I had planned to do all my colors with professional grade vinyl which comes in various sized rolls at sign supply stores. Vinyl lettering is what the UPS trucks, for instance, have on them. They get washed every day and don’t peel — it sounded like it would hold up.

The paint theme for my plane involves checkerboards with a sort of early space shuttle twist (no, not XIII). Each wing and the h-stab has a band of checkerboards with drop shadows for a 3-D look. The checkers have been purposely cut non-perfectly square to add to the whimsical nature. As the checkers progress to the trailing edge they appear to begin to peel off, because of the way I fly, with the underside of the checker the opposite color of the topside. My paint scheme also is not symmetric. The pilots side has yellow with gray shadows and the pax side sports gray checkers with yellow shadows. Down the sides of the fuselage are ribbons of yellow and gray which are left from a small RV-6A tilt-up silhouette on the cowl (straight from a Van’s brochure). On close inspection you will see that the ribbons are the “smoke” trail of shed checkerboards as the plane performs aileron rolls.

Yes, there’s a lot going on. To do this in paint would be staggering. Some pieces of vinyl were less than 1/32nd of an inch wide, real tough to do in conventional masking tape. To have a computer cut the vinyl would probably take longer entering the geometry than to cut it by hand. What’s left but to do it yourself?

To start I took blue masking tape and laid out the stripes the way I liked them, playing with the curves and widths. Next I taped a roll of shelf paper over the stripes and traced the strip with a pencil. I laid the roll out on a work table and with a piece of clear cedar 1/4” x 1/4” by 10’ long used it to smooth

(Continued on page 4)



Various shots of Kevin’s new paint and graphics. Quite a head turner now!



ence marks. Next I laid the vinyl stripe on the table and covered it with a piece of transfer tape. This tape is like post-its, sticky but removable. By carefully peeling the transfer tape, which is about 12” wide, I removed the vinyl from its waxy backing. I sprayed the exposed adhesive side of the vinyl with some positioning fluid as well as the area on the fuse where it goes. When I press the vinyl on the plane it is all wet and slightly slippery. I align the strip and with a plastic squeegee carefully force the fluids out from under the vinyl and transfer tape. The transfer tape protects the vinyl allowing me to press hard without harming the vinyl. I continue to squeegee to remove any pockets of fluid. Finally, I spray the top-side of the transfer tape and let it set for five minutes, after which I can peel the transfer tape off without disturbing the vinyl.

The checkerboard stripes have two colors side by side. For the yellow checkers, for instance, I cut the checkers out of the yellow roll and removed every other square. The drop shadows I cut from the gray and was able to apply them in place dry (where I had just removed the square) without the transfer tape procedures.

By hand cutting and placing I was able to buy much less vinyl, which costs about \$7/yd. The transfer tape roll though ran \$125, of which I probably only used half. So for \$200 or so I put the color on my

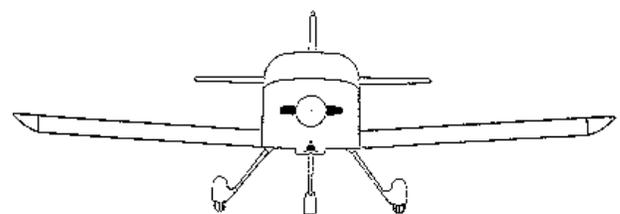
the curves by placing just enough finish nails to define the curves. I cut out the paper curves and taped them to a roll of vinyl 28” wide by 8’ long. Since there are some 20’ of stripes on each side I pieced them using breaks where the sheet metal overlaps or the cowl starts.

With a fresh utility knife blade I cut thru the vinyl but not it’s waxy backing paper. Next I removed the strip from the roll with scissors, cutting an inch or so bigger, and removed the vinyl that was outside of the strip I wanted. I now had the vinyl strip of the right shape on its backing paper that was roughly cut bigger. I removed the blue masking tape from the plane after leaving some refer-

plane.

I have flown at 180 mph in the rain and none of it came loose. I might try a little on the prop just to see if it can handle 565 mph.! So, my paint’s not perfect, but I’m into it \$650 total, and a few hours labor (how quickly we forget).

...Kevin



RV-6/6A Engine Control Cable Tips and Tricks

By Randall Henderson

Running the engine controls on my RV-6 was definitely not a straightforward event. Van's manuals don't say a whole lot about firewall forward stuff and you can't really blame them — with all the different possible engine, prop and accessory options, it would be difficult to come up with a "one size fits all" description. Perhaps my experience can help others however, especially if they have one of the "standard" engine/prop combinations.

Van's sells several types of engine control cables: Bowden-style, wire end (CT-A part numbers); Fat-Knob, RV-6 trim style w/10-32 ends (CT-23 part numbers); and ACS A-750/A-800 style w/10-32 telescoping end (CT BLK, CT RED, CT BLUE part numbers.) I installed ACS type because I wanted the "certified" style knobs, so that is mainly what I'm going to discuss here.

These cables are actually made by ACS Products, and you can find out more about them by looking in the Aircraft Spruce and Specialty catalog — look for the A-750 and A-800 cables. Van's versions of these have the telescoping 10-32 ends, threaded attachment sleeves, and polyolefin (black rubber) covers.

The 42.5" throttle and 39.5" mixture cables in Van's catalog may be TOO SHORT unless you have a vertical center console per the plans, and even then you will want to make sure to use the most direct possible cable routing to the console, that is, straight back from the engine and through the firewall just to the right of the battery box. I discovered this when working with Vans to develop a new throttle/mixture bracket for the O-360 that would work with the ACS type cables for both the throttle and mixture (more on that below). As a result of the above exercise, I measured how long the cables really need to be to accommodate placement in a horizontal subpanel, or up in the panel itself, and provided those measurements to Van's. I believe they were going to change them or add longer ones to the catalog, but I don't know if they've done so yet. Best bet is to call them and ask.

Like a lot of builders, I chose to eliminate the vertical console, and instead put the controls in a horizontal subpanel attached to the main panel. As a result, I had to custom order from ACS (at a fair bit more expense). Since these cables aren't just cut-to-fit like the bowden style cables, I had to specify with a fair degree of precision just what the throw needed to be as well as the length from the panel to the bracket attach point, and

also from the attach point to the end of the cable.

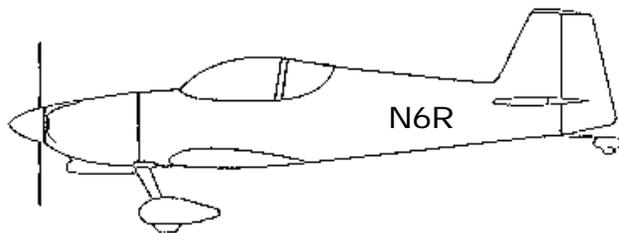
Hopefully you can get the length you need from Van's, then you won't have to worry about doing a custom cable. Take it from me, it's a pain. If you do go custom, I strongly recommend using a hardware store lawnmower cable or similar as a "dummy" cable to measure the length you need before ordering the custom one. You may think you have it right with a measuring tape, string or wire, but the way the cable twists and turns can defy accurate measurement with anything other than a cable, and it's best to have it no longer than needed. Also, when specifying throw, be sure to take into account any reduction of throw due to snaking around of the cable. You can lose up to 3/8" throw if you have a lot of bends in the cable. The description in the ACS catalog includes a figure for reduction in throw per 360 degrees of bend.

Note that the new O-360 carb bracket (which should be in the new catalog), will accommodate both the mixture and throttle ACS style cables (CT RED MIXTURE and CT BLK THROTTLE). The older bracket (the one that's in the 1998 catalog) will handle the CT-BLK THROTTLE but is set up for a wire style mixture cable.

As for the prop cable, the CT BLUE VPROP 45.5" cable should work fine without any of the hassles unless for some reason you put your prop knob way far over in the panel (or have a front mounted governor). I did find it necessary to open up the top edge of the slot in the arm by about 1/8" near the outer end to allow the cable to pass through freely without chafing. The only other trick is where to put the hole in the firewall. It's not a bad idea to use the above lawnmower cable trick to check for hole placement and verify that the length is correct here as well.

Good luck!

...Randall, N6R



Finding RV-6 Rudder Deflection Angles

At a group meeting some time ago one of our group gave me this article and drawing. I apologize, I can't for the life of me remember who it was. This article will have to be anonymous for now. If you are the author please let me know so I can give proper credit.

...ed

I just finished mounting my vertical stabilizer and rudder to the fuselage for the first time. Now it's time to trim the excess side and tail cone skins, then install the rudder stops. Finding that the rudder deflection should be 35-35 degrees min/max, it was time to make a cardboard template as is shown in one of the sketches. Boy, that looks easy, the vertical stabilizer curves, the rudder has a taper and swings with an offset — now I'm really scratching my head as to how the template should be cut. I cut one with a 35 degree angle, but this just wasn't working well. Time for a break.

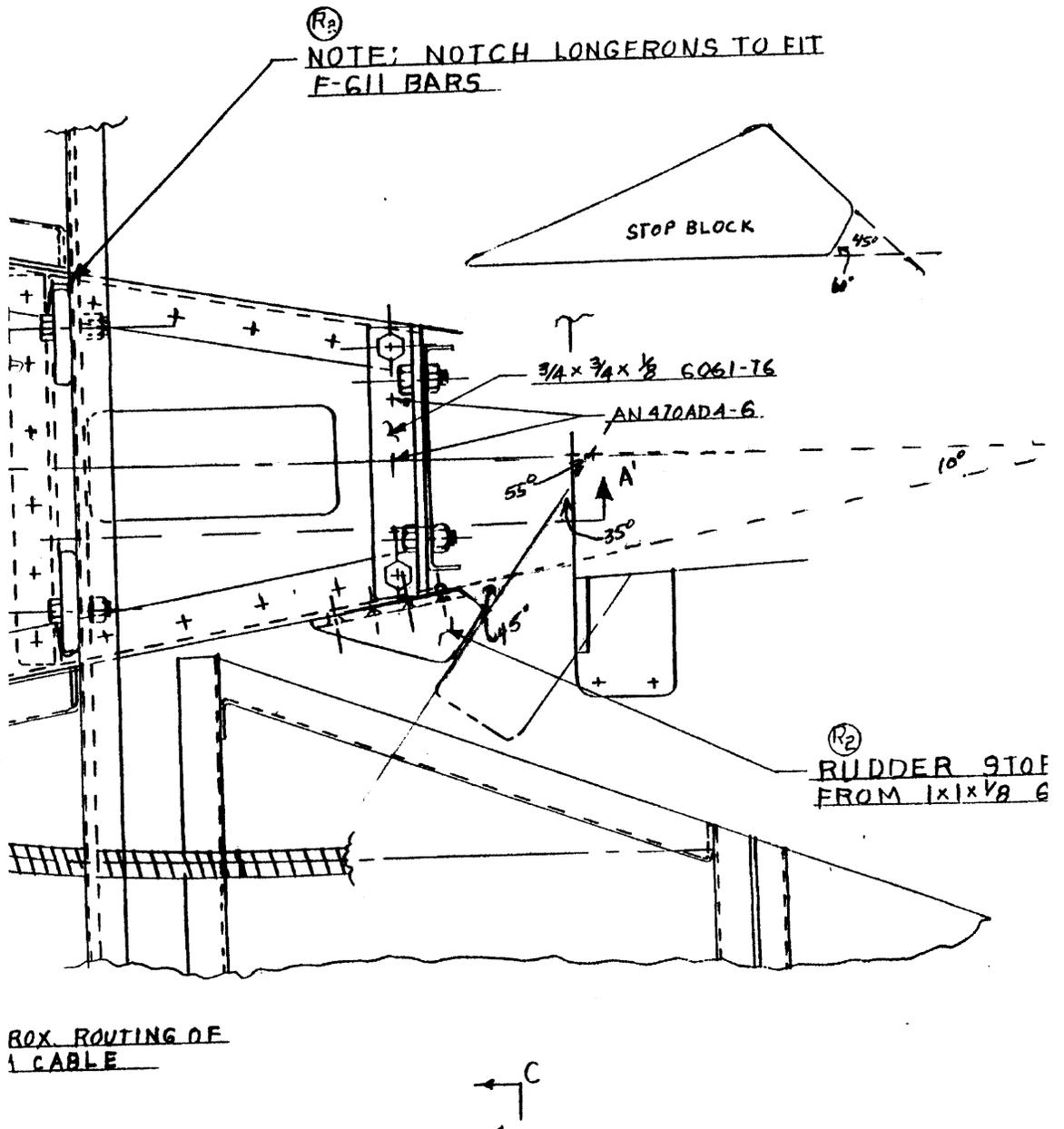
I stare at the drawing for awhile and take another break. Look at the drawings again... bingo! There's the answer on DWG 34, the top view of the fuselage, that shows the rudder horn. It's flat and at 90 degrees to the fuselage centerline. With 35 degrees of rudder deflection the angle on the rudder stop block should be 45 degrees. With 2

straight surfaces (and a 45 degree) triangle or protractor this became easy to measure accurately.

Just in case anyone has difficulty finding deflection angles, here they are for the RV-6:

Aileron:	32 up (25 min.)	17 dn (15 min)
Elevator:	30 up	25 dn (20 min)
Elevator trim:	35 up	25 dn
Flaps:	42-44 dn	
Rudder:	35 right/left (30 min)	

...(anonymous for now because the editor forgot who)



Goodbye Neighbor

By Mike Graves

Today was the first day that has really felt like spring, so of course it was necessary to make a lunchtime run to the Van's factory! It was perfect... clear blue sky, countryside, and the open road. My thoughts drifted back to the old days back in the early 90's when I was taking flight training. By some twist of fate, I ended up living right here in RV country long before I had any interest in aviation. Being immersed in a world of Cessnas, I had no idea that kitplanes even existed. One day while reading the newspaper, I came across a picture of a pretty blue airplane with Bill Benedict sitting under the wing.

The idea of building an airplane scared the living daylights out of me, being new to aviation, but curiosity made me go out to Vans. Bill gave me the famous "\$30,000 free ride". I don't remember a lot about that day, but I remember that the plane was FAST, and very nice looking. Several years went by, but my thoughts

often went back to that beautiful flying machine. After droning around the skies for years in a rented Cessna 150, I'm finally building the plane of my dreams, the RV-6A. There have been many lunchtime drives to the factory over this past year, but as I was lost in thought on this beautiful day, I was suddenly saddened by the knowledge that Vans will be moving away. I feel like I'm losing a neighbor and friend. Sure, it's only to the other side of Portland but it will be hard to drop in for a visit. There's so much history here in RV country, so many pleasant memories. Their presence on the westside will be missed.

...Mike Graves

1/1/2000



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CLASSIFIEDS...

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.

FOR SALE

RV-4 Lycoming O-320B2B 160HP, 1,070 TT/SMOH, Pacesetter 68" wood prop, II Morrow Apollo 704 Digital Com, side mounted and hard wired Garmin 90 GPS. \$38,950 Firm. Call (503) 807-9805 for additional details. 2/1/00

RV-3 - Basic day VFR with KX99 wired for headset operation, Terra xpndr and encoder, and Garmin 95 XL, all running on 12 volt system. O-320, Pacesetter prop. 375 SMOH and TTAF, \$14,750. Contact Jack Pierson, 503-628-0215, 3/1/00

WANT TO TRADE? I have a beautiful 1968 Corvette T-top coupe that I want to swap for anything close to or equal in value - \$15,000. 300hp with Black Cherry custom paint. Any aircraft or kit considered. Jim Headrick (503)630-2050 RV6A N160JH s/n 25250 3/00

RV-4 Empennage — Still in the crate. Inventoried and complete, all construction manuals and full set of plans included. \$500 takes all. Don't let this deal pass you by. Contact Bruce Gray, days 775-687-8833, eves. 775-265-5190. Carson Cioty, NF area. 4/00

ATS Rivet Gun — New \$150, sell \$75. Brent Ohlgren 503-288-8197 or obrento@mail.aracnet.com 3/00

Avionics - All from Cessna 182, removed for upgrades:

- KR-86 ADF W/ KA44B Combined loop-sense antenna, \$1450.00
 - KN-64 DME with tray and cables \$1,650.00
 - Michel TKM MX-170B with Tray, Cables, KI 201C indicator (Radio is 1 3/4 years old) \$1,250.00
- Jay Phillips 503-640-0355, jphill5919@aol.com 3/00

Duckworks Landing Lights - Retro-fittable, light, easy installation. Kits start at \$69, discount for Home Wing-ers. Don Wentz, 503-696-7185

BuildersBookstore - Books and videos specifically for the RV builder and pilot. Call or write for a FREE catalog; (970) 887-2207, PO Box 270, Tabernash, CO 80478. Or see our web page at www.buildersbooks.com Featured item: 18 YEARS OF THE RV-ATOR is now available. New additions all the time!

BACK ISSUES are available at \$2.00 each including postage for hardcopy. Limited availability, contact newsletter editor. Adobe Acrobat versions free to members.

WANTED

RV-4 Advice — Seeking RV-4 help and guidance. Mid-fuselage stage on RV-4 project. If anyone wants to take the time to come down to Klamath Falls to look over my shoulder and give me a little guidance on my -4, I'd be willing to buy their fuel and breakfast or lunch. E-mail or call Jim Baker, bakerje@kfalls.net or (541) 884-5900 work, (541) 883-5701 home. 1/00

WANTED - Top half of the old style cowling. Slightly damaged is fine. Prefer longer fixed pitch style. Looking mainly for the top, but would in interested in a matching set if the price is right. Charlie. 360 577-6407 or e-mail: searose@kalama.com 2/00

Subscriptions Due

Mail subscribers: Your renewal date is in the upper right corner of your mailing label. Use the form at the back of this newsletter if there are any changes, otherwise just mail a check to the editor, or pay at a meeting.

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

All subscription data is tracked in an Access database. Data entry errors can happen - if you find an error in your renewal date please contact the editor.

Use 'em!

Members are encouraged to take advantage of the classified section. Since it's free why not take a stab at unloading that unused airplane stuff. Besides, it's kind of interesting to look at all the odds 'n ends for sale.

Please note that the date at the end of each ad is the expiration date. They run for three months and then are dropped unless you want them renewed by notifying me.

...Randy

The Tool Exchange

The Home Wing owns a selection of tools for use by its members. The Toolmeister is **Brent Ohlgren, 503-288-8197**. Call either Brent to arrange use.

Remember:

- All use must go through Brent.
- You are personally (financially) responsible for any damage.

Home Wing Tools
HVLP paint sprayer
Hole template for instrument panel
Wire crimping tool & die
Brake lining rivet set
Tune-up & annual kit (compression checker, mag timing light, timing dial, mag adjustment tool, plug gapper, high voltage cable tester, and plug vibrator cleaner.
Aircraft scales — allows you to accurately weigh your beast and also determine CG.
Oil filter cutter—custom make by Stan V.

Other benevolent members also have tools they may be willing to loan. Let the editor 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.

Item	Owner/lender	Phone / e-mail
Custom cutting wheel mandrel (for cutting your canopy)	Stan VanGrunsven	
Prop tach (calibrate your tach)	Butch Walters	360-636-2483
Engine stand	Don Wentz	503-696-7185
Engine hoist	Norm Rainey	360-256-6192
Surveyor's transit level (handy way to level wing and fuselage jigs)	Bill Kenny	503-590-8011
Back riveting contraption (large, counterweighted bucking bar and suspension system and offset back rivet sets)	Bob Neuner	503-771-6361
Lead crucible (for melting lead for elevator counterweights)	Doug Stenger	503-324-6993
Table saw taper jig (for tapering wing spar flange strips)	Carl Weston	503-649-8830
48" pan break located at hanger PLS D-10 at Troutdale if an RV builder needs some metal bent.	Kevin Lane	503-233-1818

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 Address: _____ Home phone: _____
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Project: Status:

RV-3 Empennage

RV-4 Wings

RV-6 Fuselage

RV-6A Finish kit

RV-8 Flying

RV-8A

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Home Wing – Van’s Air Force
Randy Lervold, Editor
5228 NW 14th Circle
Camas WA 98607

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Home Wing contacts:

Newsletter Editor & membership.....Randy Lervold 360-817-9091, 5228 NW 14th Circle, Camas WA 98607,
randyl@rv-8.com
Meeting Coordinator.....Randall Henderson 503-297-5045
Fly-In Leader.....Don Wentz 503-543-2298
Home Wing web sitewww.edt.com/homewing