

# monink

The Newsletter of Monnett Experimental Aircraft, Inc.

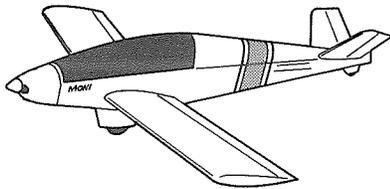
January, February 1984

Dear Aviation Enthusiasts,

Happy New Year! Enthusiasm is the word for 1984! This is certainly what we need in the aviation industry. Let your thoughts be known and voices be heard as supporters of Sport and General Aviation. We need you and yours.

Here at MEA we are engrossed in inventory, file folders and figures as we end another year and begin the new. We will be all finished with the stand still by the time you receive this newsletter. Thank you for your patience. If our luck holds, you will even be receiving a newsletter with a label off of our computer! Carol has been diligently working at the Osbourne and with perseverance has succeeded so far in getting our Sonerai builders' names and addresses, and Monink labels in the THING. You Moni and Monerai builders are next! Which reminds me to reiterate again - Please be sure to send us any pertinent information changes; ie: Address changes, plans and kits changing hands. What a monumental shock it was to get back a stack of Sonerai letters sent out. Please keep us up to date of any changes in your status as a customer of MEA.

## moni



### MONINK EDITORIAL

#### Bonding

As with all newer fastening methods there is a source for controversy. The use of "pop" type rivets in aircraft construction is a prime example. At first they were considered by the "experts" as inferior to standard AD type rivets. Cries of "junk", "can't work", "will fall apart", etc. were written and heard. Service history and experience have proven quite the contrary, especially in homebuilt aircraft. Mr. Holt's article in the January issue of *Homebuilt Aircraft* concerning pretreatment of aluminum parts prior to bonding makes similar points and indictments.

The question left is "how strong is strong enough." Our designs as well as several others testing and using the same method of bonding over the past ten years have shown the method to be more than satisfactory and within acceptable, practical limits for its application.

Our bonded wing with its large bond areas, even when analyzed using very low strength figures compared to those published values, is equal to or superior to a conventional riveted structure. Our structures are not subjected to direct "peal" loads and are designed with a very conservative shear and tension loads. Rivets are employed in areas where "peal" could start. While debonding is not impossible, total failure of a component is highly unlikely as the failure of one rivet does not necessarily imply a complete structural failure.

Because of the extremely difficult logistics, Monnett Experimental Aircraft has no plans to pretreat aluminum kit components at this time. However, if individuals feel more comfortable or "safer" with "prepped" components by all means they are encouraged to have it done. Please contact the sources listed in the article for further information and costs.

It is the firm belief of all of us here at Monnett Experimental Aircraft that every effort is being made to produce the best kit aircraft available. We have had a few builders request an all riveted wing for Moni. This option will be available starting in February '84.

Since the rib flanges and spar caps must be wider to correctly accommodate the rivets, existing spars and ribs that were designed for bonding cannot be used. All new kits will have spars and ribs designed for either bonding or riveting or both. (The only difference is specifying rivets or epoxy when ordering.)

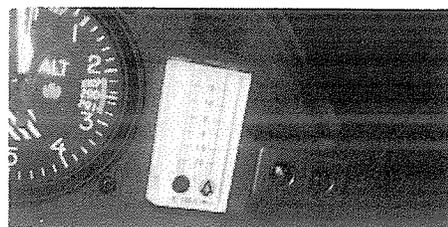
Existing kits would have to have new spars and ribs which, with the "rivet plans" will be available separately. For maximum wing efficiency, the rivets must be "filled" as we do on Sonerai using "automotive polyester body putty".

Moni is too fine of a design to be hampered by controversy dealing with construction methods. So now you can build Moni to suit yourself with the methods you are most comfortable with.

John T. Monnett, Jr.  
President

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### MAKIKI Mechanical Variometers



We have completed testing and are now offering this relatively inexpensive, simple mechanical Vario for Moni and Monerai. It is the pith-ball type that has been proven for "eons". Its range is quite adequate as a primary vario for soaring in the Moni and would make an excellent back up to an electric vario in the Monerai where panel space is limited. It comes complete with a small metal flask which in the Moni can be installed under the panel hood. John finds it even useful in level flight because when the up and down balls are bottomed out the aircraft is running level "flat out". The range is very sensitive in the area of 0-150 ft. per minute. It is not susceptible to radio interference. It sells for \$85.00

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### First Flights

R.A. Keating #130  
23615-52nd Ave. E  
Graham, WA 98338

First flight was completed on Dec. 11, 1983. Time to complete 13 months, 600 hours.

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Hubert Kollman #194  
346-38th Ave. North  
St. Cloud, MN 56301

First flight was Nov. 11, 1983. The kit was shipped June 1, 1983. Only six months to build!

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Gary Zeigler #23  
5566 Denois St.  
Columbus, IN 47201

First flight was Oct. 8, 1983. Gary has 5 hours to date.

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Gerald Chambers #55  
3510 - 47th St.  
Lubbock, TX 79413

First flight was Dec. 1983. #55 has 12 hours on it. Gerald is a student pilot and loves his Moni.

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### News from Builders

Norm Rambow #106  
W402 Main St.  
Ritzville, WA 99169

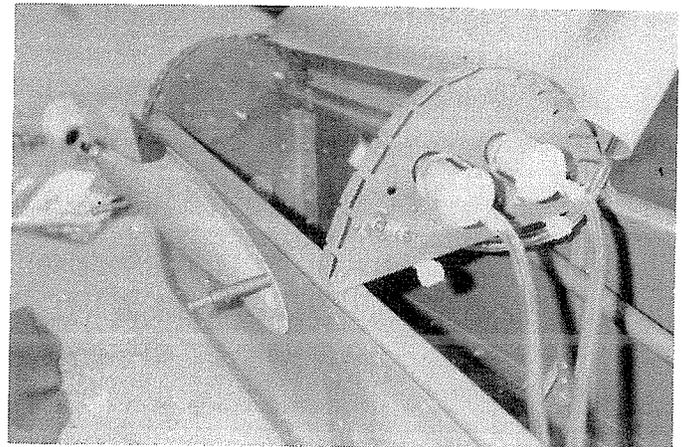
Norm sent us an article from his local Ritzville paper. It is

quite a piece featuring Norm building his Moni, three pages, lots of photos, titled "Norm's Factory Builds Airplane". Seems as tho Norm is building his Moni in the apartment building owned by he and his wife Donnie located on Ritzville's West Main Avenue. He has a sign in the window: Norm's Airplane Factory. Must create some curiosity about town!

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### Tips from Builders

David Green #167  
30,001 Zenith Pt. Rd.  
Malibu, CA 90265



David sends us his idea for a modified pitot/vario plumbing set up. "I was able to get a nice 18° bend in the 3/16 ID vinyl tube (1/4 ID won't work. It kinks.) and drilled holes in the turtledeck for 5/16 ID grommets under the leading edge of the tail. I then riveted two plastic clamps to former 4 to keep the tubing from flopping around or interfering with the push rods. I mounted 2 VW inline gas filters in former 4 by drilling for 5/16 ID grommets, pushing one end of the filter thru from the front, slipping a short piece (3/8") of 1/4" ID tubing over the filter stem and securing with the spring clamp which comes with the filter. The probe tube is then connected via the rear access opening. The only other item was a styrofoam block slid in the tail Leading Edge to keep the tube from rattling. Soaring pilots have used these VW filters for years to keep out moisture and bugs. They don't seem to restrict airflow at all."

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John Burnaby #216  
727 Dawlish Pl.  
Santa Barbara, CA 93108

John sends this tip. "I used a Black and Decker home-shop electric planer to clean up the spar cap edges instead of filing them. I made several passes with a very small bite set on the planer. I sprayed the edge of the spar cap with WD-40 before each pass which keeps the aluminum planer base from hanging up on the aluminum spar. The finish cut is shiny smooth with minute chatter marks in it which are easily removed with a fine file and

then fine sand with 320 wet or dry paper."

*Editors note:* Extreme care must be taken to clean absolutely all lubricant residue from the spars. Remember aluminum is semi-porous and any oil or wax contamination can lead to a poor bond.

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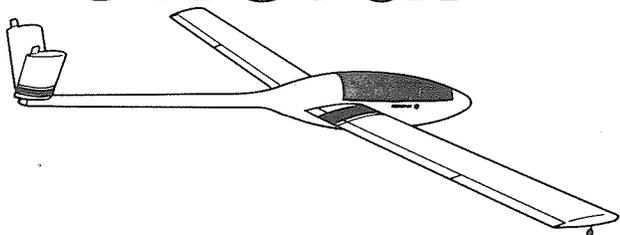
## For Sale

Larry Garrett #146 & #112  
Rt. 3, Box 242  
Tuttle, OK 73089  
405/392-4388

Must sell Moni Kit. Bought Moni already flying. Kit \$5,895.

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# monerai



### Crotch Belt

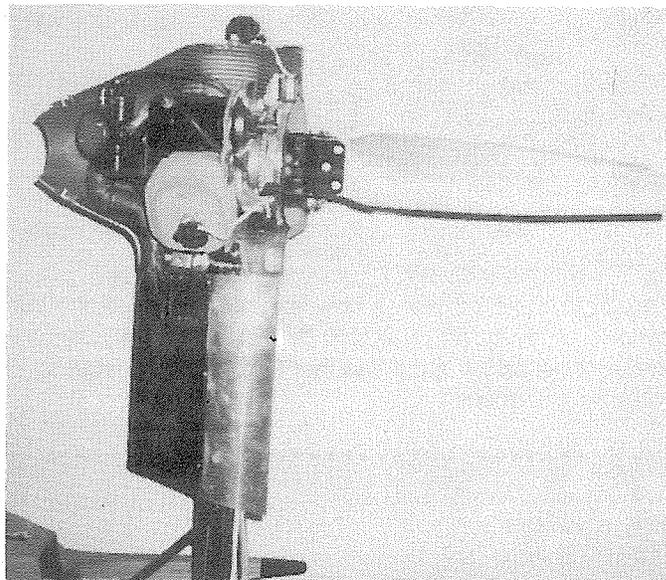
We now have the Monerai Crotch Belt I spoke of in an earlier Monink. This is available for \$17.50 and includes the belt, the necessary hardware, and the drawings to add to your existing seat belts. As we have previously discussed, the anti-submarine belt or crotch strap helps restrain the pilot from sliding forward under the seat belt during high G aerobatics or accidents. This Monerai crotch belt is a single strap with bracket and materials necessary to add to your present stock seat belt and shoulder harness making it a five point belt system.

### Pivot Stick and new Tail Surfaces

The R and D Department has been busy outfitting Monerai with some other new developments. The original Monerai, 32MX, is being modified with a new "pivot stick" - a stick that is operated by the wrist as in Moni - as opposed to the standard push-pull action. It has push button trim - bungee system incorporated in it. This change is expected to reduce P.I.O.s in the system and reduce the sensitivity somewhat. John expects to be doing the test flying as soon as the snow banks here in WI are down enough to get the wings thru! I'm afraid you cannot expect drawings for these mods in the immediate future as the testing will have to be completed and a retrofit system worked out. Another change being tested is a completely new set of Monerai Tail Surfaces which have their pivot points further forward than the standard surfaces. A set of

"bob weights" has been installed instead of the conventional "lead" leading edge. This will lighten the tail by several pounds. The object of this and the stick mod is to reduce sensitivity for novice pilots.

### Koenig Engine and Folding Prop



You may have been wondering what engine you saw in the last Monink with the folding prop on! During Oshkosh 1983, Deter Koenig visited our facilities and presented us with two of his lightweight radial two-cycle engines to evaluate. We felt it was essential to incorporate a folding prop into a new power pod and this engine offers the best opportunity for that application. Initial test flights were run with fixed pitch prop and the folding prop but no cowling. The Prototype cowling is now completed but yet to be tested. One of our builders, Pierre Coos in Belgium, installed this engine on his Monerai and has completed 100 hours of successful flight time on the engine. (See News from Builders) Tho our installation is different, this speaks highly for the feasibility of this application. We have incorporated the exhaust system into the leading edge of the pylon and the trailing edge houses the control cables, fuel line, and electricals. The whole unit with electric start, folding prop and cowl weighs about 42 lbs.!! The Engine develops 25 hp. 4200 RPM and delivers considerable more static thrust than any engine we have tested to date. We expect the pricing for these units to be competitive. There is still a considerable amount of testing and work to be done on this Power Pod before it will be ready for you all.

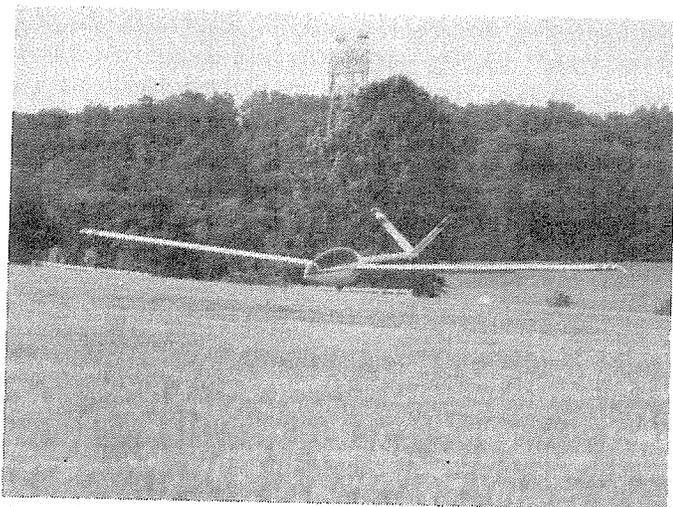
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### First Flights

Sal Cannizzo #348  
20 Outerbridge Ave.  
Staten Islands, NY 10309

First Flight was Oct. 8, 1983

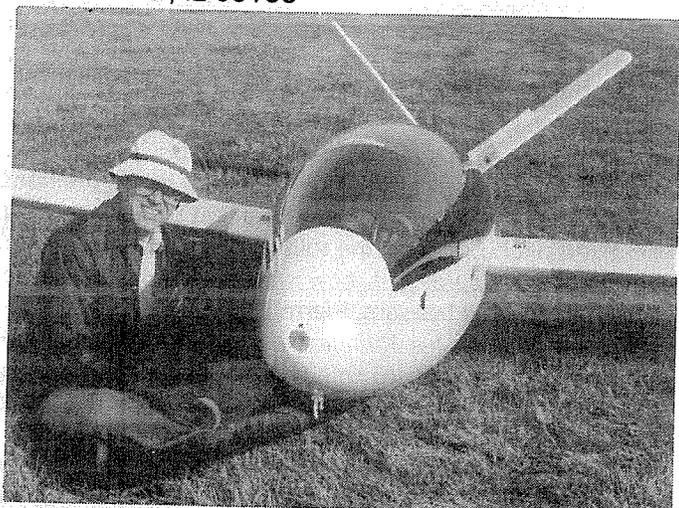
Sal writes: "First flight was from 7000 AGL to get the



feel of it. Take off was a new experience but didn't take long to settle down. The ship flies great - no adjustments were necessary but did find that 90° flaps is a must if you want to get down."

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Ray Konrath #3  
10629 Essex  
Westchester, IL 60153



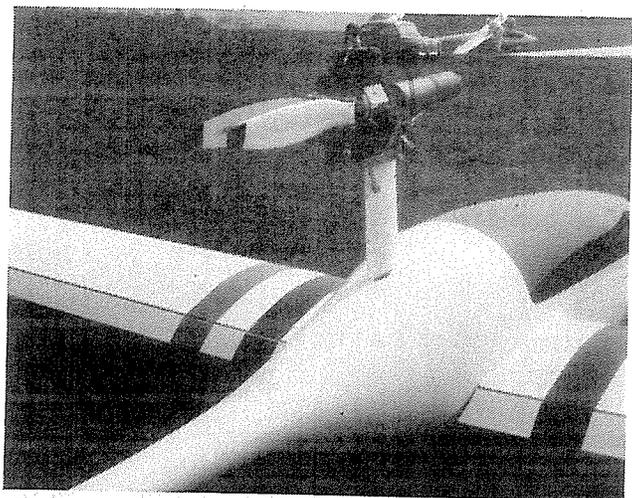
First flight was Oct. 15, 1983 and listed in the last issue of Monink but now I have a photo of Ray with a big smile on his face!

Ray writes: "...The Monerai was built according to the plans and was a "first time" project for me. If I fly it half as many hours as I spent working on it I'll be satisfied. I wound up building a trailer pretty much from scratch. It has a tilt feature for easier loading and unloading and a detachable tongue that allows me to store it in a standard size garage..."

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### News from Builders

P. Coos #286  
103 rue Scheuer  
6700 Arlon  
Belgium



Pierre sends this update on his Monerai: "...Here is some news about our Monerai with Koenig Motor. Till now we have flown more than 100 hours without any problem. Spar mods were completed in June 1983. Since July 1983 we are testing a fold prop of fabrication Neukom (Switzerland). This prop gives us full satisfaction and especially improves greatly the performance in gliding."

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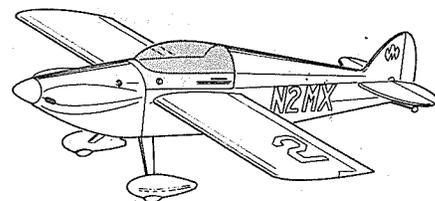
### Want Ad

Bruce Chumley  
D & B Aircraft Services  
1428 High St.  
Bowling Green, KY 42101

Looking for a Zenoah Power Pod for Monerai #40 owned by Belton Corp. Contact Bruce.

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# sonerai



### Covering and Paint Kits for Sonerai II

We have now added Stits Poly-Fiber Aircraft coatings and fabric to our line of accessories for the Sonerai II. This kit will provide all of the fabric, tapes, primers, and finish colors necessary to finish your beautiful bird. We have a standard kit for all the finishing materials, all you have to do is specify the finish color. Color samples and price information will be available soon. Write for an info sheet if you are interested. The Stits method has become "the standard" of finishes for the aircraft industry and enjoys a fine reputation. We are pleased to be able to add them to our catalog and offer this product to you.

### Front Seat Modification

On the production Sonerai II pre-welded fuselages we made a modification to the front seat frame. It allows a little easier entry into the front cockpit. If you are still in the building stage, you may want to make this change. It would, however, be difficult to make on existing airplanes. The drawing will be finished soon for this modification and if you would like a copy just send a S.A.S.E. with your request.

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### First Flights

Howard Haecker IILT #596  
16525 Blanco  
San Antonio, TX 78232



First flight as low wing tri-cycle gear II. November 1983. Howard writes of Sonerai #596 named Serendipity: "...The first flight of my Sonerai mid-wing was in April '81 and after about 100 hours of flight time I converted it to the low-wing model. Only flew it for about 10 hours before deciding to try the Tri gear version....Have received many compliments but of course the credit really belongs to you for making this all possible and I do thank you because at age 61 and retired, I'm enjoying myself as never before...."

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Kevin M. Vislocky II #139  
7200 NW 2nd Ave. #168  
Boca Raton, FL 33431



Restrictions flown off Oct. 3, 1983. Kevin purchased his Sonerai from another builder and made some changes. Now with an 1834cc Engine he reports: "...I have found the Sonerai to be an enjoyable aircraft to fly. Performance has basically matched that stated in Monnett Specifications. I am employed with the Palm Beach County Sheriff's Office as a Deputy Sheriff assigned as a pilot with the Aviation Unit. With the FAA restrictions flown off, I am now using my Sonerai to commute to work from Boca Raton Airport to our Aviation Unit Office at Palm Beach International Airport..."

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### News from Builders

David Zeidler IIL #223  
3490 Steven Road  
Baldwin, NY 11510



This is an early construction photo. David had just finished painting at last report.

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Bruce Schamber IIL #1457  
3223 Lakeview Drive  
Naples, FL 33962



Bruce continues to progress rapidly!

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### For Sale

Bob Packard IILT #921  
Star Route 12866  
Box 286J  
Warrensburg, NY 12885  
518/623-2398

Used Sonerai Wing Pin Reamers \$20.00. VW Engine Stand \$25.00

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Bill Reeves IIL #983  
5203 Nebraska Ave. N.W.  
Washington, DC 20015  
202/966-9172

Stalled Sonerai II project. In need of cash. Complete EV Conversion Kit (w/o Alternator) for sale. Parts are all new and have never been used. \$725.00.

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### Novak's New Year Notes

**MONI, NEW CARB. CONTROLS,** The new Mikuni BMR Carbs (available through KFM if you don't already have one) has an extra fuel metering system that automatically supplies the correct amount of fuel needed for high power/RPM operation. This allows the low and high power adjustments to be leaned out more to provide smoother mid-range operation without the fear of running too lean. Because of this it is not necessary to use the mixture control to lean it out for various low and mid range power settings (its primary purpose).

The new plans are going to show the mixture control on the carb deleted. The choke lever and cable will be deleted and the push-pull knob (previously the mixture control knob) will then be used as the choke control. On existing airplanes it is only necessary to remove the choke lever, etc. and reroute the controls as required.

An added benefit to all this is that now there is room to relocate the air brake cable. The cable housing attach point and the cable/swivel attach point on the brake arm can be lowered closer to the pivot point. This will give better leverage and make operation of the air brake a little easier. This, too, will be shown on the new drawings.

**MONI, CONTROL STICK,** The drawings show how the lower end of the control stick must be conformed to a fork shape in order to accommodate the torque tube. For all practical purposes, it has to be heated to cherry red and stretched out to get the right shape.

To start with, drill a 3/8" hole through the control stick tube at the dimensions indicated in the drawings. Then use

a hack saw to cut out the material. This gives you the basic, rough forked end. By applying a generous amount of heat (with an oxy-acetelene torch) and with the use of a hammer and a piece of angle iron clamped in a vise (homemade anvil) the fork blades can be flattened out and pushed outward to give the needed 5/8" inside clearance between blades.

It is preferred that the blade width be kept at 3/4" in order to provide adequate edge clearance for the bolt hole.

**SONERAI, CONTROL SURFACES -** The rudder and elevator surfaces use a welded type of hinge, which, in the plans, is shown as lengths of bushing stock welded directly onto the spars of the stabilizer and control surface. There is another method that can be used that makes the process of alignment a little easier, and it automatically spaces the hinge away from the spar tube a sufficient amount for fabric clearance. As can be seen in figure 1, a long length of the hinge stock can be made up ahead of

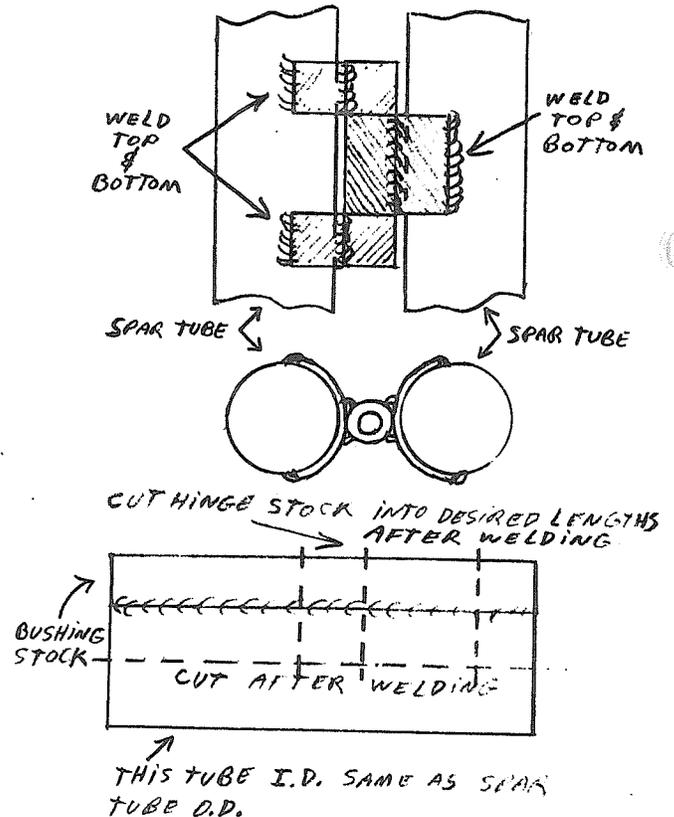


FIG. 1

time, by welding the desired size of bushing stock (1/4 inch for Sonerai) to a piece of 4130 tubing. The tubing must have the same I.D. as the O.D. of the spar tube (example, 1 1/8 inch spar tube, use 1 1/4 x .058 tubing for the hinge). The hinge stock is then made by welding down the entire length of the bushing stock/tube, cutting the tube down the middle, and then just cutting off the hinges to the desired lengths and welding them to the structures (the bushings will have to be drilled out to size after welding). Using this method will make alignment of all the

hinges a little easier, easing access for welding, and easier removal of the hinge pins after welding.

**SONERAI, MAGNETO TIMING,** The Monnett Aero Vee conversion uses a stock 4216 Slick Magneto with a lag angle of 25 degrees. For engines of 2020 c.c. or smaller we have always set the mag/engine timing at 28 degrees B.T.C., however with the larger engines we use 25 degrees B.T.C.. The difference is not much, but does seem to make the starting a little easier for the larger engines.

For those of you building your own engine you'll have to set the initial mag timing. As a part of regular maintenance the timing should also be checked every 100 hrs., or on a yearly basis.

There are two problems you'll have to overcome for doing this.

1. You'll need a magneto timing light. The light will indicate (glow) when the breaker points in the mag are opening and when spark would be occurring. If a mag timing light cannot be found then an ohm meter can also be used.
2. You will need to accurately determine the position of the crankshaft at 25 or 28 degrees B.T.C.. To help you do this we've made a full size drawing of the front of the propeller hub flange. Simply cut it out and slip it onto the hub, aligning the hub keyway with the key position shown on the drawing (see next page). On the outside diameter of the flange use a stamp or punch and small hammer to make a mark adjacent to the proper timing position. When this mark is in line with the crank case split line on the top of the engine, it is in the proper position to find the firing position of no. 1 cylinder, remove the spark plug from that cyl. and place your finger over the hole, turn the prop hub thru in the normal direction of rotation until you feel air pressure forcing your finger from the hole. Now you keep rotating until the timing mark on your hub is lined up with the split line. The piston is now in the proper position for firing.

The mag is roughly timed by using the pin and directions that come with the unit. The mag is assembled to the engine, and then final timing can take place. For this the spark plug leads should all be disconnected and the p-lead terminal must not be grounded to the engine or airframe. The mag timing light is connected to the p-lead terminal and a grounding point on the engine.

When the prop hub is rotated backwards about 10-15 degrees and brought back into position, the light should just start to indicate as the timing mark comes into position. If the prop hub is backed off too much, the magneto impulse coupling will engage and the indication will not be correct. To disengage the coupling just rotate the hub past the timing marks and the impulse should snap somewhere around T.D.C., then return back past your timing mark and try it again. If you accidentally make a full rotation of the hub or are not sure of the position of no. 1 piston, repeat the process to determine that the piston is on the com-

pression stroke. It is easy to become confused and the timing could get 360 degrees off, the result being that spark would be occurring on the exhaust stroke instead of compression.

*Randy Novak*

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for Sale

M \$17.50

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MAKII \$85.00

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Stits Covering and Paint Kit for Sonerai II Write for info.

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Custom Canopy Covers for Sonerai & Monerai  
Price available soon

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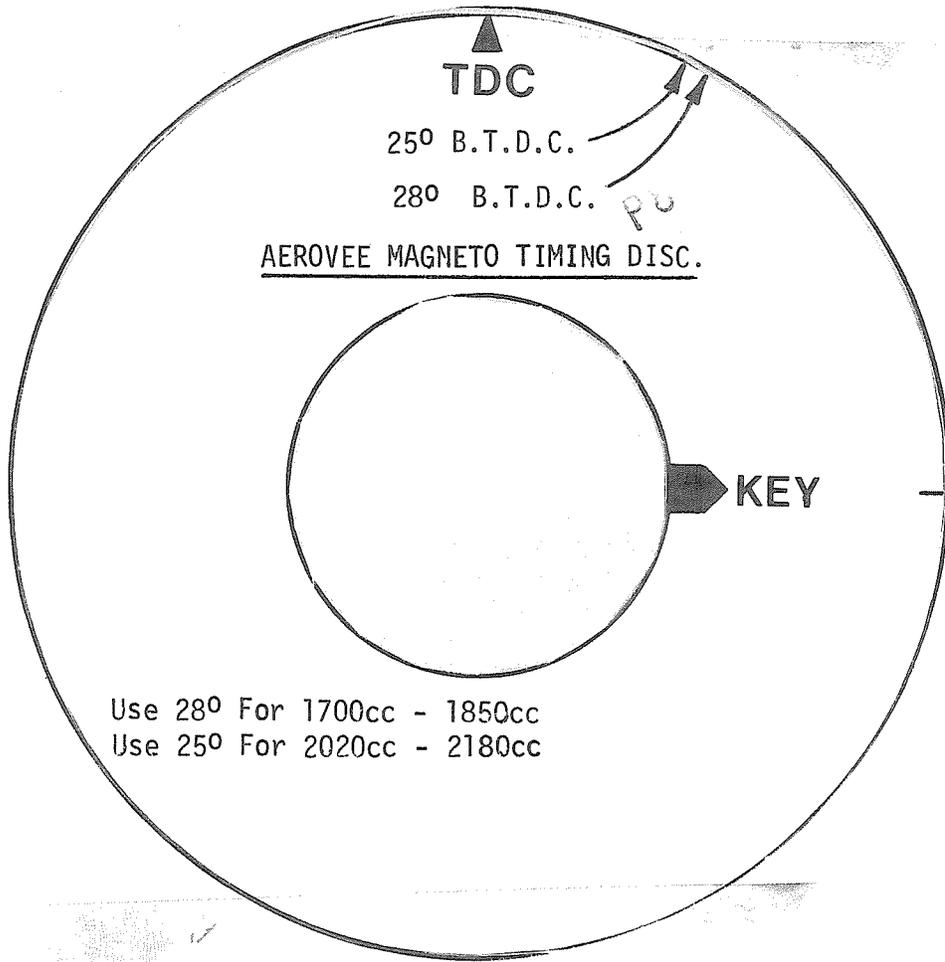
Sonerai Front Seat Modification Drawing Send S.A.S.E.

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We are very excited about a guest who is coming here in January. George Moffat has again agreed to visit our facilities and talk airplanes! It has been some time since he has flown the Monerais. John highly values his input into the direction that the Monerai will take. For those who don't know George, he is the two time World Soaring Champion and helped considerably in the first evaluation flights of the Monerai.

Other upcoming events include the SSA Convention and Sun N Fun. We do plan on being at the Soaring Society Convention in Hartford, CT, March 1-4. John will have one of the build booths and will be working on an airplane at specific times during the day. We sure hope to see some of you Eastern Builders there. The Sun N Fun Fly-In in Lakeland, FL is March 11-17. We don't know the exact times of our arrival there or which airplanes we will have. But expect to be there towards the end of the week for sure. Hope for good weather and not a monsoon! (I just wish our children's spring break from school coincided with these dates - no Florida vacation for the kids and I this year!)

As I promised, we have all "come to life" in this issue! Here is everyone on staff except John who has been the superstar in many Moninks (even with scantily clad women) so I have left him out this time!



Office Staff -(seated) Carol, (standing L to r) Livia, Don, John L., Yours Truly



Shop and R & D Staff - (kneeling L to R) Mark, Dale, Greg, (standing L to R) Rob, Pat, Ken, Handy Randy

From all of us — A Happy New Year!

*Betty Monnett*

Champion and helped considerably in the  
 lights of the Memorial  
 Other upcoming events include the 25  
 and 28° B.T.D.C. We do plan on being at the  
 ty Convention in Hartford, CT, March 4-  
 6. If you will be attending

