

HOME WING



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



Rocky Mountain Instrument's popular microEncoder. It can be used as your airspeed indicator, altimeter, VSI, OAT gauge, and transponder encoder. See "Birth of a Panel" inside for the story.



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

MONTHLY MEETING:

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

Place: Randy Lervold's house
Date: Thursday, February 10, 2000
Time: 7:00 pm

The February meeting will be at Randy Lervold's house in Camas. He is working on finish kit items on his RV-8 and will have his panel mostly complete to show and discuss. Donna Lervold will be making homemade chili and corn bread, so come hungry!

From Portland:

- ⇒ Take Hwy 14 (on the Washington side of the Columbia river) east from either I-5 or I-205.
- ⇒ Take 164th St exit, left at bottom of exit (north)
- ⇒ Right on 34th at top of short hill (east).
- ⇒ Go approximately 2 miles, turn right on Payne Rd. Wind up the hill until Sharp is on your left.
- ⇒ Turn right on Deer Fern (entrance to Knight's Pointe subdivision).
- ⇒ Take third right, NW 14th Circle, last house at bottom of hill.



Address: 5228 NW 14th Circle, Camas, WA
Phone: 360-817-9091

From the Air:

Sorry

Tentative future meeting schedule:

March: EAA Chap 105 with presentation from John Caldwell of AAMR
April: Van's prototype shop
May: t.b.d.

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: 2/5/2000

EAA CHAPTER 105 Monthly Meeting:
Third Thursday of every month at the EAA 105 hangar/clubhouse, Twin Oaks Airpark, 7:00 pm
This month: 2/17/2000

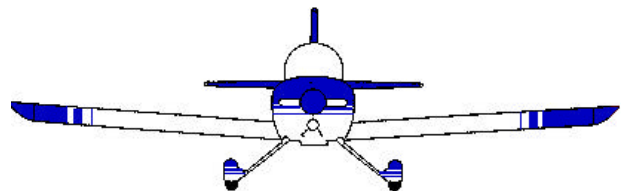
EAA CHAPTER 902 Monthly Meeting:
Second Wednesday of every month at the Mulino Airport in the OPA building. For info call Gary Sparks at 503-251-0843
This month: 2/9/2000

Editor's Hangar

This issue is dedicated to panels, or at least to mine. The story of my panel has been brewing for some time and I thought it might be a good time to tell it now since most things are finalized. Let me apologize in advance for the length of it however. The full story is contained within, pictures and all.

Folks, my cache of material for the newsletter is now just about depleted, so please, keep taking those pictures and writing! There's a lot of great work going on out there, the rest of us would like to know about it.

...Randy





January Meeting Recap

Craig Roberts was our host for the January meeting. It was held in his paint shop at the Aurora airport (also the new home of Van's Aircraft). While no formal presentation was made, Craig was available to answer everyone's questions... I know he answered quite a few of mine.

There were three aircraft on display: two presently being painted, including Randall's, and a plane Craig had done two years ago. Craig has done quite a few RVs and is a fan of clear-coating to achieve maximum gloss and durability. There is no denying his paint jobs are beautiful, the display plane showed truly impeccable workmanship. Several of his jobs were on display at the last Homecoming, and he is seen in the back of an RV-8 he painted in the Van's 2000 calendar. Craig prefers to work with the PPG family of products.

Whether you want your plane painted or just to ask a few questions, Craig is a great resource. He can be reached at 503-678-3001.

...ed



April 9th-15th, 2000
www.sun-n-fun.org
 941-644-2431

Birth of a Panel



(Or this pilot's thoughts on how it ought to be done)

By Randy Lervold

Like many builders, I have been planning my panel for quite some time now. Given the behavior that I've noticed this does not seem out of character. What behavior am I referring to? Have you ever noticed that, at least for pilots, the panel usually becomes the focal point of the entire aircraft? Ever watched folks at an airshow, fly-in, breakfast, or any other aviation event? They'll typically scope out a plane from a distance, then as soon as they get close they move right in for a view of the panel.

Seriously, at the next event you attend, stand back and watch people... this behavior is very predictable. They (we) walk down the row, spot a plane that makes their personal radar screen of interest, scope out the whole thing quickly as they walk right up to the side for a view of the cockpit and panel. Hands up in a sort of salute shading their eyes, and getting fingerprints on the canopy or window, there they'll gaze for some time contemplating the instrumentation and the logic it's laid out with. If we could only read those thoughts... *"geez, this guy's made a mess here, what an idiot, if he'd only..."*, or *"man, he's got some money in this sucker, this panel's worth more than my whole plane"*, or even *"where's my camera, I gotta get a picture of this"*.

Only after much study and absorption of the panel will they then move around the plane to inspect the paint (we all know the paint job is the second focal point) and everything else.

This panel-fixation is not altogether unreasonable. After all, where does the pilot perform his/her function from? Truly, the cockpit and panel do control the airplane and therefore perhaps does warrant some extra interest. I suspect panel-fixation though goes just a bit beyond the functional aspects. Perhaps it's some sort of male behavior pattern that Freud could tell us all about. Let's not go there.

Because I have now almost finished my panel, and because it's been quite an interesting journey, and because I'd like to spare those of you behind me some of the same grief, and because I feel strongly about a few

things relating to panel design, I thought I'd write this article to document it all. It's long so you might want to get a cup of coffee before we begin.

The process begins

It was in the best pilot tradition that this pilot began down the path of planning, and ultimately constructing, his own panel. Right around the time I started my RV-8 project, in learning about all the resources available to RV builders, I came upon a piece of software called Panel Planner. Turns out it was a \$99 software package written and published by a guy in Idaho named Gordon Platt. I just love the fact that experimental aviation has spawned such an active and entrepreneurial aftermarket. I checked his web site and was thrilled to find a tool that could help me graphically plan out my panel. It seemed a bit spendy, but after all, \$99 to ensure that the plan is something I'd be happy with for ever after, especially on a sixty thousand dollar airplane, doesn't seem unreasonable. (isn't rationalization a wonderful thing?) Having owned two airplanes previously, neither one of which I built or got to do the panel layout, I figured that I'd take my time to get things just right as I built the rest of the plane.

Soon after I began my empennage (over two years ago now) I also began researching instrumentation options and laying them out in Panel Planner. The **Version 1** picture represents my initial thinking. Some things I had in mind at this point were that the RMI microEncoder and microMonitor made sense to me. I had heard wonderful things about the company and the products seemed to represent an excellent value, so they were included. I added a conventional airspeed indicator and altimeter in addition to the microEncoder for redundancy, to keep the standard "T" configuration, and because they were not that much money by comparison. My first preference for engine instrumentation, a stack from Electronics International, would have been quite a bit more money. Wow, it all fits quite nicely as you can see in the **Version 1** picture. Hold that thought.

About the time I was into my fuselage I felt like I needed a change of pace, so I ordered the microEncoder and microMonitor kits and planned to build them during the Holiday season of '98.

I built the microEncoder first and had a great time at it— a nice change of pace from aluminum, and the RMI construction manuals are truly great. By New Years day I had completed both items, tested them, and packed them back in their boxes for the long wait until panel construction.

Some time before this I had taken over this newsletter and thought about doing a review of the software—

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Version 1



(Continued from page 4)

many of you expressed an interest in it. Then, as I used the software more, I noticed an increasing number of things that either didn't work right, or that I didn't like. Hmm.

My wife Donna is always telling me "if you can't say something nice don't say anything at all". I guess she doesn't like me complaining. I realized that if I reviewed the software I'd have to actually give it quite a poor review. Why? It does not follow the standard Windows interface well at all, it has no cut/copy/paste, no duplicate function, no control-key command equivalents, and no other commands or functions common to all Windows graphics software. Further, menus are not standard, and worst of all it was quite buggy. What bugs? Specifically... items disappeared, items moved erratically on the screen, items would not delete, when they did delete they would remain in the equipment list, and type would not display properly in certain views

Frankly, the programmer should have been embarrassed by most of this. As a software craftsman there really is no excuse for this. But heck, there was nothing like it out there, and I really didn't want to start trashing Gordon's one man effort. Besides, I figured he'd eventually fix all this stuff anyway. I therefore never did the review.

Some time later I heard that he had sold the package to a company back east for a reputed \$1 million. Good for him, but no more loyalty. If anyone asked now I would tell the truth. Therefore I'm now out of the closet

on this... Panel Planner has some serious problems, not the worst of which you've heard yet.

Before getting into that however, I'd like to digress on certain topics.

Thoughts on ergonomics

Having owned a stick-control airplane I had developed some definite thoughts on sticks and panel control layouts (ergonomics). Soon after buying my Citabria I just *had* to install one of those cool military-style molded grips—the standard bicycle handles just looked way too tacky, not nearly up to the *serious* task of flying. In the Citabria the radios are on the right side of the panel. I am right handed and accordingly installed a right handed type stick grip. Then I went flying.

I soon discovered that in the day-in day-out routine of flying I needed to use the stick with both hands. First off I needed to tune stations and flip frequencies often with my right hand. Not only were the radios on the right, but I needed the fine motor control of my right hand on those small knobs and buttons. Also, I found I wanted to change hands occasionally in cruise just for a change of pace. Plus, what about writing things on the knee pad such as flight following squawk codes or ATC frequencies? After not very many hours of flying I realized that I really preferred to fly the plane with both hands depending on what mode I was in. While switching hands on the stick might sound like a problem it's really not. After a few hours I was doing it without even thinking about it.

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Version 2



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Of course all pattern work was done with right-hand-stick-left-hand-throttle, but in all other phases of flight my left hand could fly almost as well as my right, and then I could manage all the other cockpit functions better. Ever felt a right handed grip with your left hand? This taught me that in my new plane I would have the avionics, which require the fine motor control, on the right as with most GA planes, and an ambidextrous grip.

What I realized is that almost all of my flight time could be divided into two modes:

Flying mode: Where flying the plane is the priority, which would include landings, takeoffs, most pattern work, and critical maneuvering. In this mode it's right hand stick, left hand throttle, with a quick swap for frequency changes if necessary. Therefore all flying controls such as the throttle quadrant, carb heat, fuel pump, and elevator trim, are all close to the left hand.

Navigating/communicating mode: In this mode I fly the plane with my left hand which leaves the right hand free to write, manage the avionics, and scratch the occasional itch.

I've seen many panel pictures with the avionics and the flight controls all on the left in attempt to always keep the right hand on the stick. This is not for me, and I know that from my practical experience, so my RV-8 panel would be designed with the above in mind. I feel very fortunate to have had the experience with the Citabria previously to know all of this in advance.

Thoughts on panel color

Now that you have my thoughts on basic ergonomics, let's talk about another pet peeve... panel color. Panels have two basic functions: a place for frequently used *controls*, and a place for instruments which present you *information*. Let's address the second one of these two functions. If your visual scan is to be effective, in order for you to retrieve the information quickly and easily, the method of information presentation must be as visually easy as possible. That's why aviation instruments are designed so simply... simple white letters on a black background. Now why would anyone want to mess with this proven formula and use a light colored panel? Allow me to explain what happens when you use a light colored panel and why I think it's a bad idea.

When you scan from outside the airplane onto the panel your eyes sense the new lighting conditions and adjust accordingly. Just like a camera, your eyes (actually it's your brain, but for simplicity let's just say it's the eyes) average the total amount of light now in view and adjust the irises to an average setting for everything in view. Now if you have a light colored panel the average amount of light reaching your eyes will be higher and your irises will "stop down", or close up a bit. This then makes the face of your instruments darker. This in turn makes it harder for you to ascertain the visual information on the faces of the dials. A photographic analogy is taking a picture of someone on a ski slope. The bright white background forces the lens to stop down and the person's face turns quite dark. Since the

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purpose of instruments, and the panel that holds them, is to present information in the most readable way possible, why then would anyone use a light colored panel? It has always mystified me, and certainly won't be done on my airplane.

If we used black and do the same scan, the eye senses an overall dark condition and opens up the irises which in turn make the white numbers and needles stand out more. Thus the visual information is much more easily perceived... your panel and instruments have fulfilled their purpose. So it's my belief that panels ought to be a dark color. Specifically, they should be no lighter than mid-gray, in technical terms called 18% gray. This is the exact mid-point between black and white.

Hopefully now you can see why dark grays, or best of all plain old black, really is the color of choice for any panel.

Thoughts on panel lighting

Another pet peeve is panel lighting. The same folks that paint their panels white also seem to go with some sort of panel lighting scheme other than post lighting or lit instruments. In other words they have lights overhead or off to the side that flood the panel with light. Bad idea in my opinion, and here's why... first off, you have the exact same effect as described in the panel color section above. You are lighting all the white surface which in turn causes your eye to stop down making it difficult to see what's actually on the instrument. And this is at night when you need every shred of light you can get! This is just plain bad human engineering.

I believe post lights are the method of choice, yet relatively few builders use them. Why? The most frequent objection I hear is cost. It is true that a post lighting system usually runs around \$300 with the lights and dimmer circuit. But let's put this in perspective. You're building a \$30-\$80k airplane, and one that you be flying at night with (otherwise you wouldn't put in lights at all). We all know the inherent risks of night flight, wouldn't you want to have every visual advantage? Then please consider direct lighting. Direct lighting means either post lights or one of the two or three other fiber-optic methods that put a small amount of light *directly* on the instrument. The rest of the panel remains completely dark so that when your eye scans the panel it sees nothing but the information you're looking for. Again, just basic human engineering.

Now, let's get back to the Panel Planner story before some further thoughts. After thinking that Version 1 was my plan I started having second thoughts. The fact that the microMonitor presents all of it's tem-

perature information in celcius-only was starting to bother me more and more. True, it has alarms that can be preset, and true, I would likely soon memorize all my key temperature windows, but I just didn't want to have to work that hard at converting. Plus, I liked the notion of separate systems that wouldn't take all information away in the case of a malfunction... kind of a fundamental we observe throughout our aviation systems. For this reason I decided to sell the microMonitor and go with a hybrid mix of Electronics International and Van's new series gauges. Specifically, I would use E.I. For everthing except my tach and map gauge which would be from the new Van's series.

This whole thing was triggered by Randall listing his EAC-1 for sale. I was just about to get around to trying to sell the microMonitor when I saw his ad. I bought it and then began the conversion process. I listed the microMonitor for sale on the RV List and had a couple of offers within the first day or two, but ended up selling it to friend and fellow -8 builder Randy Griffin where it will get a good home.

Obviously this would require a new panel arrangement so it was back to Panel Planner. The result was Version 2. I spent time including everything I could think of, placards and all, and tweaked it to perfection. Then headed out to the garage to start cutting holes. I printed out a full-sized version of the panel by using the tile function in Panel Planner that I could use as my guide. I figured it might be as simple as just tracing around the paper version onto the panel blank.

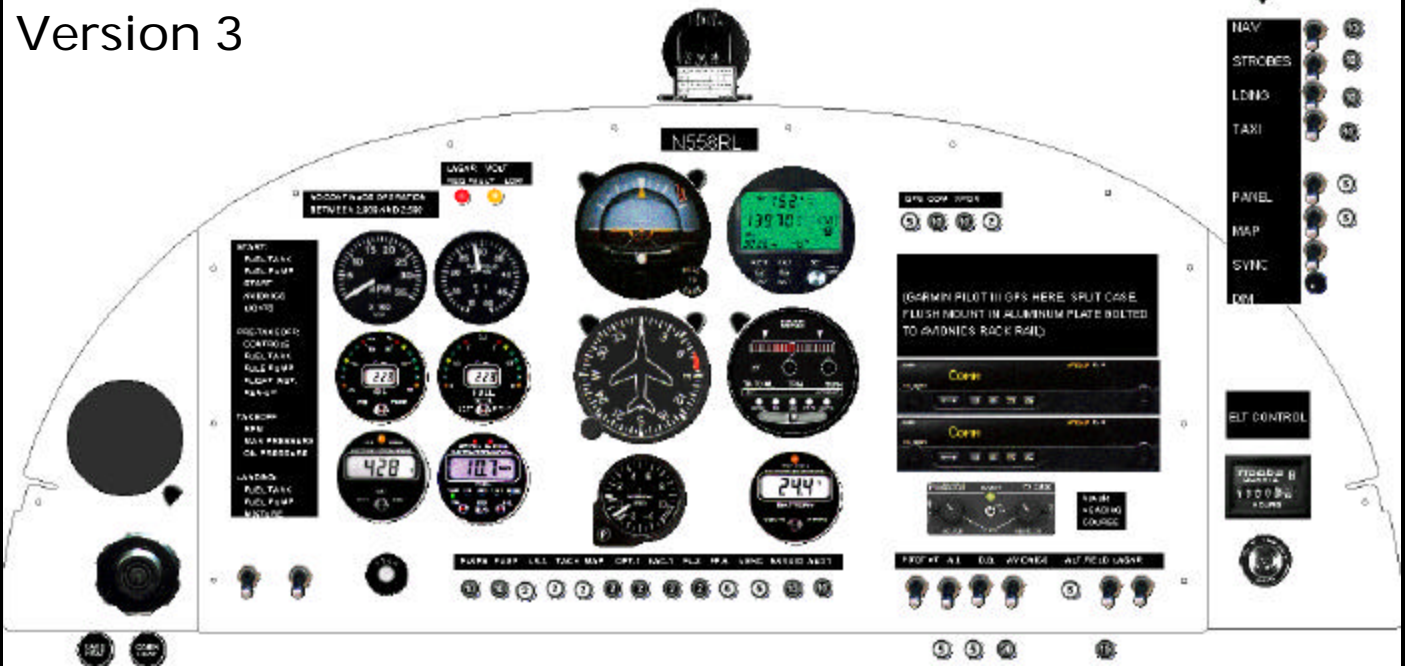
I carefully printed out the tiles (another software feature which is crudely implemented... a manual process, normally this is automated thus aligning the tiles... not in Panel Planner!), trimmed them on the paper cutter, and taped them together very precisely. Out to the garage I went.

I drew centerlines down the rows of instruments, marked where the sub-panel overlaps the main panel (where you can't put anything), and pulled most of my instruments out to double check that they'd fit. Guess what, there was NO WAY all that stuff would go in there. It turns out that Panel Planner had all the instruments scaled too small, and had the panel blank scaled too long. There was *no way* that Version 2 could possibly be done in real life even though it fit quite nicely in the software.

Now, I had already bought instruments for that plan, yet I was sitting there with too many things to put on this piece of aluminum. Can you imagine? What's a pilot to do in such an emergency... think it through. I had to re-design my panel on the fly and eliminate approximately two instruments in order to make things fit. Needless to say this was the last straw with me for Panel

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Version 3



This is my final plan, or at least a close as Panel Planner can get it, that has now been cut. Note that Panel Planner still doesn't have the SL-70 transponder so I've just used another SL-40 as a placeholder. Also, the intercom is actually also mounted in a blank in the avionics rack, but there's no way to depict it in PP.

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Planner.

As I considered options I came up with two scenarios. Scenario A: eliminate the electric gyros. Most VFR planes don't have them, and it would save \$3,000 and some weight. Ok, maybe. Scenario B: eliminate the conventional airspeed indicator and altimeter and keep the gyros. This would make the microEncoder my only airspeed indicator and altimeter.

After giving much thought to this, and reflecting back on as much of my actual VFR flying experiences as possible, I decided I'd rather risk the lack of redundancy on the pitot instruments than I would live without the gyros. My thinking is that with my GPS I will have at least crude speed and altitude information, at least enough to get me down. Remember, the GPS will have automatic internal battery backup if the whole electrical system goes down. I can remember several situations flying in haze or light clouds, or at night, where I've been darned glad I could lock my eyes on that horizon for a minute or two. Bottom line, it made me feel more secure this way—a personal choice for sure, and one that you might call differently.

I then proceeded to create Version 3 not in Panel Planner, but with a felt pen, ruler, and t-square right on the panel blank with the actual instruments there for measurements. I then went back into Panel Planner and did a rough approximation of the actual plan which you see above.

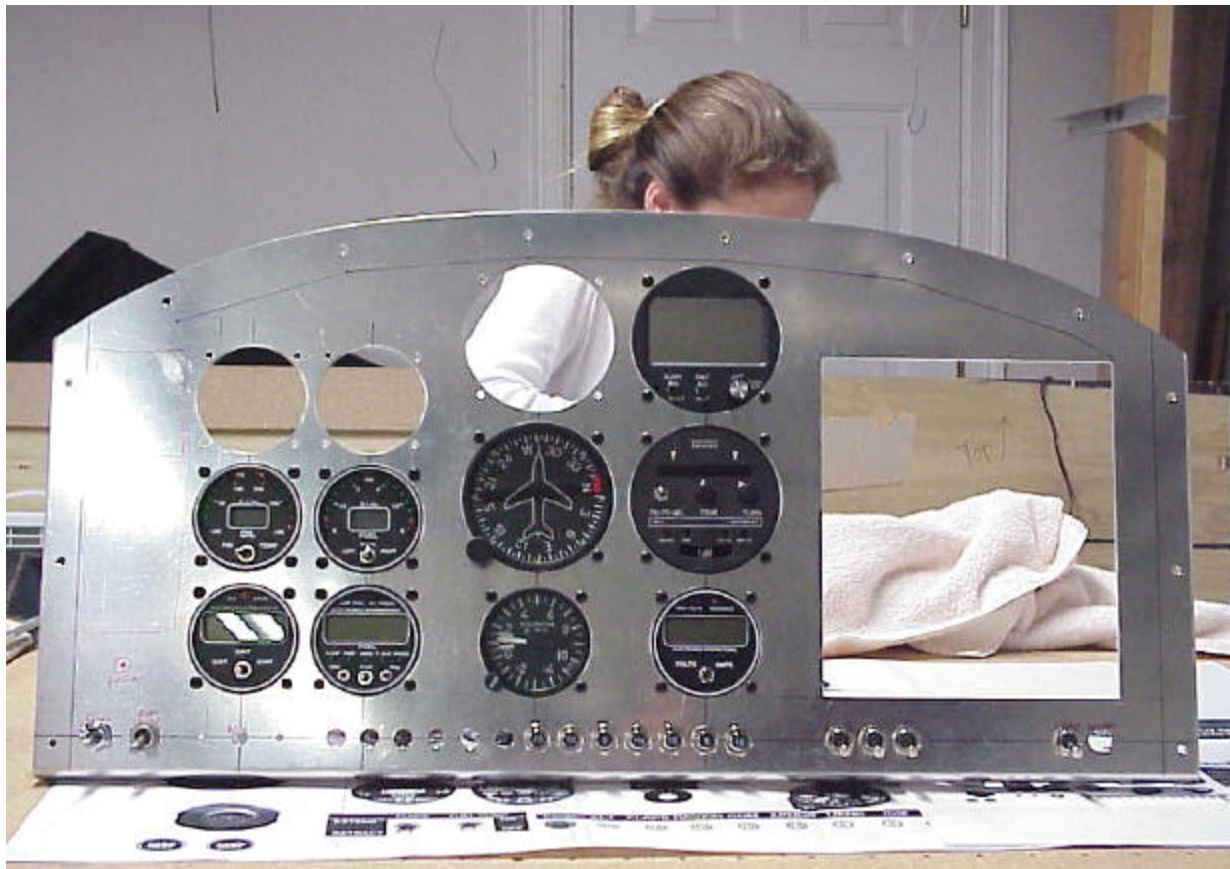
Thoughts on cutting holes

Ever since I first scanned the Avery catalog I noticed that instrument hole cutter in there... \$110, cuts both 3 1/8" and 2 1/4" holes. As I neared time to cut the panel I thought "what the heck, it'll make it much easier, and I can easily cut more blanks in the future if I want to rearrange things". More of that rationalization stuff again. Anyway, I ordered it, it arrived, and it was ready to go when I was ready to cut. Then when the time came I remembered back to several messages I had read on the RV List... many builder's reported cutting

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In the end, just get everything out on the work table, measure carefully, check it again, and cut the holes.



Holes cut, instruments mounted, and all is well. Just need to finish the avionics rack now.

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their instrument holes with the lowly fly-cutter. So smelling an opportunity to send the \$110 tool back I chucked up the fly-cutter and gave it a try. I clamped everything down securely, put wood behind the entire hole, used lots of cutting oil, and took my time. Voila, twelve holes cut quite nicely within a half hour. A quick once over with the edge scraper, then a few passes with the 3" Scotchbrite wheel and I had perfect holes. Then I dug out that template for drilling the instrument holes that Avery also sells (about \$10) and drilled the mounting holes. All instruments were then mounted needing almost no further adjusting other than cutting away a little material with the Dremel for the g-meter and directional gyro stems.

So my thoughts on cutting holes are that you don't need anything more than a drill press, a fly-cutter, some clamps, and some oil. I sent the unused fancy tool back in exchange for a Milbar safety wire tool and some other needed items I needed.

In the final analysis

As one who is an active evangelist for computer-based productivity solutions, my final advice may surprise you. If I had it to do over again now I would plan my panel by generating life-sized paper pictures of the instruments (download them from the manufacturer's

website and then scale them until they're correct) and placing them on an actual panel blank with real measurements marked on the surface. The panel blank comes with the fuselage kit, if I wanted to start the planning even sooner I'd just order one from Van's—they're not that expensive.

As for Panel Planner, I don't have not much good to say about it. Many on the RV List have said "well it's good for doing rough planning". I don't buy this, the reason is that you are trying to *plan*. The purpose of planning is to make a *decision*. If you don't have good *data* how can you make any kind of decision? My case I think clearly illustrates this.

Sorry for the length of this story, but I wanted to get all of my thoughts and experiences out somewhere so that others, if they happen to accept my logic, could benefit from it. Frankly, when people ask me about panel planning it's a long story to explain, perhaps this article will suffice..

My views are just that, *my own*. I offer them only for your review and hopefully to provoke some further thought in areas you may not have considered yet. I hope there is at least something in here that will help each of you to design a better panel.

*...Randy, N558RL
(not flying, yet)*

Experimentals and ATC

There has been quite a bit of information on the RV List lately about the proper way for Experimental aircraft to identify themselves to the various ATCs. Below are a few excerpts on the topic: one from an FAA employee, and another from a flight instructor. Thought you might find these posts informative.

...ed

Talk about opening a can of worms here. Before I get into this I will admit that there have been memos and letters wandering around the system (FAA) that I am fully unaware of and each region within the US may have slight alterations to their specific regions. In writing that we all have access to there are two examples. FAR 91.319(d)(3) says that we have to advise "tower" of the experimental nature of our aircraft when operating out of a field with an operating control tower. To get to a bit more/better information we need to look at the Airman's Information Manual (AIM) in paragraph 4-2-4 which covers aircraft call signs. It says they we are supposed to fully identify our aircraft on the initial call. ATC may then abbreviate the call sign. After that we may use the abbreviated format. It then goes on to state that "civil" aircraft pilots should state the aircraft type, the manufacturer's name or model, followed by the registration number. For example: "Tower, this is Experimental Van's (or RV8) 108RS". The "N" is not needed unless the aircraft is of foreign registry. So if you fly to Canada or Mexico remember to add it on first contact.

Mike Robertson
RV-8A QB
"Das Fed"

Randy,
The Experimental Airworthiness Certificate (attached letter) usually says you must advise operating towers of the "Experimental" nature of your aircraft. That includes Class D, B, C towers. I would advise the approach controller of the Class C & B tower and also the tower controller on the handoff. Sometimes, the approach controller and the tower controller are the same person (a few cases).

I tend NOT to give my "N" number at non-towered airports. Color and type give more useful information. "Oxford traffic, blue low wing homebuilt on down wind for a landing on three-six, Oxford." Etc.

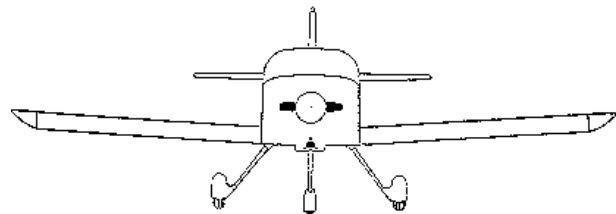
I tend to use "Experimental" in most all my calls to approach/center/AFSS. If they want more information, they will ask for more details. That is my experience. For my homebuilt biplane, I have been asked by ATC if it is a high or low wing experimental. If things are slow and I want to have some fun, I just answer "3 Bravo Foxtrot, Affirmative." Or affirmative to both!

I tend to be very careful and correct with my communications because I teach communications seminars for the FAA. Most pilots say way to much on the radio. Five or six aircraft in the pattern with each reading back every transmission can bury the tower (and the other traffic). Required readbacks are; Runway you are taxiing to, Hold short, Hold in position, Land and hold short (if you are the aircraft to land and hold short), any transmission they ask you to read back, and any transmission that you need clarification on. They have just added runway crossings, but so far they have only told Flight Instructors and Pilot Examiners about that. It is still in the Aeronautical Information Manual as an acknowledgment. Everything else is covered with an acknowledgment ("Three Bravo Foxtrot Roger" or just "Three Bravo Foxtrot").

I do accept "cleared for takeoff" and "cleared to land: but only an acknowledgment is required for those. I stress the use of "Roger" and "Wilco". Roger means; I heard and understand all of your last transmission. Wilco means; I heard, understand and will comply with your last transmission. "Report passing the river." "Three Bravo Foxtrot Wilco." Or, "Three Bravo Foxtrot" which is considered an acknowledgment!

I hope this helps and that you can share this with your friends. By the way, many Flight Instructors are the perpetrators of poor communications. They should read Chapter four of the AIM and follow suite.

David Faile, Fairfield, CT
us flight instructor of the year
mcfii/a&p faa aviation safety counselor
EAA technical counselor/flight advisor
Christen Eagle II since '82 (N13BF)
RV-6 (N44DF) started



RV-8 Panel Access Mod



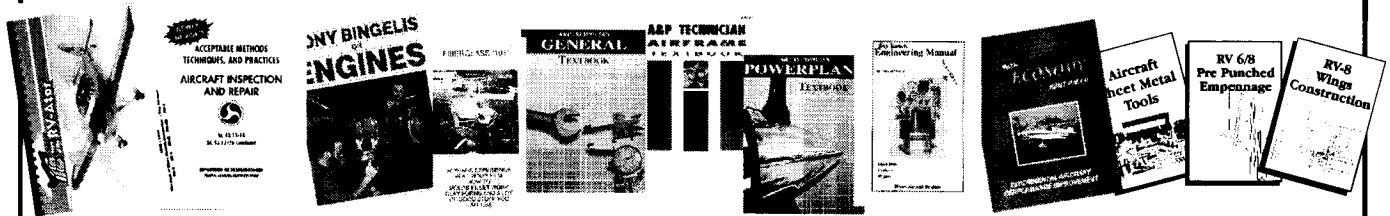
Access panels in the F-8XX bulkhead are a popular mod for RV-8 builders. These pictures from RV-8 builder Danny Lee of North Carolina, posted to the RV-8 OneList, depict an especially useful design.

1/1/2000

Builder's Bookstore

for the builder, technician, & pilot

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RV-ation Bookstore is now Builder's Bookstore

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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. 1/1/00

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 City, NV 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

Home Wing Newsletter Subscription/Renewal

Please fill out 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, date, payment method, and any other information that has changed. **Use this form for address changes too!**

Name: _____ Spouse: _____
 Address: _____ Home phone: _____
 City, State, Zip: _____ Work phone: _____
 E-Mail: _____

Project: Status:

RV-3 Empennage

RV-4 Wings

RV-6 Fuselage

RV-6A Finish kit

RV-8 Flying

RV-8A

Payment: Newsletter

Check: Distribution:

Cash: Mail

Info change only: E-mail (pdf)

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

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