

HANGAR ECHOES

EXPERIMENTAL AIRCRAFT ASSOCIATION
CHAPTER 168 DALLAS TEXAS

Father and Son RV-4

By Marvin Brott

Several months ago I stopped into Rockwall to gas up and met Chuck Olmsted at the FBO. He indicated that he was finishing up an RV-4 and should have it flying very soon. At the May meeting we met again and I got the news, that indeed he had finished the RV-4, and it had flown hands-off with absolutely no problems on May 1. Congratulations, Chuck, from EEA Chapter 168. He is really happy with the speed and rate of climb of this RV. As I will point out later, Chuck's flying experience is such that he should not be overly impressed, since he has done a lot of climbing and flying fast.

This RV really belongs to his father but it was a father and son project over the last eight years. Chuck is retired Air Force where he worked with sheet metal for most of that time. So as expected, the sheet metal on this RV-4 is excellent. The airplane came in at 906 pounds which is one pound more than Van's prototype. Just incredible! This is the lightest RV that I have run across. Chuck indicated he checked the weight several times and that there were no parts remaining in the boxes after he completed it. This is a clean and simple RV-4. It has a Lycoming O-320 150 horse engine with a

Warnke wood propeller. The N number is N54CV. The CV is for his father, who is also Chuck and his mother Vivian.

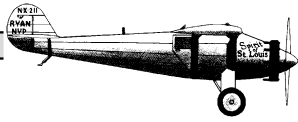
A couple of unique features on this RV-4 were the exhaust system and the seat cushions. Chuck built up the tuned exhaust system with four pipes which had been specially coated inside and out. He indicated that the coating significantly reduces the ambient heat coming from the pipes. The cowling was modified slightly to handle the four pipes. The entire system really looked good. The other item which caught my eye were

the seat cushions. While Chuck was working at Tinker Air Force base they conducted a study into looking for better seat cushions. They contacted the defense contractors for seats and General Dynamics at the time sent them the prototype seats out of the F-16. You guessed it, Chuck retained these seat cushions and with some modifications they are now in his RV-4. While they have not been covered yet, they absolutely looked great from a comfort standpoint. This is something that the RV crowd should follow up on as a good idea for 4's and 8's.

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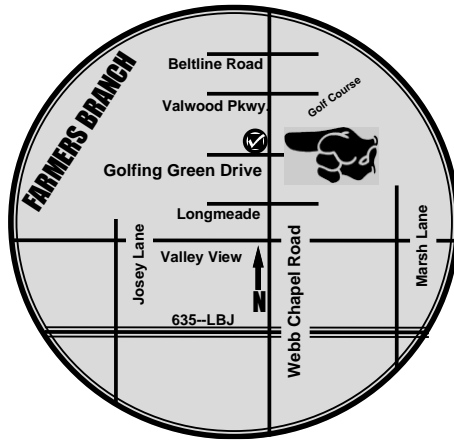


Chuck Olmsted and RV-4 N 54CV



June 3rd Chapter Meeting

Our June 3rd (first Tuesday) Meeting will be held at the Farmers Branch Library, located on the Northwest corner of Webb Chapel and Golfing Green Drive. The meeting will be held in the auditorium and will begin at 6:30 p.m. and finish at 8:45 p.m. Please plan now to attend!



The June meeting will be on safety of flight as we approach the summer flying season. It should be mentioned that there were fewer general aviation accidents in 1996 than in any year since record-keeping began in 1938, according to preliminary statistics that the NTSB released last month. NTSB also reported there were fewer fatal accidents than any year since 1956. Total accidents in all general aviation operations numbered 1,907 in 1996 compared to 2,054 in 1995, a 7% improvement. Fatal accidents went down 13% to just 358 among the 181,000 general aviation aircraft in operation in the U.S. Fatal accidents numbered 411 in 1995. The fatal accident rate was the lowest ever: 1.51 per 100,000 flight hours, approximately 13% better than the 1.74 per 100,000 hours in 1995. The accidents have decreased steadily every year since 1978. The Air Safety Foundation noted the majority of accidents were landing mishaps. While low-altitude maneuvering flight, as usual, accounted for the majority of fatal accidents, such accidents were down 24% in 1996. The June meeting will help with continued pilot education. One of the purposes of this newsletter is to publish safety related articles and you will see a couple in this issue. Remember, that your next flight is the most important for maintaining or improving our safety record.

June 7th Fly-In / Drive-In

On June 7th (Saturday following the chapter meeting), the Chapter 168 fly-in/drive-in will be something new for Chapter 168. It will be at the Pelican's Landing Restaurant at Cedar Mills Marina on Lake Texoma. Red Marron who is a good friend of Rich Worstell, the owner, and the rest of the RV flyers have been going to Cedar Mills for some time.

Based on information from the \$100 Hamburger and a Mother's Day outing for my wife, Pat, lets take a tour of Cedar Mills. It's listed as "Sherwood Shores" (close to Gordonville) on the DFW Sectional. The restaurant is a nine-minute stroll South of the aircraft parking area. It is part of the huge Cedar Mills Marina. Fly-in visitors can nearly hit the

restaurant with a thrown stone from parked aircraft; however, a small inlet lies between the parking area and this delightful little restaurant. An attached open-air dining room overlooks the attractive marina, bristling with tall masts. Inside and out, the restaurant is spotless. A good view is to be had from the dining room. Service was exemplary. Lunch and dinner is also moderately priced. Burgers are less than \$4 and dinners begin at \$9.

After eating, we walked across the street to the pristine Ship's Store and Boutique. A friendly clerk gave Pat a brochure on the resort and cabins, RV hookups and a sailing school. They have just built duplexes right next to the airstrip which the Sherman chapter took advantage of in May with an over night fly-in. Then, enroute back to our waiting RV-4, we checked out the marina's pot-bellied pigs and ewe.

Assuming nearly zero winds, take off downhill, toward the lake, be careful there is no inbound traffic, landing opposite-direction. A right turnout over the water provided us one last spectacular view of the entire resort.

- Runway Length: - 3,000' (Addl 300' ovrrn, W end)
- Field Elev: - 640'msl
- Runway Heading: - 270/090
- Runway Surface: - Dry grass, fairly smooth
- Runway Slope: - Moderate uphill to west
- Wind Indicator: - Sock, SE end
- Multicom: - 122.9 (AIM Para 4-9e(1))
- Coordinates: - N33.502 W096.488

Calendar of Events

- June 6-8 Bartlesville, OK National Biplane Association
- June 13-15 Gainesville, TX Texas AAA 35th Annual Fly-in
- July 4-6 33rd El Dorado, KS Fly-In (316) 943-1864_
- July 30 - Aug. 5 Oshkosh, WI 45th Annual EAA Fly-In and Convention at Wittman Regional Airport

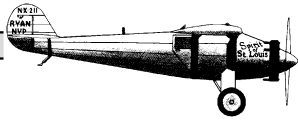
June 12th Director's Meeting

The June Director's Meeting will be from 7:00 - 8:45 PM at the Farmers Branch Library on the 12th. The following is a report by Gerry Mizelle from the May meeting.

- No report this month, cover at 6/3/97 meeting

June 24th Newsletter Assembly

The July issue of Hangar Echoes will be assembled at Beverly, Earl and Buster Browning's home on June 24th starting at 7:00 PM. The address is 2808 Winfield Dr. Plano, Tx 75023 phone 972 - 758-0582. Don't miss this newsletter assembly.



May 21, 1927

A Message From the President Monroe McDonald

May Activities

We really lucked out on the weather for our Young Eagles fly-in at Love Field, and I for one had a flying good time! We did not have as many kids turn out as we expected, but the planes that came got to fly two or three sorties each. The mother of two boys I flew gave me what seemed very genuine thanks, and said the boys want to be pilots, and this might do the trick. Who knows?

Southwest Regional Fly-in aka. "Kerrville"

We had the SWRFI board meeting at San Marcos airport on Saturday 5/17. That is one of the sites being considered for future fly-ins. Based on our discussion of proposed changes in the fly-in last Chapter 168 meeting, we re-opened the discussion about holding a banquet, and it is being re-considered, altho the people that have been doing it gave some good reasons not to. It rolls into a larger issue: Mooney is expanding and the area we have been using may not be available any more. We may move to the other side of the field, there may be a hangar available for on-field activities such as the banquet, and there may not. It is all up in the air right now. Watch this space.

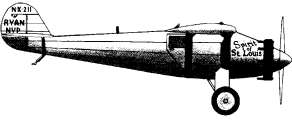
Future Fly-Ins

We are going to try some different places for our monthly "airport meetings" to get a little more variety. Bring your airplane and yourself, we want to see you!

Chapter 168 News

By Marvin Brott

- Thanks Dina and Gary Hansen for all the food and friendship at the May issue of Hangar Echoes assemble.
- Richard Graham was our guest speaker at the May meeting with an outstanding number of people in attendance. He covered what it's like to fly an SR-71. At the meeting Rich sold and signed his book entitled SR-71 Revealed The Inside Story. He sent the chapter \$80 as part of the proceeds from the sale of his book at the meeting. Thanks Rich for this opportunity. Although he ran out of time at the meeting, he sent me a note indicating how much he enjoys talking about the SR-71 and offered to speak at other Chapter's meeting or aviation oriented meetings. Give him a call.
- Congratulations to Michael Carver, our Young Eagles coordinator. Once again he showed us what a good organizer he is with the Young Eagles program. Believe me, he worked hard on the McKinney and Love Field Young Eagle Rallies. 170 kids experienced the thrill of their first airplane ride in one of about 25 airplanes. Even a King Air. The weather was super great and everything went smoothly. I 'm sorry that the article in the last newsletter entitled, Young Eagles and Love was not given credit to Michael. We will see about a follow up article with pictures for the next newsletter.
- The following is a note from Ann Asberry. The Sherman EAA Chapter is having a Young Eagles Rally on June 14, rain date of June 21. As you can see, your help is needed to make this another successful YE event. I know Grayson Airport is not in your backyard, but the kids that want to experience their first airplane ride are the same, no matter where you are. We will cover this at the 6/3 meeting. I would like to know who will help and what you are willing to do, so please send me a message at: pesk@msg.ti.com or 972-784-7544 metro
- A.D. Donald, our treasurer, has found the Chapter 168 Gestetner mimeograph machine. I remember well how my wife Pat typed 10 to 15 legal size pages of material from Dick Cavin, our newsletter editor, on stencils for the mimeograph. Thank goodness for word processing. The chapter is making this Gestetner available to anyone who would like to have an article from the past. See A.D. or give him a call.
- Bo Bauereis, our advertising member, has been working hard to get our newsletter ads renewed as of this issue. Check the ads out, these are important people to this newsletter. We do have a couple of spaces available for new advertisers.
- The May 3 Georgetown Airshow and fly-in was a big success this year with the best weather anyone could ask for. A number of the Chapter 168 members flew down for the day. About 11:00AM Don Christiansen got a great idea of flying over to the Lakeway Airport on Lake Travis for lunch. The Lakeway Inn picked us up and drove us to their restaurant where we had lunch on a balcony overlooking their swimming pool and Lake Travis. Great time was had by all. On the way home, Don, Red and Gary Green stopped by Bob Brashear's to check out his new and most recent RV-6. Bob is the recognized Texas leader of RV's for the help he has given other builders over the past 10 to 15 years. Don indicated the other day that Bob has flown this RV a couple of weeks ago. Congratulations to Bob and thanks for the help over the years.
- On Saturday the 17th of May, the Terrell airport had a pancake breakfast and Ercoupe fly-in. Jim Quinn, who has his Ercoupe at Aero Country, told me that about 35 Ercoupes showed up for the fly-in at Terrell.



Unfamiliar Airports - My Own

by Peggy Fry

I'm writing to confess a stupid mistake and to give you all an opportunity to either say:

- A. What a dumb blonde.
- B. I'd never do that.
- C. I've done that.
or at the very least...
- D. I'll learn from her mistake.

So here goes...

It took some coaxing from Bob but I finally got in the left seat of the our Cessna 206 to do some pattern work at our new airport, Pennridge, after our recent move. I'm the one in the family who takes a while to adapt to change. It had been 2 months and a different state since I had flown and I had a few butterflies about navigating a new airport and its surrounding territory. I was about to find out just how much we often fly on "autopilot" in our familiar surroundings.

It was a cold January day, and I bundled up and did my preflight with heavy anticipation of climbing into the 206, firing her up and turning on the cabin HEAT! I noticed I had to pay more attention to my taxi procedures moving away from the hangar and on the ramp areas. The taxiway is a narrow strip lined with planes on tiedowns with an uphill grade. The pavement wasn't exactly constructed with a level. There are a number of low areas and if you're taxiing too fast it could catch you off guard. With too much speed it could sway your airplane enough to cause a prop strike. I watched my wing tips carefully and followed the yellow taxiline. I did my runup and checked for traffic in the pattern. I like to use the HATS check as a final preparation before take off -

- H - Heading ... 055 degrees ... check
- A - Altimeter field elevation at Pennridge 560'...check
- T - Transponder to ALT check
Time 2:00 pm check
- S - Switches
Trim set...check
Flaps up check

I announced my intentions on the radio for departure. The pattern was clear so I edged up on to runway 26 and began my forward roll with a gradual steady application of power. "Betty" (the 206) climbed happily in the brisk January air. The wind sock had indicated a crosswind off my right and I corrected for the drift on the upwind. I had decided to depart **the** pattern and get the feel for the plane again. I climbed through 1,000' msl and announced my departure. Having flown in Illinois and Texas in nice flat territory, the terrain of Pennsylvania with its rolling hills and trees sure had a different look to it. Climbing to 2,000' and leveling off, I scanned the skies and began to take in the sights below. I was surprised that at this indicated altitude I seemed to be close to the terrain, even though the local elevation

was similar to that of our previous base in McKinney, TX. Chalking it up to 2 months out of the plane and the fact that I was flying over a ridge, I did some "s" turns and meandered here and there just getting comfortable with the plane again. Still the visual cues just weren't there and I had this lost feeling as I looked for something, anything familiar. I decided to head back to the airport. I descended back down to 1500' (pattern altitude) and turned back to enter the pattern. I hadn't seen the airport from the air and didn't know what the pattern "looked like" from that perspective. I scanned to find where landmarks were and where downwind might be and at that moment I was wishing I was back in the Cessna 150 I had trained in. I wouldn't have been going so darn fast and could have studied the lay of the land at a nice slow putter. Entering on the 45 for downwind for 26, the water towers and church steeples caught my eye as the landscape "flew" by. My eyes couldn't keep up with all the new visuals as I tried to establish the perimeter of the airport traffic. My altimeter said I was now at 1609. The high school came zooming up on my left and I noticed there weren't any kids outside - not quite the end of the day, but the buses were lined up at the pick up zones. I rounded to the base leg and lost 200' and turned for final. WHAT? The Vasi was RED over RED and by the approaching tree tops I knew it to be true. It didn't make sense because the entire pattern I had made the standard altitude changes and my altimeter was showing me actually a little higher than normal for final approach. Suddenly the crosswind was getting ahead of me as I fixated on my altitude problems and I quickly corrected that to be aligned with the runway. I added power and kept the nose down to avoid a stall as I tried to increase my altitude to clear the trees and the blast fence at the end of 26. I plopped onto the runway. My landing was flat and unflattering. I cleared the runway and began my cleanup - HATS...

H - Heading 180..check

A - ALTIMETER...Good grief! ***I had set it for 1,560" instead of the correct 560'!***

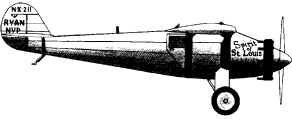
Not paying close enough attention to my preflight because of the cold, the nervous jitters, and my preoccupation of unfamiliarity caused me to miss a critical item. No wonder everything **looked** so close - it was so close! My visual cues that something was wrong should have been speed and details on the ground. I just wasn't paying attention to them. A nauseous wave went through me as I corrected the altimeter and finished my HATS. I taxied slowly back to 26, all the while hearing the words, stupid, stupid, stupid replay in my head. What if I'd been in some real mountainous area? What if I was in poor visibility caught in the soup somewhere? What if I lost power? Vigilance! Vigilance! I took deep breaths and continued back to 26. I went through my checklist one more time.

Heading

ALTIMETER - **560'**

Time, Transponder

Switches - Trim, Flaps



I announced my take off. Again the 206 climbed like a banchie but hallelujah this time there was plenty of space between me and terra firma! I didn't seem to be screaming around the pattern and since everything wasn't so close the large landmarks stood out and lo and behold, that imaginary line in the sky for the airport pattern appeared. The high school was well out of my path as it should have been and when I turned final the Vasi confirmed that I had gotten my act together - "red over white, pilot's delight!" I slid down the glideslope and greased the wheels onto the runway. Up and around twice more and the picture was clear for me. My new airport, Penridge was no longer looking like a foreign place - but home. I taxied over to the gas pump and Chuck topped the tank. We put Betty back into the community hangar with "Citation Joe" and his other airplanes buddies. I noticed the bite in the January air wasn't as cold. Sweating bullets had changed that. Check and double check, and extra diligence are required at an unfamiliar field. Lesson learned.

Trade-A-Plane Blues

By Tandy Allen

What do you mean Trade-A-Plane Blues? Everyone knows that the Trade-A-Plane paper is yellow! Of course, it is. What I am talking about is the "blues" one gets by trying to find the airplane of your dreams in the bewildering array of offers in the want ads therein.

By the actual, but unofficial, count, the latest issue of the paper listed over 60 different types of airplanes in just the Experimental Flying section alone. They are all there slick SX-300's, Glasair's, Lancair's down to a forlorn 'EAA Biplane - needs TLC.

As you might expect, Van's RV series, 3's, 4's, 6's, and 6A's lead the count with 14 listings. Surprisingly, the Glasair's and Lancair's are second with 13 each. The popular Kitfox, in several versions, has 9 listings.

As one pages back and forth between the classifieds and the telephone area code listings (to find out if any of these planes are in reasonable distance from Dallas), you have to wonder why these airplanes are for sale. After all, we know that each one is the product of hundreds if not thousands of hours of intense labor and more investment than one could ever hope to recoup. Some of the answers are there in the ads -"Lost Medical", "Estate Sale" and so forth. I always wonder how many are for sale simply because the owner enjoyed building but doesn't like to fly. Or perhaps because the spouse has said "That darned airplane, or me. One of us has to go".

Speaking as one who is slowly building a wooden biplane in his basement, each of these ads brings forth a vision of pleasant afternoons exploring country airports and showing off your product to others of a like mind. It is easy to forget the time spent reaching that point. The question always is "Maybe, just maybe, I could obtain one of these at a really good price and forgo all of the fun of building". I guess that is what sells subscriptions to Trade-A-Plane.

In case you wondered, the following were listed in the third March 1997 issue: Smith Miniplane, Questair, Tri-Q, Glasair, SX-300, Lancair, Adventurer, Auriga, Pulsar, Kitfox, Bushby Mustang, Montana Coyote, Falco, Baby Ace, Junior Ace, RV 3.4.6 and 6A, MD-11, Hawker Fury, Kelly-D Biplane, Velocity, Sonerai, Avid Flyers, Glastar, Cassuitt, N-3 Pup, Quickee, Merlin, Rans S-9, Baby Great Lakes, Avia, Celebrity, Starduster, Varieze, ultra Pup, Revolution II, Cuby, Skybolt, Long-EZ, 3/4 Scale FW-190, Mustang II, Tailwind, EAA Biplane, Zenair CH-701, Spezio Tuholer, Starlet, Charger, T-18, Emeraude, Rebel, Sidewinder, Pietenpol, Cavalier, Pazmany PL-4A, Renegade, Flybaby, Osprey, Wichawk, Christen Eagle, Kolb III, Express, Jungster, and Raven.

Brass Nuts

by Monroe McDonald

This is one of those stories that turned out okay, but it could have gone differently, and I hope we can learn something from it.

I recently had an overhauled engine installed in my Mooney, and when we opened the cowling after about four hours flying, found three of the four motor-mount nuts broken and loose in the engine compartment. The engine firewall-forward package had been assembled in a first-class engine shop, the assembly was done by a properly-certified and well-experienced mechanic, and the hardware was procured new from a well-known aircraft hardware supplier. Studying how this could happen might help others avoid it.

In passing, I'll make the observation that the Lycoming Dynafocal mounts, where the bolts point at a focal point in the center of the engine, can get along without nuts on the bolts because the thrust force binds the bolts. I've proved it. Don't try this with an engine with the straight mounts where the bolts are parallel!

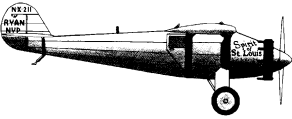
The insidious fact that made this heart-stopper possible is that the AN363 all-metal lock-nut that is commonly used in engine compartments comes not only in the steel version that all mechanics are familiar with, but also in a brass version which is cadmium-plated and looks exactly like the steel one. Hard to believe, isn't it? Since brass and steel are nearly the same weight, the only way to tell them apart is with a magnet.

Once the parts have been pulled from the wrong box by mistake, the rest of the disastrous sequence is almost automatic. When the brass nuts were torqued to steel-nut specs, they did not strip out like you might expect, but later split and fell off.

I'll bet you think it couldn't happen to you.

Wings and Wheels Fly-In Santa Ynez, California July 11-13, 1997

By Dave Davidson



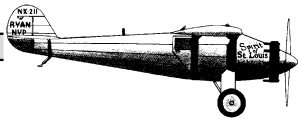
Thirty years ago after I retired from the USAF, a very good friend of mine, Leo Gay (Designer of the Northrup F-5) and I formed the "Vintage Aeroplane Association of California, Inc." Leo was not only interested in Airplanes but he was very active in the restoration of old cars. So, to make a long story short, we put together the annual "Wings and Wheels" get together at Santa Ynez.

This annual event is not a spectator type get together, it is just for us car and airplane nuts. This is the alternate fly in, instead of going year after year to the same events. Believe me, you will have fun, both on the flight out and back and while you and your spouse or friend are in the beautiful Santa Ynez areas. If you have a Los Angeles Sectional Chart you can find Santa Ynez 15 nautical miles northwest of Santa Barbara.

Friday night you can attend the open air theater in Solvang, a few miles from the airport. On Saturday morning you will be assigned to an old car and ride through a tour through the surrounding hills, stopping for a picnic lunch. On Saturday evening the local EAA Chapter puts on a big barbecue at the airport with an open bar. Sunday morning we airplane people take the car people for local rides in our airplanes. Sunday afternoon I am off for a 1 1/2 hour flight up to Monterey where super seafood is served on fisherman's wharf and one of the largest and modern aquariums is located on Cannery Row. With a rent car you can drive the beautiful scenic 17 Mile Drive down the coast to Carmel.

You will love the Danish town of Solvang and all its shops near Santa Ynez and all the shops in Carmel. On the flight out you can visit the "Pima Air Museum" in Tucson, the "Champlin Fighter Plane Museum" in Mesa or the "Planes of Fame Museum" in Chino California.

It is only a two day flight out, and for you flat land pilots, if you have ever been up to 6500 feet you can fly all the way to California. I have made this flight more than ten times in my biplane at 90 knots with a 3 hour and 15 minute fuel supply, so you can too. I know all the fuel stops and motels with transportation, etc. If you would like to go on a wonderful vacation in your airplane give me a call at 972-530-4067 and we will set up a meeting at my house for detailed flight planning, reservations, costs, etc. I have slides to show you of previous "Wings and Wheels. Give me a call as reservations have to be made soon.



continued from page 1

As of May 16th, the RV had 8 hours with another 32 hours to get the restrictions flown off. Expect to see Chuck and his wife Sandy at upcoming RV fly ins.

Chuck runs the FBO at Rockwall so if you are in need of gas, stop by for \$1.63 per gallon gas. While you are there check out the RV-4 and the single place C-85 sports airplane.



Chuck Olmsted With Original Design

As might be expected, Chuck is no new-comer to high performance flying and sports aviation. While showing me the RV-4, next to it was a very interesting airplane, especially to me as an old Sonerai driver. It was a very "highly modified" Sonerai II. I always felt that the Sonerai was a great flying and well constructed airplane but never felt good about the VW engine. Chuck felt the same way. Therefore, he started with a set of Sonerai drawings and proceeded to build the airplane with a C-85 engine. History proved that most of the Continental power Sonerai's were big disappointments due to poor performance. Chuck knew this so some serious modifications were in order. Since the C-85 is about 30 pounds heavier, he moved the engine back 6.5 inches. But the VW on the Sonerai II fits right on the fire wall so he moved the fire wall back 18 inches. Strict CG considerations were held all the way such that in February 1988 he started the test flights of his single place design. All worked out well with a 155 mph cruise on the C-85. Very respectable! It has a full inverted fuel and oil system, so aerobatics are in order. Chuck has been flying aerobatics shows in this airplane for a number of years. Several years ago he sold the wings to a Sonerai builder so he built a new set based on the RV airfoil. He was hoping for a lower stall speed but the end results were about the same as the Sonerai wings.

June 1997

Aviation Humor

This is too good not to share:
The photographer for a national magazine was assigned to get photos of a great forest fire. Smoke at the scene was too thick to get any good shots, so he frantically called his home office to hire a plane. "It will be waiting for you at the airport!" he was assured by his editor.

As soon as he got to the small, rural airport, sure enough, a plane was warming up near the runway. He jumped in with his equipment and yelled, "Let's go! Let's go!" The pilot swung the plane into the wind and soon they were in the air. "Fly over the north side of the fire," said the photographer, "and make three or four low level passes."

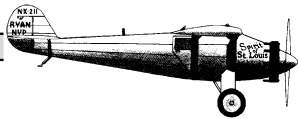
"Why?" asked the pilot. "Because I'm going to take pictures! I'm a photographer, and photographers take pictures!" said the photographer with great exasperation.

After a long pause the pilot said, "You mean you're not the instructor?"

Use the Rudder

by Brownie Seals

Ercoupes have no rudder. Tri-Pacers encourage feet on the floor turns. Why clutter the cockpit and increase the weight of the airplane with those two pedals on the floor? In his "Stick and Rudder" Wolfgang Langewische came out strong for designing planes which did not require rudders.



Duane Cole in his book "Planes, Pilots and Progress" tells the tale of an aerobatic student, graduated from a prestigious, well known air college, who had never heard of yaw control. I have flown with biennial check ride candidates who gave a convincing demonstration that they had no idea of yaw control.

The Wright brothers knew of the need for a rudder. Their major contribution to the airplane was the ability to control the tilt (bank) of an airplane and they had also learned that banking caused an adverse reaction in direction that had to be offset by a control that pointed the plane in the direction of desired travel.

Many pilots trained in modern nosewheel planes never really learn to use the rudder. The main thing they use the pedals for is to turn the nose wheel while taxiing. Most modern planes have designed out a large part of the adverse yaw induced by the ailerons, so it is practical to bank and turn without rudder application. When asked the purpose of the rudder, Cole's student reportedly answered - "to center the ball". Modern training methods avoid spins, steep turns, and other vigorous maneuvers which might precipitate need for strong and positive use of the rudder (after all, airliners don't make steep turns). In the end new pilots are issued private licenses without having really learned the full range of control that is possible in their craft.

In spite of favoring planes without a rudder, Langewische devoted an entire chapter to the subject and sprinkled rudder instructions throughout his famous book. He stated "-- the rudder is the most difficult control to master - - - and takes the greatest time to teach the new pilot --". He also acknowledged that "- misuse of the rudder is a factor in almost all accidents"

The rudder's real purpose is to counteract the adverse yaw effect of the ailerons. You use rudder because you are using the aileron. It follows that any time there is an adverse yaw, any time the longitudinal axis of the airplane is not aligned with the direction it is moving, the rudder can be used to correct the condition. In cruise flight, upsets to direction and wings level require coordinated use of aileron and RUDDER to correct.

Tailwheel airplanes have been touted as forcing pilots to become skilled in use of the rudder. In my instructing

and flight checking I have noted that tailwheel pilots almost always have good rudder skills. The demands for aircraft alignment when landing tailwheels and the effects of "torque" during raising the tail during take off

augment development of rudder skills. However, I see no reason why any pilot cannot practice and develop superior rudder skills in a plane with the little wheel in front.

As I have stated many times, I do not recommend undertaking new aerial maneuvers without qualified instruction. Find an old fashioned VFR type instructor and get some practice in rudder exercises. Duane Cole says he "-- can

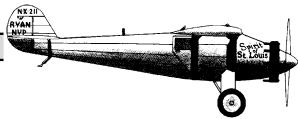
tell by the time he reaches the practice area whether a student has been taught to fly the airplane or to fly the panel --" "-- if all flight instructors who teach VFR would think of the phase as meaning visual flight by reference outside the cockpit and teach accordingly, their students would never have rudder problems --".

A good maneuver to demonstrate the need for rudder is the initiation of a 30 or 35 degree turn with your feet on the floor. Watch the nose against the horizon. At the beginning of the turn it goes the opposite direction. And when you neutralize the aileron the plane begins to turn. Do this at a safe altitude and away from traffic. Note also that when you roll out with opposite aileron to stop the turn, the nose again goes the opposite direction and only really begins to stop the turn when you neutralize the aileron.

In my Hiperlight, which is somewhat short of aileron authority, I frequently find I must use rudder to lift a wing. Particularly in gusty conditions. Rudder opposite the dropping wing quickly returns the plane to level. This practice is good training for lateral control during stalls and really slow flight.

In my first hour of solo I had the danger of using aileron to lift a wing during slow flight indelibly etched into my consciousness. Practicing really slow flight in my 8A Luscombe, I tried to raise a wing suddenly pushed down by a gust. The wing instead of rising went down violently. With 8 hours under my belt I found myself inverted and at a loss for what to do. I don't remember what I did. But to this day 40 years later I am reluctant to raise a wing with aileron during slow flight or stalls. I recommend that you too practice raising a wing in those conditions by using the rudder.





This next maneuver is a good one to get your instructor to chaperon you through. Get high enough to lose at least 2000 feet and still be 1500 feet above ground. Clear yourself and stall the plane, a gentle straight ahead stall. Now hold it stalled and let it sink. As it sinks a wing will go down, use opposite rudder to raise the wing, easy or the other wing will go down. As either wing goes down, use opposite rudder to raise it. You can sustain the stall for the whole 2000 feet and keep the plane upright with the rudder control alone. Recover from the stall and go back up and do it again, and again until you realize that you are in full control of the stalled plane. This maneuver is the basis for, spin recovery and is a real confidence builder.

While you have that instructor get him to put you through dutch rolls and maximum control slips until you are good at them. And while you are on the roll get checked out in a taildragger.

The rudder serves a very important function and deserves to be fully understood and mastered by the PIC of the Fun Flying machine. Full and complete use of the rudder allows the pilot to fully exploit the "three axis freedom" offered by a flying machine. Learn it and enjoy. Enjoy the confidence and serenity of knowing that you can fully control your plane.

Time to FLY.
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Internet Addresses

http://vline.net/eaal168	Chap 168
http://www.eaa.org	EAA Nat
http://www.faa.gov	FAA
http://ceps.nasm.edu	Smithsonian

Top 10 Misperceptions I've Encountered in the Process of Building My RV

By Randall Henderson

10. When you say you're building an RV, they think you're building a motorhome.
9. When you say you're a homebuilder, they think you're building a house.
8. When you say you're building an airplane, they think it's a model.
7. When you're trying to decide which primer to use, you think it's important.
6. When you finish priming, you think finish painting can't be that much different.
5. When you're finished the airframe, you think you're almost finished.
4. When you're flown the airplane, you think you're done.
3. When you find out what a Lycoming costs, you think an auto conversion has to be cheaper.
2. When someone tells you a normal person can finish an RV in 2 years or less, you believe them.
1. When you park your airplane in a locked hangar, you think it's safe.

The above listing was taken from the March 1997 issue of "Home Wing", the newsletter of the Home Wing of Van's Air Force ---- www.edt.com/homewing

- * Small size tubing bender
- * Aircraft scales (3)
- * Set of Greenlee punches
- * Borescope
- * Instrument (2 1/4 and 3 1/8)
- * Flaring tool and cutter panel punches
- * Swaging tool and gauges (Nikopress)

EAA Chapter Tool List

by Ernie Ludwick;

The following is a list of tools the chapter will loan to members. Contact Ernie Ludwick at 241-1185 to borrow any of these tools.

- * Magneto Timer
- * Smart level
- * 24 inch Flexible curve rule
- * Tach Checker
- * Two person differential
- * Cable cutter
- compression tester