

# monink

The Newsletter of Monnett Experimental Aircraft, Inc.

January, February, 1982

Dear Monink Readers,

We are having a heat wave! It's 35° out and we all think it is so warm. It has been a treacherous two months up here in the northland. But alas much work has been accomplished while we were "weathered in" as you will read about in this issue.

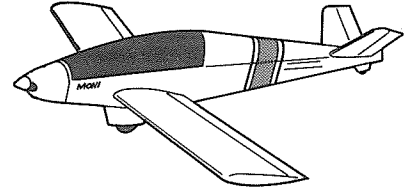
Monnett Experimental Aircraft Builder's Workshops have been set up and the dates for these are as follows:  
**Sonerai - April 3    Monerai - April 24    Moni - May 1**  
As many of you know these are one day, 8 am to 5 pm, sessions on "how to build" the airplane. John discusses and demonstrates all the techniques involved in and tools necessary for the building process. He uses many visual aids, shows slides, movies, video tapes of the airplane being built and flying. There are usually many builders attending but often times there are people who have never built an airplane and would like to get an idea of just what is involved before they commit themselves. So this is a good chance to talk with other builders as well as the designer. Wives and girlfriends are welcome. They may be the ones who do a lot of the building anyway! The registration fee of \$15.00 includes lunch. Please pre-register! Send us your name, address, and phone number along with your \$15.00. We do take Master Card and Visa if you would prefer to call.

For your convenience, I have included a list of motels in the area. Please make your own arrangements for overnight accommodations.

## **Motels and Hotels. . . .**

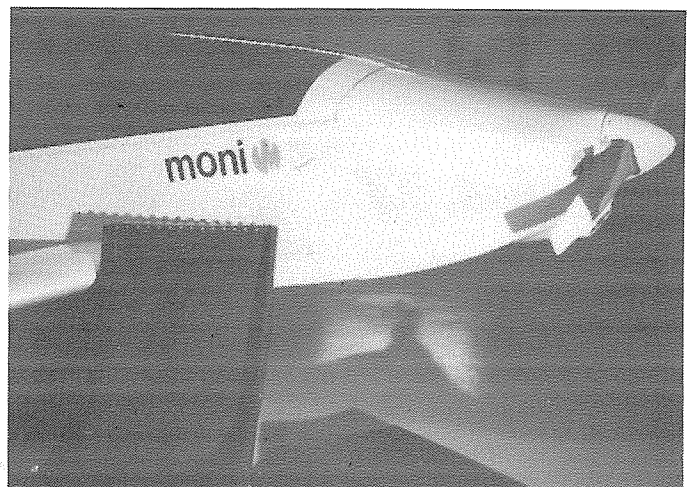
The Place 2B Motel (W), 1965 Oshkosh Ave . 231-2378  
Budgetel Motor Inn (W), 1950 Omro Rd . . . . 233-4190  
Holiday Inn (W), 500 S. Koeller St . . . . . 233-1511  
Howard Johnson's (W), 1919 Omro Rd . . . . 233-1200  
Josef's Motel (S), 4645 Fond du Lac Rd . . . 231-9350  
Monroe's Oshkosh Motel(N), 5158 Jackson Dr 235-4700  
Motel 6 (W), 1015 S. Washburn St . . . . . 235-6720  
Pioneer Inn & Marina (D), 1000 Pioneer Dr . . 233-1980  
Royal Motel (S), 2847 Fond du Lac Rd . . . . 231-9177  
Stoney Beach Motel (S), 3 Stoney Beach Rd . 231-6770  
Town Motel (D), 214 Division St . . . . . 233-0610  
Valley Motel (N), 5181 Jackson Dr . . . . . 231-8090

# moni

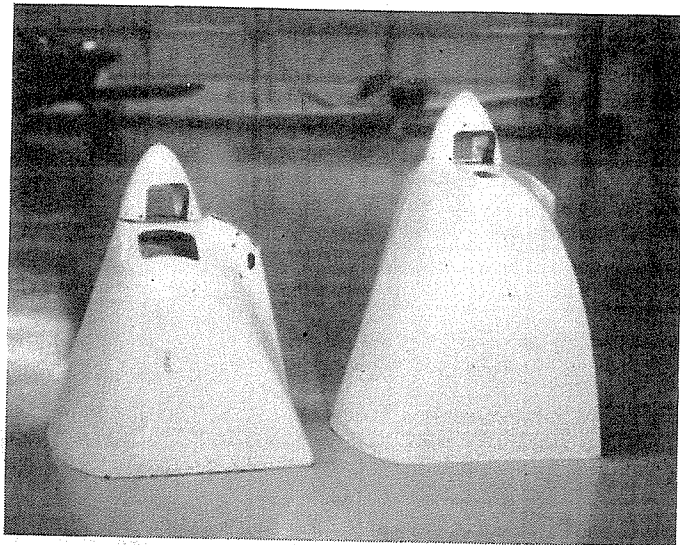


Moni Kit progress is coming along well. Things are definitely underway! Don Hardy is very absorbed in finishing the drawings, manual, and ordering parts. He has really been burning the midnight oil as this is a tremendous amount of work.

John and Randy Novak have been busy out in R & D. There are two more exciting additions to Moni which simplify construction and enhance the looks. One is a molded fiberglass instrument panel and hood. This goes to the forward part of the canopy and is now all one piece. It is molded in black leather grain fiberglass. The panel layout is all done and all you do is drill the holes and install the instruments! This saves many hours of construction time and really simplifies things. The other new addition to the kit is a fiberglass bucket seat. (The original seat in Moni was a sling.) This new bucket seat gives lumbar support and can be padded for individual comfort. It will offer taller pilots more comfort and headroom. The seat is made so it will hinge up and out of the way for easy access to the wing pins and control system. It too is made of black leather grain fiberglass to match the ABS side panels and the instrument panel and hood. This gives the Moni cockpit a very professional looking interior!

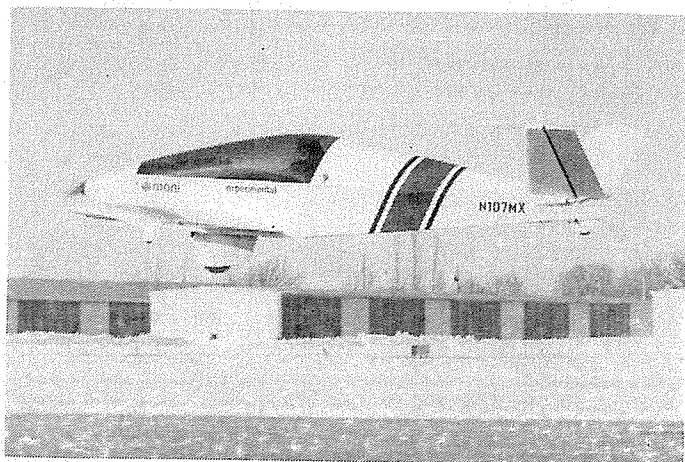


The new cowl is completed and will have been installed and flight tested by the time you read this. The photograph shows the comparison of the old and the new cowl. (However, it was not installed at the time of the photos of Mini-Moni flying.) When they installed the new

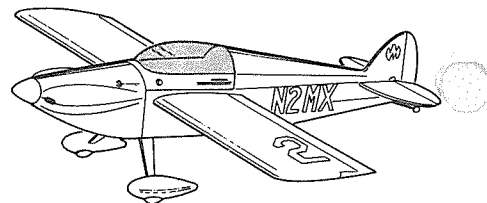


cowling and lengthened the exhaust system, Randy put in provisions for testing an aerobatic smoke system! Another thing they did was move the choke and mixture control up to the throttle and flap quadrant on the left side of the cockpit. This convenient location eases the air restart procedure.

As you can see by the photographs, the Mini-Moni wings are completed! Some initial flight tests were done down the runway to test handling on taxiing and take-off and landing. There were 20 mile per hour gusting winds and a 30° below zero wind chill factor that day! The Mini-Moni gets off very quickly (about 300' in those conditions) and John is very enthusiastic about performance in average temperatures! There was very little difference in handling of the Mini wings except for the increase in roll rate (which is intended with the short wings). As the weather improves a full flight test program will be implemented on the mini-wings. Also, we expect to have other professional pilots do a complete evaluation of both Moni configurations.

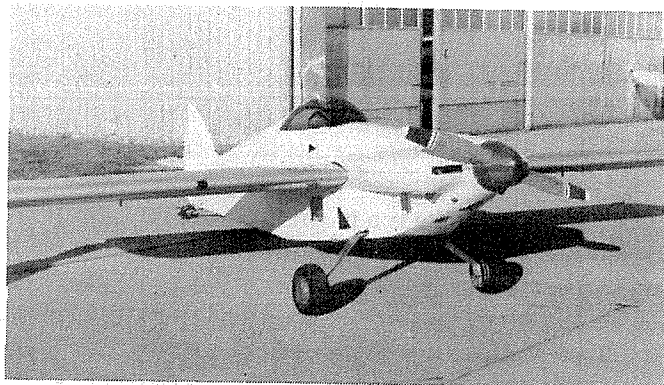


# sonerai



Anyone interested in a Sonerai Contest?? John and the guys have been toying with the idea of a Sonerai "Fly-In Fun" Contest. This would be here on Wittman Field and would include Sat. and Sun. flying with an evening get-together bull session or whatever. For competition events we have in mind such things as: climb to altitude, out and return speed dash, spot landing, and so on. We hope to set up some tentative dates for May or June. Let us know if you are interested in attending such an event!!

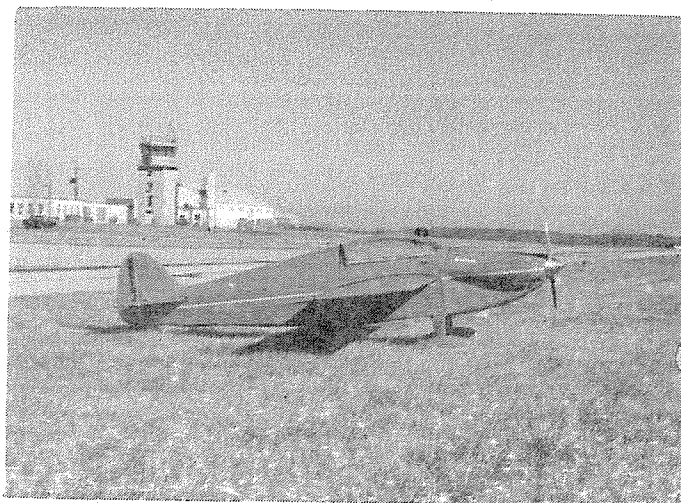
## First Flights



Glenn T. Bumpous - #283 I  
421 Westwood Tr., Frankfort, KY 40601

Sonerai I - N283SX. First flight August 9, 1981. Thirty hours to date. 95% completed. Still lacks final paint on wings and cowling plus wheel pants. Glenn says, "I recommend the Sonerai I to anybody who wants to fly for fun cause it sure is."

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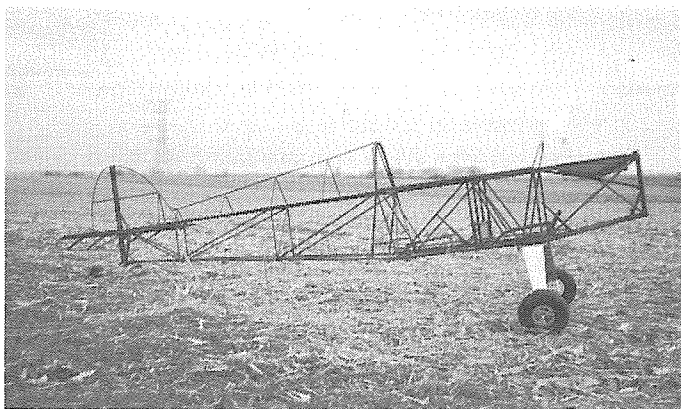


Ron Bronne - #812 II  
2415 N. Heck Hill Road, St. Paris, OH 43072

Sonera II - N8519J. Ron first flew back in June, 1981 but just sent this nice photo. It's a beautiful blue with touch of white trim.

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## News From Builders



Paul Nielsen - #998IIL  
Rt. 2, Box 105, Union Grove, WI 53182

Paul writes, "At this time I'm building the wings and I'm finding they as well as the fuselage are no real problem to build."

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## Tips From Builders

Jim McHenry - #715II  
216 Countryside Ln., Lindenhurst, IL 60046

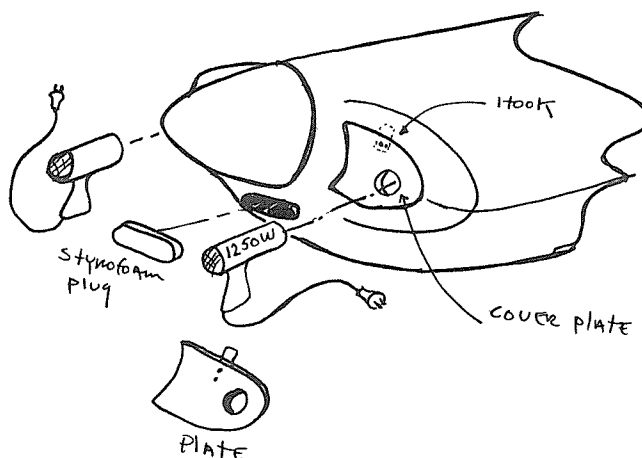
"Thought this tip in constructing the Sonera Wings would be of benefit to your newsletter readers:  
When skinning the first side of the wing, it's easy to check where the drill bit is going through in relation to the center of the flange. But when drilling the rivet holes on the second side of the wing, you're working blind and must rely on your measurements, which may not be as accurate as you would like due to minor shifting of the skin as you drill and fasten along your merry way! So if you're chicken and tired of peeking underneath the skin to check your position, try this: Before drilling the second side, take a red colored, felt-tipped marking pen and draw a vertical line on each rib flange in the vicinity of where you would like to have the rivets located (usually in the center of the flange). Now when you begin drilling and fastening "blind", drill only through the skin first to check if any 'red' is visible before continuing through the rib flange. This will enable you to make minor adjustments as you drill down the rib without having to stop and re-measure or peer under the fastened skin."

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Frank Stewart - #532II  
9212 N. Delaware St., Indianapolis, IN 46240

Frank has come up with another unique tip!

"My VW is stubborn to start in cold weather due to the long distance from the Posa to the engine. A cold manifold and cold engine condenses the vapor charge. Preheat is necessary but expensive. I found a cheap solution. I bought two Gillette 1500W Hair Dryers. Since I am essentially bald, I use them exclusively for my engine. Here is what I do: 1. Take cardboard and trace the contour of the cowl air intakes, holding the cardboard on the inside. 2. Using scrap 1/2, 5/8, or 3/4" plywood, outline the pattern on to the plywood, allowing 1/4" on all sides and cut them out on a bandsaw or however. 3. Taper the edges 20°. 4. Drill a hole to insert the hair dryers as close to the edge as possible and press in the dryers. 5. Install a hook of .025 - .032 Aluminum as shown. 6. Simply hook the assembly into the cowl. The weight will hold them in place. For 1250 W or 1500 W allow 20 minutes at 30°F outside air temp. Throw a blanket around the cowl. The entire engine will warm up and start easily. Obviously any hair dryer will do but a round one is simpler to install. The cost was less than \$10.00 each and took about an hour to make. Works like a charm. The hair dryers can be easily removed from the plywood and used as hair dryers. I thawed the frozen pipes under the sink and the wife defrosted the freezer plus the ice from the storm doors and windows during the cold snap. Lots of uses!"



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## For Sale

K. L. Zigaitis - #949IIL  
4835 Tall Tree Ln., Hazelwood, MO 63042  
314/233-5598 work, 314/739-0762 home  
Sonera II L fuselage structure complete, tail feathers in work, steel for controls, landing gear, pro welding.  
\$1,200.00

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Paul Sickles, 745 N. Fogg  
Las Vegas, NV 89101, 702/452-3271  
Sonera II frame tacked, plus 60 ft. tubular chrome-moly  
and full plans. \$400.00

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### Wanted

Roy E. Allandar  
330 Locust St., Marysville, PA 17053  
Interested in buying a Sonera I or II that is already built and  
flying. Possibly in New Jersey, Maryland, Pennsylvania  
area.

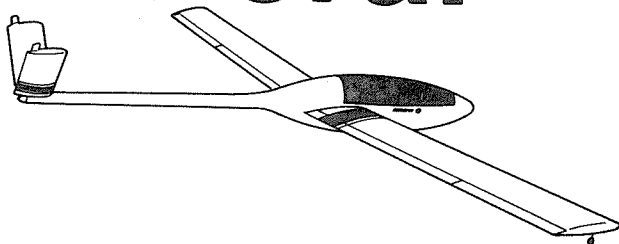
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### Will Build Engines

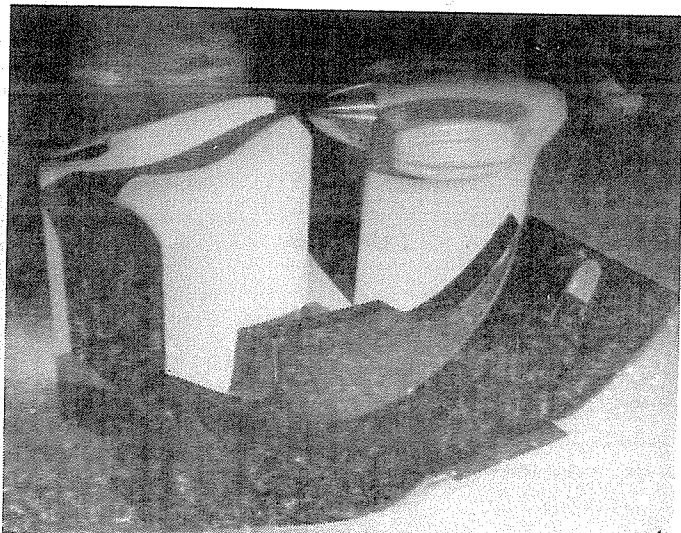
Classic Air, Randy Novak  
641 Bowen St., Oshkosh, WI 54901  
414/426-2763 evenings  
VW Engines: Custom Built, Aero-Vee Conversions, all new  
VW parts. All sizes available. Start at \$2,295.00

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# monera



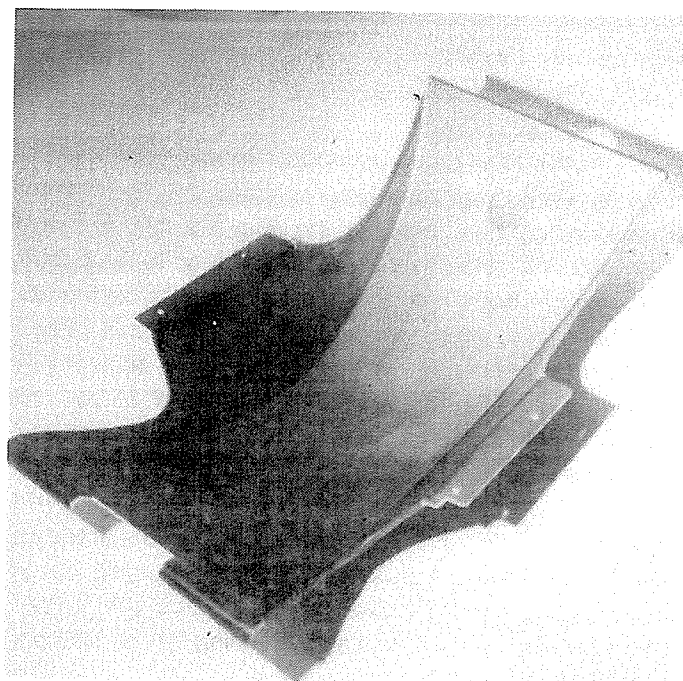
Some new developments for Monera too! John worked frantically to finish the plugs for some new parts and we have just received the first ones out of the molds from our fiberglass supplier. These include the new cowl for KFM 107 engine, the wing tips for Monera Max, and a new molded seat.



The cowl pictured is ready to install. It may have to be refined after the initial flight tests and the muffler system evaluation but this is basically what it will look like. One interesting feature of the electric start engine is it allows the possibility of a future folding or an auto-feathering prop. (An Italian company is working on one right now.) John says it is neat to see the start button on the panel of Monera! We are awaiting drawings of muffler installation which is the only thing left before this 107 installation is completed and ready to fly. We hope to demonstrate it at the Monera Builder's Workshop. The approximate cost of the complete 107 installation will be around \$2,300.00. As many people have inquired, yes the Zenoah Power Pod Unit is still available at a cost of \$1,250.00.

The Monera-Max Wing Tips are being installed. John and Randy are working on a system of attaching them with piano hinges so they may be removed to test other possible configurations. Again, as with all of our products, these will only be available after flight testing and evaluation. This will be done yet this Spring and approximate cost of these 12 meter Monera-Max Wing Tips will be around \$140.00.

This last new development is available now!! It is a neat molded fiberglass bucket seat which can be retrofitted to your existing Moneras. As you can see in the photo, it includes molded sides and arm rest. It can be padded for individual comfort and allows for a parachute. Like the Moni seat it is molded in black leather grain fiberglass. Installation is simple and it can be cut to fit various instrument panel installations. An access hole for wing pins can be cut so that removal of the seat is unnecessary. The seat is available now at a cost of \$80.00. (The price includes black edge molding.)



We are still wanting to plan a Monera contest. Perhaps this Spring! If you are interested, please let us know. We will begin to plan for it and get the information out in the next newsletter.



Several builders have called about the General Aviation Airworthiness Alert of December, 1981, regarding installation of more tail push-rod guides. The following is John's response to that alert:

We are aware of the General Aviation Airworthiness Alert of December, 1981 concerning the Monerai. This is **not** an A D. It was entered into the "Federal System" erroneously from the investigation of Ed Frappier's fatal accident in July, 1981. It was later determined by the competent EMDO Investigators that nothing was wrong with the Monerai.

It is neither required nor necessary to make any structural changes in the Monerai as suggested in the alert. It should be built according to the plans as is.

We are sorry for this unnecessary alarm to you as a builder but the whims of government bureaucracy are impossible to control.

### News From Builders

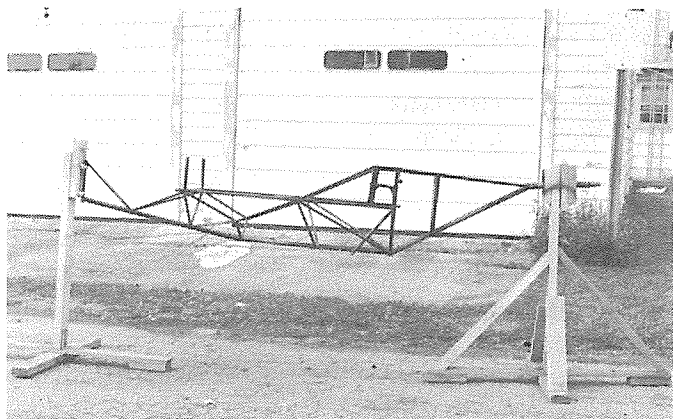


Robert Trasher - #114  
203 Oklahoma, Laredo, TX 78041

The company Bob works for, Dowell, recently ran a two page article in their Dowell Xtra company magazine, January, 1982. It was a nice write up and I have included the photos from the article. Thanks for sending, Bob!

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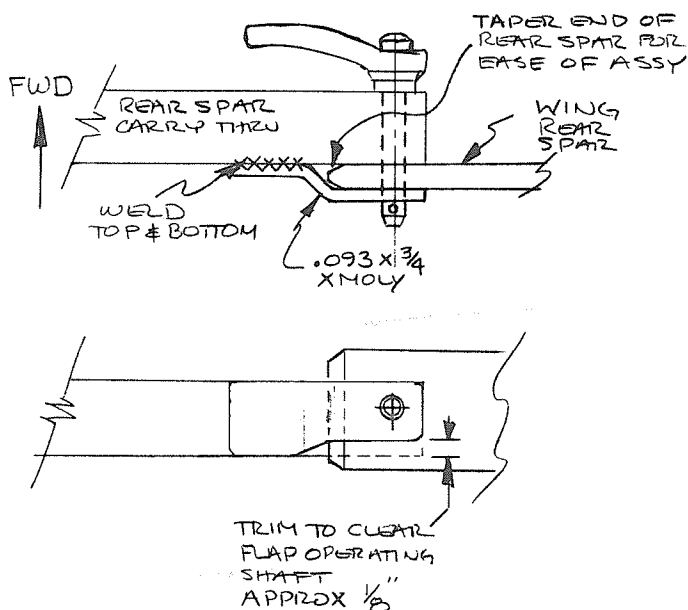
### Builders Tips



Jim Mahoney - #46  
703 Milton Ave., Anderson, IN 46012

Jim sends this picture of some wooden (2x4) stands he used which let him turn the steel tube structure of his Monerai 360° for the final welding. He also says, "When I covered the wings, I used soy beans from a local EAAer farmer friend, rather than buy sand that I could not use. The beans in burlap sacks flowed to the wing skin curve real well. When done take beans back to owner!"

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Samuel J. Phillips - #323  
8537 Lubao Ave., Canoga Park, CA 91306

Sam sends this sketch of a reinforcement for the rear spar to rear spar carry-thru Q. R. Pin Connection. "The addition of this part puts the Quick Release Pin in double shear reducing the possibility of the rear spar pinhole becoming elongated or bending the pin. The Q.R. Pin supplied in the kit is long enough for this mod."

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### For Sale

Dario Toffenetti, Jr. - #314  
5943 Mira Hervesa, El Paso, TX 79912  
Complete power package. Instruments and all for sale. Unopened. In the box. Will sell for cost.

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Rex Cridler - #71  
Markadia Farm, 9992 Six Mile Road  
Rockford, MI 49341  
616/691-8187  
Monerai sailplane and enclosed trailer. Vario with audio. A & P built and time flown off. \$6,000.00 or Trades?

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Donald G. Pratt - #153  
Lock Box 10064, Chicago, IL 60610  
312/329-3173

Painstakingly built Monerai. Basic instruments, two radios, and locking trailer. Very low time. Return to school forces very reluctant sale.

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David Owsley - #81

John Snyder, P. O. Box 12443

Pensacola, FL 32582

904/438-8102 or 904/456-2098

Monerai in excellent condition. 100 hrs. or less. Flies great. Price includes trailer, all instruments, radio, parachute. \$7,500.00 Will send picture upon request.

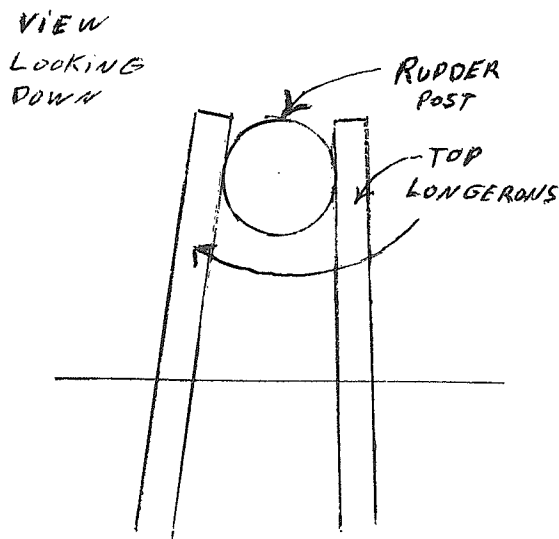
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## handy randy novak's notes

### Sonerai Building Tips

1. Sta. 47 3/8 - When installing the two vertical 5/8" square tubes that contain the main spar carry-thru, a distance of 1 1/8" must be maintained between the vertical tubes to allow sufficient clearance for the installation of the carry-thru assembly.

2. Sta. 179 3/8 - The top longerons are temporarily tack welded to the rudder post for installation of the 1/2" diagonal tubes that support the horizontal stabilizer spar. In order to allow adequate space for the elevator horn/push-pull tube connection, widen the longerons when tack welding by attaching them to the outside of the rudder post.



3. Engine Mounting - The engine mount rubbers that are supplied with the engine conversion kits have a 1/2" inside diameter. Steel bushings made from 1/2" x .058 tubing or 3/8" bushing stock should be used inside of the rubbers with AN970-6 (large area) washers or equivalent on both sides of the rubber mount. The length of each bushing is 1 1/2", and the engine mount bolts are torqued sufficiently (175 in. lbs.) to draw the rubbers down until the washers are contacting the bushing in the center.

4. Aileron Balance - When attaching the lead weight to the aluminum outboard rib, use two or more fasteners. These can be 10-32 counter sunk machine screws with self-locking nuts. The aluminum rib can easily be dimpled by using one of the machine screws and a block of wood (pine) as dimpling dies. Zinc Chromate the rib and apply cellophane tape to the lead to insulate it from the aluminum. This will help prevent dissimilar metals corrosion, which can occur easily when moisture is present.

### General Tips

1. Cherry N-CC Rivets - The rivets we furnish in the Sonerai rivet kits for attaching the wing skins are stainless steel blind rivets. They are installed with a regular hardware store type of pop rivet gun. The rivets are available both countersunk and protruding head styles, and we feel that they are superior to the standard AN-AD aluminum rivets. They are much faster to install and have high strength values. We've taken the most favorable strength values for 2117 aluminum and compared them to our "CC" Rivets.

	A D Rivets	CC Rivets
Ultimate tensile strength per 1/8" rivet	527 lbs.	600 lbs.
Ultimate shear strength per 1/8" rivet	343 lbs.	450 lbs.

These figures use an ultimate tensile strength of 43,000 lbs./sq. in., for 2117 alloy aluminum rivets. Standard procedure for installation of the "CC" Rivets is to drill a 1/8" or #30 hole for the protruding head rivets, and for the countersunk style to drill a #32 hole prior to dimpling. The dimpling process stretches the hole to 1/8".

When pulling the rivet, care must be taken to insure that the materials being riveted are in contact with each other. The rivet must be pulled properly to be able to achieve full strength. For installation or inspection purposes use the following as a guideline. If using a "Cherry" rivet gun, a full pulling stroke (when squeezing the handles) before the mandrel breaks, shows adequate rivet length, or after the mandrel breaks, the ball of the mandrel should be inside of the deformed part of the rivet shank, and the shank must have covered the ball sufficiently to prevent it from falling out. These rivets are a fast and economical alternative for the builders of a variety of homebuilt aircraft that incorporate sheet metal construction.

2. Torque Values - Refer to the chart if you are in doubt about whether or not you have tightened your aircraft bolts and nuts adequately. If using a castle nut, torque to the specified value and if necessary, back off to the nearest notch and insert the cotter key. These torque values do not apply to assemblies where movement of the bolt is necessary, and it is only tightened lightly. Generally, undertorque can result in unnecessary wear of nuts and bolts, as well as the parts they are holding together. Over-torque can be equally bad, because of overstressing a nut or bolt that could lead to failure. The torque values given are for bolt and nut threads that are dry and free from oil and grease. When torque is applied to a bolt head, the friction drag torque must be added to the specified torque value. The friction drag torque is the amount of torque required to turn the bolt in the assembly, prior to the nut being installed. Whenever possible, the nut should be turned when applying torque.

TORQUE VALUES				
Nut/bolt size	Aircraft Steel Nuts		Aircraft Steel Shear Nuts	
	Min. inch lbs.	Max. inch lbs.	Min. inch lbs.	Max. inch lbs.
AN-3 (10-32)	20	25	12	15
AN-4 (1/4 -28)	50	70	30	40
AN-5 (5/16 -24)	100	140	60	85
AN-6 (3/8 - 24)	160	190	95	110

*Randy Novak*

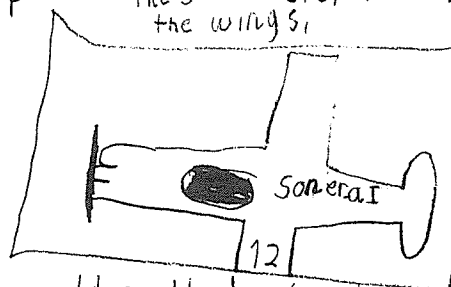
Editor's note: Randy has been unhappy about the title of his column! "handy randy novak's notes" was John's brainstorm. So to solve this little dilemma we have decided to run a contest - **A Name Randy's Column Contest**. Just send all those wonderful titles you can think up to me! Before next issue we will have a new title for you, Randy. Hopefully, one you like better!

We hope to see some of you in Houston and Lakeland! As I mentioned last time, we will be at the Soaring Society Convention March 3 - 7 and the Sun N Fun E.A.A. Fly-In March 14 - 20. We will have the Moni with both long and short wings and the Monerai with the extended wing tips. If all goes as planned, the Sonerai II Low-wing will be along at Lakeland. We should be on the road as you read this!!

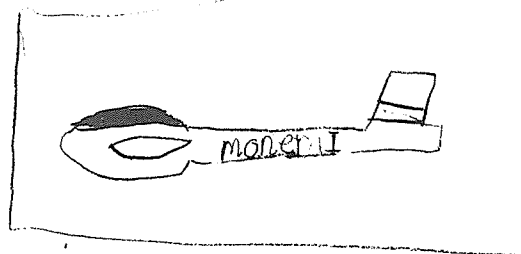
In addition to planning our Builder's Workshops and Sonerai and Monerai Contests, we are beginning to think about the Oshkosh Fly-In! We hope to have many activities, forums, get-togethers, awards, etc. in our new facilities. So include us in your plans for this summer's Oshkosh. Hope to see many of our builders here with their airplanes!

To help you along with your building I am including this little crash course. This is a report that our Jeremy did on the back of one of his school papers. I thought you might enjoy it. When I told him I was going to print it, he wanted to correct his spelling. But that, of course, is the delight of it!

The first step to make  
how to make a air plane is you have  
a air plan to have a lot of aluminum  
the second step is to build  
the wings.



the third step is to build  
the body, the fourth step is  
to make the tail, the fifth  
step is to make a wooden  
propeller, the sixth step



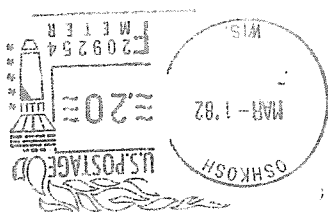
is to make the cockpit,  
by Jeremy Monnett

See folks, nothing to it, all the steps are there - one thru six! Until next time -

*Betty Monnett*



ex. 9/82  
 Transville, WI 53126  
 11428 Six Mile Road  
 Frederick, MD 21735



monnett experimental aircraft, inc.  
 p. o. box 2984  
 oshkosh, wisconsin 54903

