THE RVATOR

THIRD ISSUE 2008

THE HOBBS METER

5,768

COMPLETED RVS

Jim Ashford flies his new RV-7 "Okole Maluna" (Hawaiian for "bottoms up") over Oregon.

Photo by Keith Hamilton

RAY CHAPLIN'S LEGACY

Last year Lee Chaplin wrote to inform us of the passing of his father Ray Chaplin, 77, of Columbia, South Carolina.

Ray received his pilots license at 16 and flew on and off over the years. When he retired, he started flying regularly again, buying a C-172 and earning his instrument rating. The Cessna proved a little too sedate, so Ray began looking elsewhere.

He became an "early adopter" of the RV-6. Having retired at 53, he found his second calling while building that airplane, which flew in June 1991. Ray completed another airplane, an RV-6A, in June, 1994 (remember, this was in an age before QB kits). He was still having fun, so he moved on to an RV-8, finished in April 2000 and then to an RV-7A he flew in November 2003.

"In 1994, my father and mother moved to an airport community called White Plains in Gilbert, S.C. Mom and Dad could not have been happier. Dad's RV-7A lived in a hangar attached to their home, where it was surrounded by neighbors with similar interests," writes Lee.

"Our family and friends will miss my father, but it does lessen the pain a little knowing how much enjoyment he got during his retirement years, building and flying your kits."

In 1990, Van stopped by on his way to Sun 'n Fun and had a look at Ray's first project (above). He remembers that Ray built straight-forward, clean airplanes that flew very well.

We're glad we had a chance to work with him, and hope the owners of his airplanes continue to enjoy them and care for them the way Ray did.

RV RESURRECTION

A PAIR OF DAMAGED RVs GET NEW LIFE

We put a lot of time, energy and emotion into these airplanes, and when some stroke of fate takes them away and leaves us standing there, it's a wrenching experience. Hurricanes, floods, falling trees and Chevrolets have all conspired to turn thousands of hours of work into the aeronautic equivalent of crumpled beer cans.

So, if you're an airplane builder and your airplane is damaged, what to do? There are several paths open. You can rebuild, or you can sell the damaged airplane and build a new one, or you can take the insurance settlement and buy a boat.

Here's a couple of stories about builders who took diffferent paths:

When a C-180 taxied into his innocently parked (and brand new) RV-7, ***Dana Overall*** *went through the entire gamut of emotions, did some deep breathing and decided, on the spot, to rebuild.*

Top: Livin' the dream. Camped out by your new RV-7.

Bottom: Dream interrupted. Cessna 180 taxis into new RV-7 and chews it up badly.

The weather on Memorial Day Weekend proved to be just as predicted; light winds, temperatures in the low eighties—perfect for flying *Black Magic*, my new RV-7. Airplane camping is one of the things I was looking forward to when I started building my RV-7. I could see myself leaning up against a tree next to the airplane, tent behind the wing—I dreamt that dream too many times to count. I decided that this was the weekend I was going to live that dream. Days before, I had packed my backpack in anticipation of just this weather. I posted a thread on Van's Air Force asking for information on airports in the North Carolina/ Tennessee/South Carolina triangle that allowed tent camping and came up with quite a few possibilities. The weather looked a little iffy over the Appalachian Mountains so I decided on Rough River State Park, in western Kentucky.

The trip over the Rough River was as smooth a ride as any my RV had provided in the 48 hours she had been airborne. Upon landing at Rough River, *Black Magic* and I were surrounded by several Piper and Cessna pilots who recognized the RV profile on downwind and wanted to see the Van's design up close. Upon shutdown, I momentarily felt like a celebrity, only to realize it was the airplane they were looking at not me. Oh, well. All during Phase 1, and the few hours in Phase 2, the airplane got the same kind of attention wherever we went.

What a perfect evening, perfect weather, parked in the grass, tent set up, a little wine and cigar, nice night camping in the tent…life doesn't get much better.

I hated to see the weekend end, but it was time to take off and head for home on what would be a short

Dana Overall, better times.
"I never though about not rebuilding it!"

flight at RV speeds. Rough River had stopped pumping gas so I stopped at Elizabethtown, KY for fuel and lunch. I shut Black Magic down on the ramp and headed off for lunch in the airport car. As I was driving back to the airport, I caught a glimpse of *Black Magic* with a lot of people standing around her, and another airplane parked real close. When I drove around the next hangar, I saw the other plane – a Cessna 180 used to haul parachutists — was not just parked close but had in fact *chopped its way into* my new RV-7.

I literally ran from the car onto the ramp and felt a crushing weight on my shoulders the closer I got to my new airplane. My feelings bounced from disbelief to astonishment to bewilderment. How could someone taxi into my airplane when all it was doing was sitting on the ramp? The pilot of the jump plane was talking to himself: "Why couldn't I have run in a 152? Why did it have to be an airplane someone had built?" He was truly sorry and told me he simply was not S-turning as required with the airplane. The initial impact was passenger side cowl to cowl of both airplanes – understandable, as this would have put my airplane in his blind spot while taxiing straight. At this time owner of the jump school came up, saw my emotion and said, "It's OK. The insurance will handle everything." I'm sure he meant to be comforting, but I was amazed by his off-handed dismissal of this disaster. I put my blood, sweat and soul into building that airplane. He obviously did not *get it.*

My only thought, while standing on the ramp, was what I was going to have to do to rebuild her? I never even thought of *not* rebuilding her.

Why rebuild, you ask, when I could have accepted a check, bought another RV and been back flying in a few weeks.

I do not want *another* RV. I want the one my sons Philip and Brian helped me build in our garage, basement and hangar. Every time I flew this airplane, I looked at the rivets in the wing, or the aileron rod end bearing, and thought, we built this wonderful airplane. How could I not rebuild her? We put so much of ourselves into building this airplane, had such a wonderful time, enjoyable conversations, blood (yes, really) and dreams into *Black Magic*, there is no way I could ever imagine the insurance company hauling her away to be salvage. No way, she will fly again, sooner rather than later.

A week after the accident, I, along with several local RVers whom I can never thank adequately, met at the airport to start disassembling *Black Magic* for the 2.5 hour drive back to my house. I did have to turn everything on just to see her alive one last time before the rebuild. With wrenches in hand, we got to work. I never thought I would be disassembling her, certainly not after only 49.2 hours. With six or seven workers, we got the fuel drained and wings off by late afternoon. It is not quite like putting a set of wings on. The flaps, upholstery, and seat pans must be removed to get to the pushrods and wires. The wingtips had to be pulled to get to nav light connections. It is a process. Cruising back home, via the interstate, I had time to begin imagining the rebuild process. *Black Magic* now sits in the garage. She wasn't supposed to be in this shape, but she is. Let the rebuild process begin.

As of this writing I have removed the prop, engine, forward deck and instrument panel. I have ordered my new engine from Barrett Precision Engines. All other parts are coming from Van's. The RV community came to the rescue again on the prop. There's a 16-week lead time on new Hartzell. RV-7 builder Kevin Young called (from Iraq!) and offered me his prop, which was sitting on the shipping dock in Ohio. Hartzell changed the address on the box and sent it to me instead. I have started an in-depth examination of the firewall and fuselage. I, like many who think about becoming repeat offenders, kept all my tools.

I didn't anticipate this but it has turned into nothing more than an inconvenience. I waited 4 years and 11 months for *Black Magic* to fly the first time and I will experience that magic with her again. It's hard to look at her bruised but that's all she is, bruised. Time and a little doctoring will make her new again. Keep building, I hope I conveyed the feeling you will experience when your project transforms itself from a project to an airplane. You will never, ever regret those hours spent building when you experience your flights in the wings you built. I will experience that feeling again.

Not rebuilding is not an option.

ANOTHER APPROACH

SCOTT MCDANIELS

Most people with a desire to own an RV have fulfilled that need by building one. Some people have opted to buy one that has been already built.

I chose a third option.

I purchased one that had been already built, but needed some "re-building". But that's getting a bit ahead of the story…

If you look close, there's a lot of things wrong with this picture: shattered canopy, smashed spinner, bent prop, collapsed nose gear leg, etc.

Fixing it all is possible but not trivial

A couple of years ago I began a casual search for an RV. I had no particular model in mind other than it having two seats, since the primary reason for the search was to find the airplane for fun flying with my son (13) and daughter (11) now that they were older. My son had flown in the RV-6A my wife and I completed back in 1993 (we may have had the first 3-seat RV, when I installed a child car seat in the baggage compartment). We sold the RV-6A in 1998, but they both still enjoyed flying with me in company airplanes on occasion.

Well, time passes and things change. Because of insurance and liability issues, we could no longer allow minors to fly in Van's company airplanes. I began to search for an airplane that we could afford to purchase and own. Initially I considered certificated airplanes because of their lower acquisition cost, but after working in the experimental side of general aviation for many years, I just couldn't bring myself to give up the added performance and freedom that we enjoy operating airplanes in the experimental category. I wasn't in a big hurry, but I really didn't want to build an entire airplane. I hoped to find a "fixer-upper" that would allow me to use the skills I'd gained building my RV-6A to acquire an airplane for less cash in far less time.

I eventually ran across an RV-6A that had been completed in 2004. The required phase one flight-testing had just been completed when a landing accident resulted in the airplane coming to rest inverted some distance from the runway. The airplane and engine had only 44 hours total time. Unfortunately, it was a long way from where I live.

Purchasing any airplane using only a written description and some photographs is a gamble. I highly recommend a personal inspection, or at least have someone experienced with RVs and well removed from the negotiation process look at it for you and report what they found. Even if you do personally inspect the airplane, if you have no experience with RV's it is highly advisable to still have an RV experienced person look at it with you. I did not do this, but after some hard thinking, I was willing to take the chance because the purchase price was such that, if all the worst case possibilities become reality, the total investment would still be reasonable.

The airplane was equipped with a gyro panel, a moving map GPS/COM and transponder, a fresh O-360 from Aerosport Power, and a fixed pitch Sensenich propeller. All other details were pretty much standard built RV-6A, with a tip-up canopy, manual flaps and aileron and elevator trim. It was a late enough kit that it had pressure recovery wheel pants and the prepreg S cowl. A major benefit was that it had not been painted. This made the sheet metal repair work much easier. *(After doing a similar repair on a painted airplane, I second this!…ed.)*

I knew from the description and photos that I needed to plan on the following to make the airplane airworthy:

- A full engine tear down and probably a crankshaft replacement.
- The propeller might be repairable but I factored in replacement.
- The outboard leading edge skin, nose rib, wing tip, and landing light lens of the right wing would have to be replaced.
- The entire empennage needed to be replaced.
- The nose gear leg, nose gear leg fairing and nose wheel fairing needed to be replaced.
- The cowling needed to be repaired.
- The spinner needed to be replaced.

- A new canopy would be needed.
- At least a couple of fuselage skins would need to be replaced.

Before completing the purchase, I spoke with Sue at Aerosport Power about the cost of an engine inspection. While we were on the phone she looked at the engine file and noticed that the build date would probably mean that the ECI cylinders installed were effected by an A.D. that limited them to 800 hours. (Sue and Bart are about as good as it gets when it comes to customer service and knowledge of Lycoming engines.) This was great information to have and it was also factored in to my purchase evaluation. I negotiated the price and made the deal.

Partain Shipping transported the damaged airplane to Oregon on their way back from Sun 'n Fun 06. They did a great job and caused no additional damage.

Eventually, only three fuselage skins remained. Fitting the new ones to an un-punched RV-6A required jigging up the fuselage skeleton and back-drilling from the inside.

We began disassembly and repair in the end of May 2006 with no specific goal for completion other than to take our (my son and daughter were both involved) time and not let it seriously impact our family life. It would be done when it was done. My son and daughter will both tell you that I estimated we would have it flying before the Pacific Northwest rains started in the fall, but I don't remember saying any such thing. All experienced RV builders (and re-builders) know it is foolish to estimate a completion date.

So how close did my repair evaluation come to reality? Portions of it were right on and portions of it weren't even close. I did end up replacing the entire empennage and doing the repairs on the right wing that I expected. I also replaced the nose gear, spinner, and did the expected repairs on the cowling and canopy. Where I missed by a lot was the damage to the fuselage, but more about that later. The crankshaft flange on the engine was bent (dialed about .090 run out) and the cylinders were indeed affected by the A.D. Bart took care of the engine inspection and reassembled it with new Titan cylinders from ECI. These were purchased at a greatly discounted price under an exchange program they have for the ones that are affected by the A.D. I ended up installing a new (FAB-360) induction airbox (I had thought the original would be repairable).

Amy, left, and Adam McDaniels help father Scott get the "new" airplane ready to fly.

I took the prop to the Sensenich booth at Oshkosh and they agreed that it was good…for holding the fabric apron around their booth down in the breeze. I had to buy a replacement propeller, but I was able to use the original spacer and bolts after inspecting them for damage.

My goal was that even though the rebuilt airplane would have a damage history, all repairs would be done in such a way that the airplane was at least as good, and preferably better, than it was the first time. This meant no Bondo'd dents, etc. This required re-skinning the majority of the fuselage. In the end I replaced every skin on the fuselage except for the two top turtledeck skins and the .040 thick skin at the bottom aft end of the tail cone. I also replaced the firewall, three substructure ribs, and the four forward floor stiffener angles. The damaged cowl was returned to the vendor/manufacturer.

They cut out the damaged portions, reinserted it into the mold and baked in new sections. The wing was repaired and a new empennage built, and the installation of a new canopy completed.

Following the helpful green road signs, Scott McDaniels taxis out to fly. Let's see...did I take the right exit off the freeway?

An additional amount of work that I hadn't originally planned for was building a new instrument panel. After looking at it for a while I decided I wouldn't be happy with it because of some ergonomic issues that are somewhat common with airplanes built by first time builders. I reused all of the instruments and avionics. The vacuum gyros are outdated but I kept them because one of my goals was to keep the cost to a minimum. The only addition I made was to put a G meter in the panel (after all, the airplane was intended for fun flying). As a result of the panel change I ended up also rewiring the entire electrical system. The old adage "change one thing, change multiple things" affects us all.

I also took the opportunity to add some of the improvements that have been developed in the later kits like moving the battery from the cockpit area, upgrading the fuel and brake systems, installing an RV-8 vertical stabilizer and counterbalanced rudder, etc. I was also able to remove some excess weight that had been built in so that the repaired empty weight is 10 lbs lighter than the original.

The airplane was ready for its second first flight at the beginning of August 2007 after a rebuild time of about 14 months. I didn't keep track of the total labor time but I estimate it to be somewhere around 500 man hours. The airplane is still far from finished since it is still unpainted and still requires the typical finish/prep work on all of the fiberglass parts. Because it was a repaired airplane (versus newly certificated) there was no flight test requirement. I flew it for about 10 hours solo anyway, to familiarize myself, break in the engine and verify the reliability of all systems. That was completed just in time for my kids and I to show it off at the 2007 Homecoming fly-in.

A few additional thoughts…

Rebuilding a damaged RV in many ways is not much different than building one from a kit in the first place. If all of the work on the undamaged portions of the airframe is sound, it can be a significant time savings (though still a lot of work).

However, rebuilding a damaged RV built by someone else can be very frustrating. I found numerous construction errors, (many of which would have been missed even during a thorough pre-purchase inspection) some of which may have slightly contributed to the amount of damage on the fuselage. An additional frustration is that because of its damage history, this RV-6A probably now has a lower resale value than before the accident, even though I corrected deficiencies that would have remained unnoticed if the airplane had not been damaged.

I know one thing…if I rebuild another RV it will be one built from a fully prepunched kit. Repairing structures built from prepunched kits is *so* much simpler. Remove the damaged skin(s) and other substructure parts, dimple countersink the new parts and skins as needed, and rivet everything back on. It self-aligns and all of the holes match up. A few of the parts in this project were of late enough vintage that they were prepunched (the wing skins and the firewall for example). The rest of the skins had to be made using the undamaged portions of the old skins as drill templates. Then they are clecoed in place and the remaining holes from the damaged areas back drilled using the substructure as a guide.

So, how well did I do with my approach? I estimate that my new ride ended up costing me about one third the time and half the money of a new airplane.

Keep in mind that I've had a lot of experience building RVs over the last fifteen years, much of it helping new builders move their projects along. That's a big reason the hour estimate is so low. To keep the costs down, I accepted some choices the original builder made – if it had been an all-new airplane, I might have made different, more expensive choices.

All in all the project worked well for me – I have an affordable airplane that we can fly while my kids are still at home, it was finished in a reasonable amount of time and cost an affordable amount of money. You can't ask for more.

THE VIEW FROM HERE

The stories above sparked a long conversation amongst the tech help crew.

One of the fastest growing phenomenon on the tech help desk is questions from pilots who have purchased or are contemplating purchasing completed RVs. Hundreds of RVs have changed hands, some of them several times, in the thirty five years since the first RV-3s flew. These airplanes have accumulated varying doses of damage, repair, and revision. Pile this on top of building mistakes and individual builder modifications and there may be a whole host of problems for a new owner to discover and solve. Naturally enough, the new owner calls Van's for advice.

Which we may or may not have.

Increasingly, it's the latter. We just cannot answer the "is this a good repair?" or "is this installation ok?" or "the builder put big holes for wires right here…is that permissible?" questions. We don't have the time or resources to analyze each question, determine if there's a problem and design a repair scheme if there is. *(It isn't just us, either. A few years ago I saw an almost new Diamond 4-place sitting in a repair shop. It had been run off the runway and through a fence, causing numerous gashes, slashes and tears. The shop had been waiting months for Diamond to provide a repair scheme for each individual ding – the Diamond is a certificated composite airframe, remember – before they could legally begin the repair. You can imagine that the Diamond engineering department simply could not put down their current work and spend the time necessary to work out acceptable multiple structural repairs for one airframe. I don't know if the airplane ever flew again.)*

Since we cannot usefully deal with individual problems in finished or damaged airplanes, our best advice is to return the airplane to the configuration shown on the plans. If this is not practical, make a repair that an A&P can sign off as meeting the requirements of the "bible", AC43-13.

This isn't recalcitrance on our part – it's just the facts of life in the field of individual airplanes built over many years by amateur builders.

FOR INSTANCE...

Here's a "for instance". All we know is that a builder somewhere actually built an RV-8 with retractable landing gear!

Someday, we may well get a call saying "tell me about this landing gear option on this RV-8 I'm thinking about buying."

In this case it's easy. We just tell them RV-8 components may have been used in its construction and it may be a wonderful airplane (I bet it looks terrific with the gear up!) but, sorry, it's not an RV-8. We can't offer any useful or informed opinion.

It gets harder when the airplane in question isn't so drastically modified, but the idea's the same. Once it's built, there's little specific advice we can offer.

Now...all we have is this one rather wrinkled photo, so please, oh please, don't call us about retractable RV-8s!

RV-12 PROGRESS

There's not much specific to offer. Flight tests continue, and now that better weather is finally, finally here they should accelerate. A four-day burst of high temperatures – over 100 degrees F – revealed that we needed a bit more oil cooling under these extreme conditions, so we're working on that. We are awaiting a visit from professional test pilot Len Fox, who will be verifying that the RV-12 meets the standards of the Light Sport Aircraft design standard. Spin testing must be completed before we can release and ship empennage and/or fuselage kits. By the time you read this, Len's work should be accomplished.

Another test pilot, Ed Kolano, has flown the red proof-of-kit airplane for a pilot report that will appear in *Kitplanes* magazine later this year. We've always enjoyed Ed's professional and impartial reviews of airplanes – ours and others – and look forward to this one. Photographer Kevin Wing was here to shoot the RV-12 out of Editor Marc Cook's Sportsman. There will be some nice pictures to show you soon.

RV-12 wing kit number one hundred was ordered a couple weeks ago by Lewis Flyr of Columbia, MD. I don't know how Mr. Flyr pronounces his last name but if it's "flier", that's a great name for number 100! Total sales as of this writing are 109. Slow delivery of RV-12 main wing spars from the assembler has caused a delay in shipping wing kits, but this is being worked out.

Drawing sets for subsequent kits have been circulating the tech help/engineering departments, wending their way through a proof-reading/error-checking process. They are certainly the most complete assembly instructions I've ever seen – RV-12 builders have it good!

Meanwhile we've had several requests, probably from erstwhile trailer designers, for RV-12 dimensions. Scott spent several happy minutes in the hangar with a measuring tape and came up with:

- overall length (including pitot tube!) 250"
- vert stab height (air in the tires, wings off/on) 96"
- gear width (outside of tires, wings off/on) 84"
- main gear to trailing edge of stabilator 168"
- fuselage width at widest part 44"
- total wing span 322"
- stabilator width 96"

Photographer Kevin Wing spent some time hanging out the door of a Sportsman shooting the RV-12.

Yeah, he's good.

IN THE SHOP

GIT 'ER DONE

Canadian RV-9 builder ***Terry Elgood*** *received a spar that, for reasons unknown, had an underbent flange. At first he thought that a new spar might be necessary, but when he called I remembered how rebending flanges on old RV-4 spars was pretty common and suggested something to try first and asked him to call me back and tell me how he'd gotten on.*

Terry's a git 'er done kind of guy, and the next day I had photos and a note:

Well, your suggestion worked. I found a 1 ½" x 2 ½" x 2' piece of oak in my junk box, and modified it with a saw cut to fit around the flange and 30 degree wedge cut off so it fits inside the bend. A couple of ¼" carriage bolts with flat heads to reinforce the saw cut, and look out, here it comes.

I tried it at the tip end first and quickly found I had to clamp the spar to my bench with a 2x4 inside. That held the vertical web flat and kept it from flexing. I used ¾" spacers to keep it level because of the bars at the root end. You have to go at it quite carefully bending it a bit at a time over a long area, then go back and bend it a bit more working the bend along the flange. The waffle plate reinforces the rest of the spar web so that area does not flex at all.

The hand-made "bending stick" seems to work okay. One of my concerns was to avoid stretching the flange so that the spar would end up with a sweep to it. I later supported the spar at both ends, with the flange up of course, and the natural sag from the weight put a sweep in the spar so that if I stretched the flange it would be straight after the final tweaking. I used an adjustable carpenter's square to check the flange angle every inch as I worked along the final bend, testing for bumps with the oak bending bar as a straight edge. The only real nuisance in re-bending the flange is that you have to drill off all the platenuts to get at the flange. All together it took 5 hours to re-bend both spar top flanges and remove/reinstall all the platenuts.

You have to be really careful that the bending bar is seated firmly against the inside of the bend radius otherwise you could start to put a curve in the flange itself and you don't want that. Check carefully what is happening as you bend it.

I'm glad to say that what you told me when I called and asked about this operation was right. It was easy. What was a major concern has turned out to be only a one-day no-big-deal deal.

GEAR LEG FAIRING LOCATER-LOCKER

Tony Spicer, well known in the Sonex world, saw the light a couple of years ago and decided to build an RV-3. Tony is a talented and imaginative builder who doesn't waste time worrying about problems. He simply solves them. That's a good trait for an RV-3 builder.

One neat little solution he came up with was a simple way to locate and secure both the gear leg and upper intersection fairing. I've seen a lot of different ways to accomplish this, but for some reason I like this one. I intend to steal it.

Left: top to bottom: Tony Spicer used a wedge of hardwood firmly fiberglassed to his RV-3 gear leg to locate the position of the gear leg fairing. He bonded a nut into it and a single screw now locates and fastens both the intersection and gear leg fairing.

Right: another kind of shop project. JD Woods found a new home for a well used spinner cone. Take that, you squirrels!

RV-10 SERVICE BULLETIN

Customer	*Builder of Record*
40005	G. Nus
40014	R. Conti
40039	B. Schulz
40083	J. James
40114	D. Forrest
40149	I. Jackson
40151	L. Dalbeck
40167	M. Lamon
40179	T. Aytur
40259	D. Allen
40287	A. Clark
40303	S. Stephens
40347	M. Cupitt
40361	R. Lacourse
40436	M. Drury
40755	A. Dee

As of June 21, we had shipped service bulletin SB 08-6-01 to every RV-10 builder in our files. For several customer numbers, we had no current address or owner information. If you have, or know who has, kit numbers in the accompanying table, please give us the information.

Several builders have already completed the work specified in the bulletin and covered the project on their websites. It looks like a couple of weekend days should be adequate time.

Top left: A detail shot of the tank rib, taken through a hole cut in the rear tank baffle.

Left: Another shot of the next rib outboard.

Above: One method of preventing vent line obstruction. I wasn't confident I could glue screen over the vent lines on the existing airplane (easy enough on the bench before the fittings go in, though) without getting goo up in the fitting and causing exactly what I was trying to prevent. So I drilled two holes through the fitting at 90 degrees and criss-crossed safety wire across the opening.

COLLAPSED FUEL TANK

Recently an RV-8 QuickBuilder was dismayed to find the lower leading edge rivets in his fuel tanks leaking after about ten hours of flying time. The tanks had tested perfectly during construction and no leaks occurred during the initial flights…so what changed? We asked him to return the tank. When it arrived, we pressure tested it and sure enough, the rivets leaked. On careful inspection they looked very slightly cockeyed, although the rest of the rivets were perfect. Out of ideas, we cut holes in the back baffle so we could look inside. What we found surprised the heck out of us! All the interior ribs were folded along the fore/aft centerline, virtually collapsed. Somehow this had happened without causing large dents in the thick tank skin, but the strain had popped the forward rivets, nearest the leading edge bend.

Obviously, there had been some severe pressure exerted on this tank, from the outside in. The only thing we could think of was a plugged vent line, but was it possible for a fuel pump to pull enough vacuum to cause something like this? The answer is yes, it is – hard as it is to believe. The builder called us, just before we were going to call him, and reported that he'd found the vent line blocked inside the fuselage, probably by a mud-daubing insect. We came up with a new QB tank and he was able to install it without a problem.

RV plans call out for small bits of screen installed across the entrance to the fuel vent line with tank sealant. After taking off twice with no airspeed indication, I realized that nesting wasps did exist in Oregon and if they got in the fuel vents/fuel lines, the consequences could be much greater than a dead needle. I put a flipper on the pitot tube and used safety wire to keep the little critters out of the vent lines.

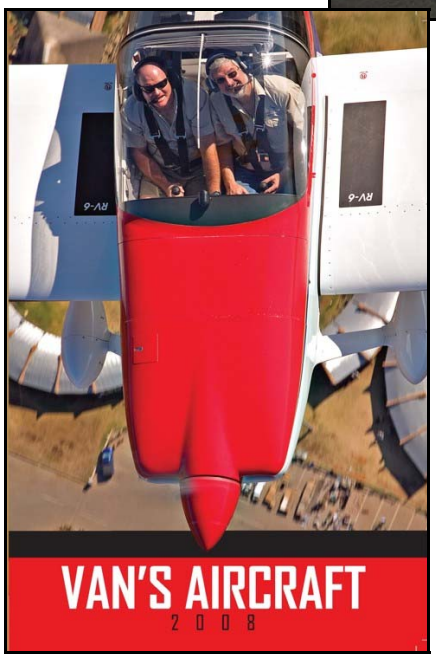
Think it only happens to homebuilders? Here's a little story Joe Blank found on the internet:

The first very light jet to suffer major damage, Cessna Mustang S/N 049, returned to service on February 29 after enduring the collapse of its left fuel tank and two broken wing spars on a ferry flight. The crew heard a bang at 18,000 feet during the descent into AGC, which was followed by a left-engine low fuel pressure warning. They then noticed distortion on top of the left wing and heard a second bang. The crew continued the descent and landed safely. FAA inspectors found that Cessna workers inadvertently blocked the left fuel tank vent with temporary registration numbers made from adhesive vinyl. This blockage prevented the inflow of air to replace fuel drawn from the tank by the engines, and the tank deformed.

CALENDAR PLEA

Fifteen chances for fame! We are soliciting photographs for Van's 2009 calendar. There's no time to lose, as the deadline is September 1, 2008. We need high-quality large format photographs of RVs. We prefer airborne shots, but will consider ground photos if they "tell a story." We usually use vertical format shots on the front and rear cover, and they are often tough to find, so keep that in mind when you go shooting.

We often get photos from enthusiastic photographers who are looking at them with their hearts instead of their eyes: problems that preclude use in the calendar include lack of clear focus, parts of the airplane clipped off (leave enough background around the subject to allow cropping) or the opposite "tiny airplane far away in a big sky" problem. Choose shutter speeds that will allow the prop to blur (really good shots often include a full prop disc) because airplanes with "stopped" propellers don't look right.



Please send your submissions as either high quality prints or digital photos (in .tif or .jpeg formats). The digital files should be as large as your camera will do – the highest resolution possible. These should be submitted on a CD or thumb drive as our email will not handle files large enough to make good calendar shots.

Include information on the subject airplane, builder, location and names of the photographer and pilot.

If you go out specifically to take photos for the calendar, be careful! The accurate formation flying required for good air-to-air photography is an acquired skill. Without it, such flying can be dangerous. If you don't have a good formation pilot, don't try it.

This year's calendar will be the same size as last year's, for postage/mailing reasons. In response to a couple of comments, the date numbers will be darker/larger. I haven't decided on holidays yet – so often they come out wrong. (Right now the EAA calendar on my wall shows Father's Day as June 22, and a few years ago they got the dates for AirVenture wrong!)

EAST COAST REPRESENTATIVE

For many years, Van's has done all our sales work (if you can call it 'work' — "Here, fly it for while. Yeah, they're all like that. Certainly. Just fill out this order form. Thanks!") directly from our galactic headquarters in Oregon. But now, especially with the RV-12 coming on line, there's a niche for a company representative on the East Coast…and we've found just the man for the job. Welcome Mitchell "Chip" Lock. I asked Mitch to introduce himself in the RVator…

East Coast Representative for Van's Aircraft. Wow! How in the name of heaven did I get here? I believe the planets started their alignment in the early 1980's while I was in college. The pressure of studying electrical engineering led me to look for some place to relax. So off to my local Cessna Pilot Center I went, and the lessons began.

It was just what I needed. I loved it. Just like every rookie, I started dreaming of someday owning one of the Bonanzas or Mooneys that were always displayed on the covers. But the price tag… Oh my! Engineers don't make that kind of money and I have never been one for buying anything used, so I had to find another way to own a new airplane. One day while browsing the magazine stacks of the engineering library, looking for more aviation journals, I saw my first copy of *Kitplanes*. What!? There are kits for *real* airplanes? This I gotta check out. I immediately became enamored with the Glasair. However, on closer examination, it required way too much sanding, plus my engineering and pragmatic mind tends to make me rely on proven materials and methods. The Glasair wasn't proven by any stretch of my imagination. And I wasn't interested in the tube and fabric types because their performance numbers were way too low for me to get my 'fighter-pilot-wanna-be' desires satisfied.

Fast forward a couple of years to 1986. I now had a solid job, a new house and some time. I was ready to

build an airplane. I figured the best way to find my dream machine was to attend some fly-ins and see what was really out there. At my first EAA regional fly-in, while perusing the rows of homebuilt designs, I spotted the prettiest little single seat fighter I had ever seen. Sleek lines, bubble canopy, looked fast just sitting there. Whatkinaplaneizzat? I immediately pinned the owner down for the next hour grilling him with a million questions that spontaneously erupted. Luther Peale was his name, God rest his soul. He had built his RV-3 ten years earlier when Van's kits were more or less glorified materials packages. That was a Sunday. Monday afternoon I was talking to Van's Aircraft and ordering an info packet. A magazine article written in 1973 and enclosed in the packet really hooked me. And solidly hooked I was. Two months later my empennage kit arrived and the saga began.

The RV-3 kit was pretty much state-of-the-art at the time, but nothing like the kits we have today. Construction lasted four years and sixteen hundred man-hours. With one hundred hours total flying time and five hours in an Aeronca Champ, I flew my own brand spankin' new airplane. And boy, did I fly it. Two hundred hours in the first year. But it wasn't too long before I wanted to get back in the workshop, plus I was tired of flying alone all of the time. Maybe it was time for an RV-6. But that would have to wait a few years as life had other plans. A few major changes occurred like selling the RV-3, building a new house and starting my own electrical contracting business.

Once settled again, I began an RV-6 which was completed in 2000. (Subsequently, I've found the time to build an RV-7, two RV-7AQBs, an RV-8QB and an RV-9AQB. I presently own and regularly fly the 8.) Just about that time, Van's posted a help-wanted ad on their website. It was one of those days when I was tired and bored with the electrical industry where I had spent the major portion of the last thirty years, so I fired off a resume to Tom Green. After a few phone conversations discussing a wide range of topics, we decided that I would be a good fit with Van's, but the position they had wasn't the right one for me. Maybe later.

"We'll see," said Tom.

In the spring of 2001, I displayed my RV-6 along with another customer built RV-8 at the Van's tent at Sun & Fun. During the show, I got to know Tom Green much better. I let him know in no uncertain terms that someday I wanted to be involved with Van's in some capacity. He responded with a solid commitment of "We'll see." Two years later, with RV-7 QB sales through the roof, Tom called and asked if I could go to Baltimore and check out a QB kit that had a minor spar center section alignment problem. Okay. Working with Ken Krueger over the phone, we took care of that pretty quick. A few months later, I was in North Carolina on the same mission. A year went by and Scott Risan asked if I would have a Van's tent display at an EAA regional fly in. You bet. I've done that for three years now, all the while keeping in contact with Tom and discussing possibilities. Just after Sun 'n Fun 2007, Tom

Mitch Lock (back to camera) demonstrates East Coast job interview technique: Toss the interviewer (in this case Tom Green) in a dumpster and keep him there until you get what you want.

and his wife Susan rode their bicycles from Florida to our home in Maryland and for two days we saw the sights of Washington, D.C. while discussing the future of Van's and my possible involvement. This continued via phone and email for the next eight months until we finally put together a good fit for us all.

With the introduction of the RV-12, Van's really needed to have a demo aircraft somewhere other than the west coast. That's where I come in. Van's is supplying me with an RV-12 kit which I am assembling and will use as a factory demonstrator. With it I will be attending major and minor fly-ins along with visiting the local EAA chapters giving presentations and demo rides. The aircraft will be based at St. Mary's Regional Airport (2W6); about fifty miles to the southeast of Washington, D.C., well outside of the Air Defense Identification Zone, which will allow me a relatively free hand to give demo flights.

One of my attractions to the business side of Van's is that they are slow and methodical when venturing into uncharted waters. So it is with my endeavors as the East Coast representative. For now, I'll be assembling the RV-12, talking it up and promoting the entire Van's lineup at as many venues as possible. The next step will be to fly demos and eventually offer builder's assistance. We have discussed other possibilities, too, in our slow and methodical way…

"We'll see," says Tom.

OSHKOSH

KEN SCOTT

This issue will hit the website/mailbox just before we leave on yet another trip to Oshkosh. (Sign on Orion Fuel's truck this year "100LL $4.99"? Well, if we're lucky…). Our forum schedule has changed from what's been posted in the past. The new schedule includes two forums:

FORUMS AND RIDES

So You Wanna Build An RV held Wednesday 7/30/2008 from 11:30 AM - 12:45 PM in tent 009 at the Honda Generators Pavilion. This will be aimed at potential RV builders. It will cover the decisions involved in determining if an RV is the right aircraft/project at all, and if so, which one is the best fit. We will cover what it takes to build an airplane, including the pitfalls and traps we've seen over the years. Finally, we will discuss what it takes to fly an RV successfully.

Flying Van's RV-12 held 7/31/2008 from 8:30 AM - 9:45 AM in tent 007 at the Honda Pavilion.

Demo rides in the RV-7, RV-9A and RV-10 will be available for most of the show, but not all the airplanes will fly on the same, or every, day. You may sign up at our booth, where we will have the schedule available. We are not sure yet whether rides will be available in the RV-12. Rides in the RV-10 will be limited to two passengers and cost $50.00, fully refunded on an RV-10 empennage order. There is no charge for rides in the 2-seaters.

Google Earth — an amazing tool. It's not razor sharp at this enlargement, but it's good enough to see Ripon, the tracks and road heading toward KOSH (which are often confused by pilots) and Lake Winnebago in the distance. Study this a while, imagine it in a haze, rotate the photo to a lower altitude and when you get there, voila, it looks familiar.

Now, our annual demand/plea/devout hope/lecture about flying into Oshkosh:

BE PREPARED!

- If you are flying into AirVenture, prepare yourself! READ the Notam. Read it again. Read it out loud to someone else. Have someone take the written copy and ask you questions. Flying the approach to AirVenture is a test. It isn't a difficult test if you're prepared, but the consequences if you fail it are high.
- Understand the geography. Oshkosh couldn't be much easier, with runways exactly east/west and north/south. You can use Google Earth and other sources to build a picture in your head of the airport layout, landmarks, reporting points. Just like simulator time, the object is for everything to look familiar when you get there.
- Forget you have a PTT switch in the airplane. Every year we hear pilots stumbling through radio reports, requests and just plain jabber while every other pilot for miles around is wishing they would…just…shut…up! Learn to listen and pick the instructions that apply to you out of the high-speed wordstorm. How? I don't know – watch the car auctions on cable TV, maybe?
- Practice with your airplane. Spend some time flying the precise altitude and airspeed required by the notam, while following a ground reference track. Know what power settings you'll need and how to set them accurately without having to do more than glance inside the cockpit.
- Get very comfortable with slow flight. We've preached this many times in the RVator as the key to proficiency. Never more important than when you're flying at slow speed in line with airplanes that might be flying even slower – whether they are supposed to be or not.
- Know how to do a short, steep, accurate approach and touchdown within a couple airplane lengths of your intended point. This is harder than it looks, especially under pressure, so practice, practice, practice.
- Know where you want to go after you land. As ground controller Jeff Point says, "It's not over when you land on the orange dot!" Make your

signs, get organized and watch where you are going – especially if you are driving a taildragger. Watch where the guy in front of you is going, too. Confused pilots often stop in awkward spots and if you are not paying attention you can be on top of them before you know it.

- If you have a passenger, use them like a rented mule. Assign them a section of sky to search and brief them on how to alert you if they see an airplane. Make sure they are watching things once you're on the ground, too. The ground stuff scares me more than the air stuff a lot of the time. It's where all the airplanes are closest together.

One thought that occurred to both Gus and me after spending way too much time in a taxi conga line, and seeing the unfortunate aftermath of the Grumman Avenger/RV-6 accident: now, when we come to a halt in line, we swing the nose to one side and stop at a 30-40 degree angle to the taxiway. This allows us to look over our shoulder and watch the airplane behind us. If it doesn't stop, a quick punch of throttle will scoot us out of harm's way without hitting the airplane in front of us. It might be a rugged taxi off the pavement, but it's better than eating a propeller.

LOG BOOK MUSINGS

Ken Scott

Many years ago, just before we left Colorado for Ohio in his Aeronca L-16, Bill Willcutts showed me his logbooks, stacked in a row in his office. They were far more than the usual cryptic notes of takeoff/landing locations and times enroute. They had extra notes in the margins, small photos of impossibly young Bill with his C-180 in Alaska, an almost equally young version driving a Metroliner around the Great Lakes, the somewhat older (I hesitate to say mature) Bill standing under the nosewheel of the Northwest 747 he flew to the far corners of the globe. It was a wonderfully evocative personal history and something his sons will treasure.

I've never got to the point of pasting in photos, but reading Bill's entries did put me in the habit of trying to make some small note that would evoke a memory of a particular flight. It's been raining a lot here, so I found myself reading back in my own log book, whereupon I happened on the entry: "hat trick!" That was the day about four years ago when I flew my RV-6 to work, and then, in the course of the day, flew demo rides in the RV-7A, RV-8A, RV-9 and RV-10, quite by chance in numerical order. This was pre-RV-12, no RV-3 or RV-4 was in sight, and the one and only RV-5 wasn't flyable, so I can't claim the entire RV line – but still, I wonder if anyone has ever had the chance to fly that many different RVs in numerical order on the same day?

OK. I'll go do something useful now…

SIGN OF THE TIMES

Not too low, we hope...