

monink

The Newsletter of Monnett Experimental Aircraft, Inc.

March, April 1983

Dear Aviators!

The calendar is really filling up these days with Fly-Ins and Events. It should prove to be a busy Spring and Summer once again. Even had a call today from Alaska inviting us to a big airshow in July. (I'm trying to convince John to make me a traveling representative of M.E.A. so I could go to all these places around the country. So far no such position has opened up here!)

For those of you who plan ahead, our calendar looks like this:

| | |
|-----------------|--|
| May 14th | Sonerai Workshop |
| May 27 - 29 | Watsonville Antique Fly-In, Watsonville, CA |
| June 2 | Talk in L.A. area |
| June 3 - 5 | Merced Antique Fly-In Merced, CA |
| June 11 & 12 | St. Paul, MN & Beckley, WV Fly-Ins |
| June 19 | Adams County Fly-In Adams, WI |
| June 25 | M.E.A. Fly-In at our building |
| June 24 - 26 | E.A.A. Ultralight Convention |
| July 30 - Aug 6 | E.A.A. Convention |
| Aug 12 - 14 | S.S.A. Homebuilder's Workshop Fairfield, PA |
| Oct 19 - 22 | A.O.P.A. Convention Albuquerque, NM |
| Mar 1 - 3, 1984 | S.S.A. Convention Hartford, CT |

(Now that's planning ahead!)

May 14th is our Sonerai Workshop. Please call or write to reserve a spot! A minimum of 50 people is required to hold this so please include your phone number or call in the Friday before to make sure it is not cancelled. To reiterate, this is an all day workshop covering all phases of Sonerai Construction. John will cover all the variants and include slides, video, construction demonstrations and weather permitting, a flight demonstration. Registration is from 8 to 9, lunch is provided here, wrap up is about 4:00. Total cost is \$20.00 per person. Special rate for wives and younger children not participating is \$5.00. If you have plans to pick up an order, it would be helpful to call your items in ahead and we will have it ready for you.

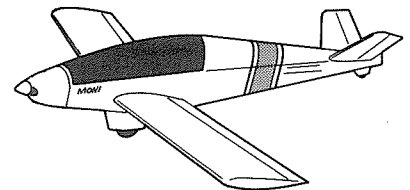
John is planning a California Tour for the first time in a long time. He will be going to Watsonville over Memorial Day and to Merced the next weekend. Also in between those fly-ins, Pete Buck is arranging for John to give a presentation in the L.A. Area. Exact date and location is unknown at this time but if you are interested you could contact Pete in Burbank - Phone 213/841-8242. We real

ly appreciate Pete setting this up for us. We realize that our California builders see little of us. It's a long way over those Mountains!!

Our M.E.A. Fly-In is scheduled for Saturday June 25th. We plan to have a Brat Fry Picnic again and for all of you who fly-in it will be free! We would like to have some idea of how many people to plan for so let us know if you are coming. It is during the Ultralight Convention so we hope to do some flying around - perhaps some fly-bys, some air to air photos of your airplane, and other "fun" events. One run way, 9/27, will remain open at all times during the convention so no worry about that. We hope for this to be a fun, social fly-in so be sure to join us!!

Our plans for Oshkosh have begun! But only just begun. Our Builder's Party is scheduled for the 1st Sat. evening, July 30th. We hope to run our shuttle a bit more smoothly back and forth on the inside of the field again. We will still have a small booth in the exhibit building and airplanes over on the fly-in site. All John's forums however will be in our building. More Later!!

moni



We now have the Gold Wing Pins for Moni. (On order and in stock soon.) These are just like the Sonerai and Monerai ones. Traditionally we give them to our builders when they first fly their airplane. So be sure to let us know when you fly, and send us a photo and we will send you your wings! These can also be purchased by anyone for \$7.50.

The Moni plans sheets are now complete and being sent to the printers. There are a total of 51 sheets. This includes all the trailer drawings both open and enclosed. A complete new set of full sized template sheets has also been completed. Don has rearranged all of the templates for any given size of material so that you simply glue on the "group" templates to the proper material provided in the kit and start cutting out the parts. It is no longer necessary for the builder to figure out how to get all of the pieces out of the material provided. The new template sheets also include a new simplified cooling baffle system. If you have

the old set made, you can use them with good results but the new set is much tighter and less prone to vibration. A simple Spar Modification has been included on the final plan sheets. (The material for the modification will be sent to all planholders.) These final drawings were delayed somewhat because of another new development. John and Don came up with a new latch system for locking the dolly into the trailer. But alas, they are now all completed.

All planholders will be receiving a complete new set of corrected plans, manual, template sheets, and the flight manual. There have been many mailings and additions and corrections, throughout the last few months so we felt it necessary to supply you with a new completed set on this last mailing. Decal and placard sets will be supplied also -hopefully with these new plans.

Westach has developed a new combination Tach/CHT Gauge in which the Tach portion is run off of the alternator instead of the magneto. We have made arrangements with the manufacturer to exchange all of the old gauges for the new style. The result is the Tach will no longer cause engine misfiring at low throttle settings. Moni builders should return their combination Tach/CHT for exchange. You will be receiving a letter soon telling you the procedure to follow for this exchange.

Another important note - There have been many reports and rumors, even in this newsletter, about a KFM 105 -two cylinder, four cycle engine for Moni. This is no longer true as KFM has decided to postpone development of the 105 indefinitely. We will however, continue development of the Moni in the direction of having the ability to utilize other engines as they may become available. Let it be made clear at this point, the 107 Engine is the only approved engine for use in the Moni.

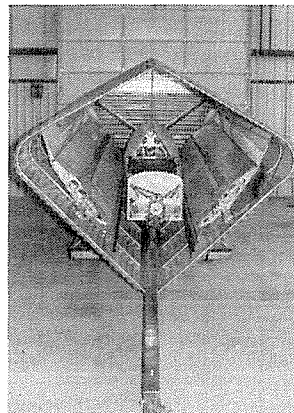
In the same light, a few builders have expressed concern for the ballast system we used in the Moni. All aircraft are a combination of both long term and pragmatic compromises. It was John's decision to employ a group of nose ballast weights to adjust the CG for various loading conditions. Many reasons, not always immediately clear to the casual observer, have shown this to be the quickest and easiest to change solution while leaving the option for larger, heavier, and/or more powerful engines. Again although the 107 has and will continue to be a very satisfactory Moni power plant, it would be indeed unrealistic not to believe that a substitute sometime in the future may be desirable or necessary. It should be noted that all the performance figures for Moni are based on our "heavy" prototype. Even a very heavily ballasted "stock" or production kit Moni will be 30 lbs lighter than the prototype!

Congratulations, Bill!! First flight was April 22nd and he now has five hours. But get this - his kit was shipped on Jan. 7, 1983. That's faster than we can build them!!

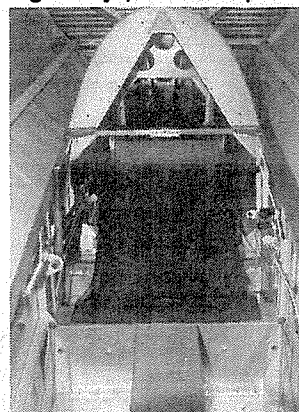
News From Builders

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

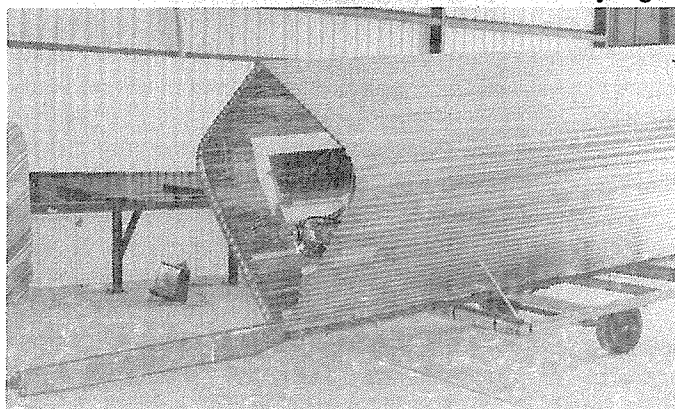
Gerald sent us a number of photos of his unique trailer with several comments:



This trailer is all galvanized roofing & conduit. Uses 1000-CCP 42 rivets. I am lucky to also have the \$500,000 building at my private disposal!



This is where I sit to shoot the Red Baron every night.



You don't want to put your plane in a better home than you wife is in.

First Flights

Bill Gustafson #170
10612 Zenith Ave. S.
Bloomington, MN 55431

Myron Marsh #112
3525 Kendale Drive
Ft. Wayne, IN 46815



Myron writes: "As you can see by the photo, I've been keeping my work close to home. It would appear I selected this apartment with Moni Construction in mind. From the picture most people have figured out that I'm not married. There was a big advantage to fitting the wings in the living room, the carpeting provided padding so I didn't get any scratches on the wing....."

Bill Crone #115
Bob Cash
10335 Dolphin S.W.
Beach City, OH 44608

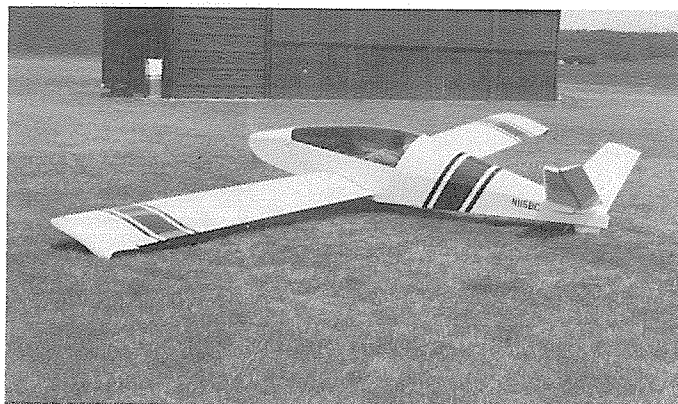


Photo of April 17 just after FAA issued the Airworthiness Certificate. Ready to Fly!

Builders Tips

Frank Millis #141
4460 Balsam St.
Wheatridge, CO 80033

Frank sends this in his letter ... "When you drill the 3 1/2" holes in the spar, (I used the same 3 5/8" hole saw that John Horn did. It saves 6.2 oz of weight and doesn't take enough excess material to weaken the spar!) I suggest using a fine (120 grit merit "Grind O Flex" flapper sander for the holes. This wheel is a 1 11/16" diameter ar-

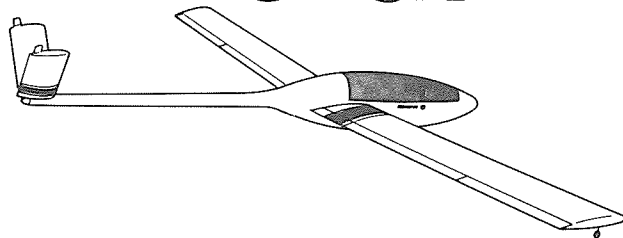
bor and a total diameter of 5" when new. 'How am I supposed to polish 3 1/2" dia. holes with a 5" wheel?' Here's how: after planing the spar caps and filing them, first use the wheel to sand them down smooth. Then use it for anything else around the shop until it's worn down to about 4" diameter so it will fit between the spar caps. Start at the tip end of the spars, using the wheel to go around the circumference of the holes at about a 45° angle. The wheel will soon wear round at the outer corners. OK - now use the wheel to get the holes nearer to the fuselage end of the spars. Soon the wheel will wear to where it may be pushed into the hole and polish the edges nicely. Go over the inside of the tip end holes again until no hole saw marks are visible. Now, use #220 paper wet (use a plastic drop cloth on the bench) to polish the entire spar holes, caps and all! Finished? No! More hard work, but you don't want the wings to develop a fatigue crack someday do you? Of course not, so....buy a box of steel Brillo pads or any brand of soaped steel-wool kitchen pads. Go over the entire spar again - holes, caps, everything, and you can be sure that any deep scratches will really show up. If they do, polish them out with #220 again and if any hole saw marks show inside the 3 1/2" holes, use the flapper wheel, the #220 paper and the steel wool again until they look like the shine on an Indian Bracelet. This may be overkill but everyone will gush and say 'Doesn't 'Tom' do bee-yoo-tee-full work?' Of course we do because we owe it to ourselves and the next guy who may fly our plane someday!..."

For Sale

George Conn, Jr. #34
Star Route 7, Box 383
Eustis, FL 32726
904/357-9243

Complete Moni Kit - untouched
\$5,500. Firm

monerai

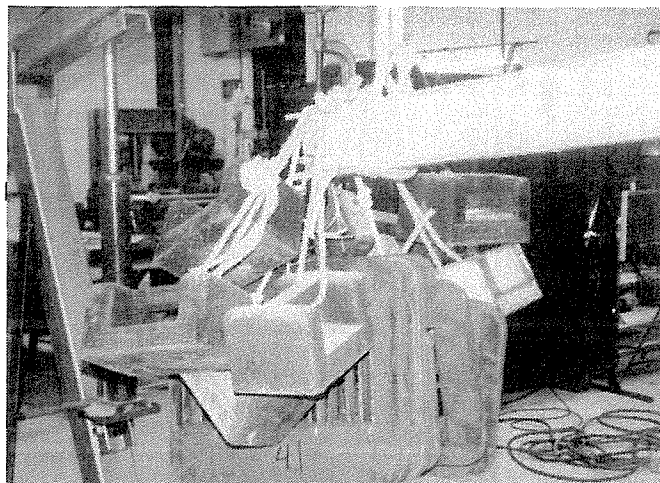


We have worked out solutions and corrections should be underway regarding the Monerai Service Bulletin issued in January. Spar fittings are being tested for heat treatment and spar modifications are out. All Monerai

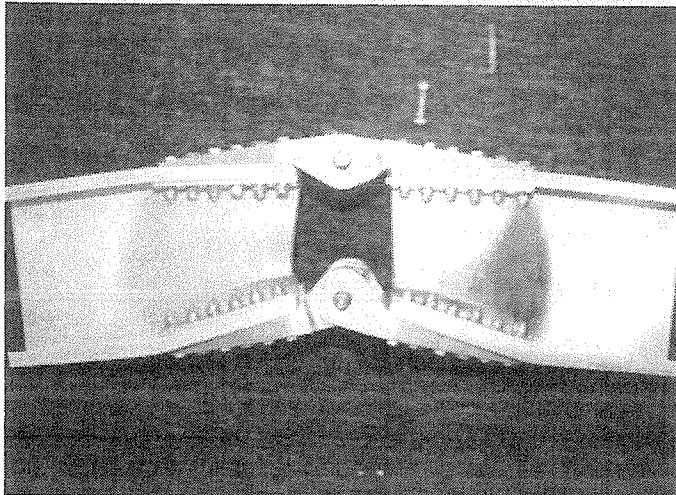
Builders should have sent back their fittings for testing and reheat treating if necessary. We have reached a point where just a few are dribbling in - however there are many we have not heard from. If you are one of those, please guys, quit procrastinating and send them to us! Because fittings have to be heat treated in groups, the longer you wait the longer the turn around time will be when you will get them back. All Monerai builders should have received the prints for the spar modification in the mail recently. The material kits for this modification are in stock and are being sent out now to those who ordered them.

It goes without saying that many man hours have been spent on the Monerai Spar testing and retesting and correcting the situation. This has left us with little time to work on the KFM Power Pod. We know many of you are very much interested in this development but as with all things it all boils down to priorities. We are doing the best we can with our hardworking staff!

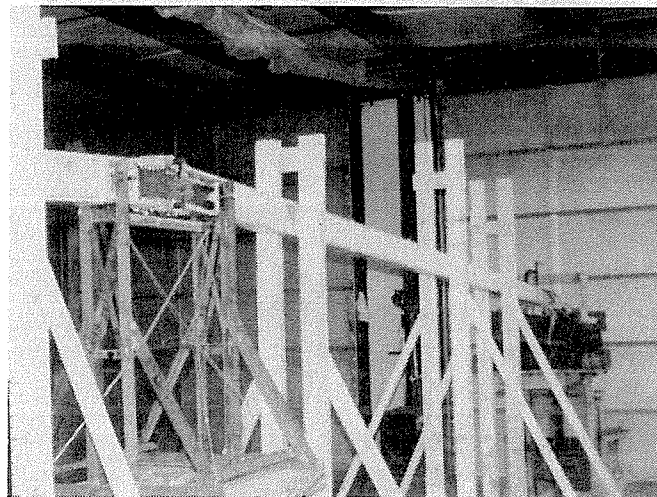
In accompanying photographs you can see the elaborate system that was necessary to test the Monerai Spar System. Since the wings were tested this time for positive G loading instead of the original negative loading situation, we had to construct a fixture that essentially duplicates the fuselage attach points and was high enough to allow deflection of the spars and keep them from twisting. Since we were looking for only a total moment, we attached the weights to each end of the spar adding weights as we went. The wings were originally loaded to yield (6 G's) and kept there overnight to check for any "creep". The following day they were brought to 8.2 G's at which point we failed the web as you can see in the photo of the mid-section. The new spar plates were installed on another set of fittings and beams and retested. As a result we are satisfied the spar center section will not fail at less than Monerai's published load factors. The testing and the solution took a great deal of work for our staff and consultants and we appreciate the extreme amount of patience and positive support we have received from our builders. To our knowledge there has never been an airplane built that hasn't required some sort of service bulletin or airworthiness directive. This was the first for our designs. We will constantly endeavor to re-evaluate and improve our products to maintain your confidence in their integrity.



Some of the test weights in place.



Original Monerai Spar fittings and root at 8.2 G's.

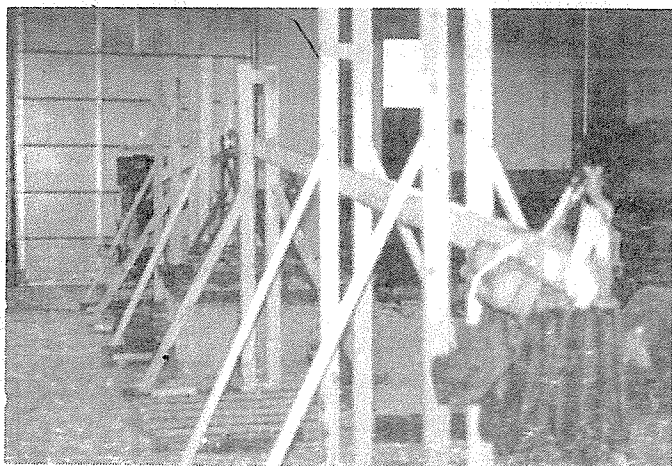


Monerai Spar Fitting Test Fixture.

Builders Tips

Rich Adkins #226
10884 Harmel Drive
Columbia, MD 21044

Rich writes...."Am enclosing a sketch of a wheel well

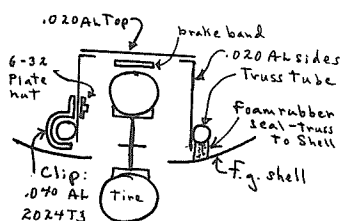


Spar fitting test fixture. First Test.

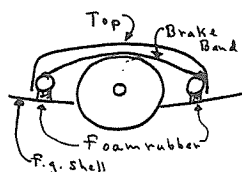
that I built in order to solve a couple of problems, one to reduce the height of the well so the rudder cables don't rub and two to make it easier to seal off the wheel by enclosing the brake band completely inside the wheel well. If anyone would like more details along with an approximate pattern, they are available for a self addressed stamped envelope. Would also be interested in a note mentioning any ideas they have had that will make Monerai a more fun bird....."

Material: .020-2024T3 AL.

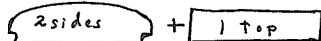
Front view



Side View



Well is made of 3 pieces pop riveted with 1/8" AL rivets



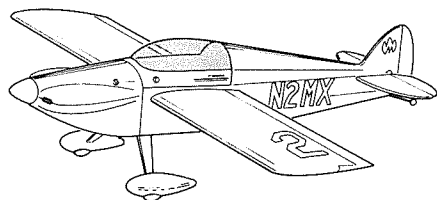
Is also removable as a unit.

For Sale

Tom Soulsby #367
1106 East Commons
Marietta, GA 30062
404/422-0754

Monerai wing and tail fixtures with 1" x 2" blanket material.
\$150.00

sonerai



Such a nice article in *Sport Aviation* April 1983 issue on a beautiful Red Sonerai!! Bruce Thompson from Anoka, MN wrote a super article and has some wonderful photos of his "Dream Come True". His local paper, the *Minneapolis Star and Tribune* also did a nice write up on him on April 7. Congratulations Bruce!!

Also saw Chip Shafer in March 1983 *Sport Aviation*

with his Sonerai. Nice photo and little blurb!

Several people have asked for a run down on articles in which the airplanes have appeared. In one of these issues of *Monink*, I will publish the list which I keep of what appeared in which magazine. Watch for more on the Tri-Gear Sonerai. Cover of *Homebuilt Aircraft* coming up!

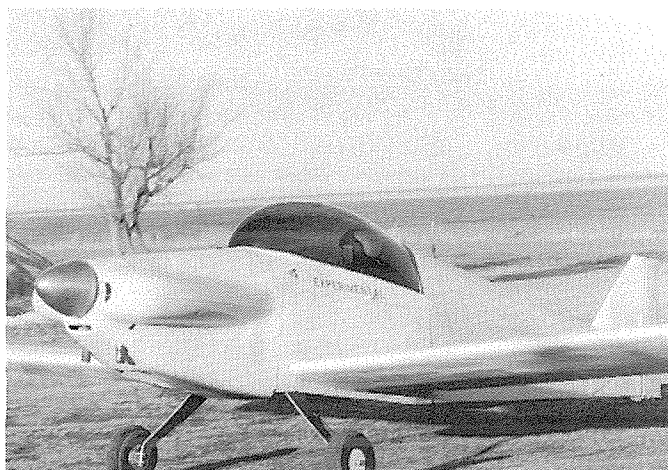
We are sorry for the delay in getting the Tri-Gear plans and modification kits ready. We did not make it by April as planned. It is now a full time priority with our draftsmen. Yes, we now have two in the drafting department. Besides Don Hardy who is also busy with so many other things, we have John LeBouton as full time draftsman. Welcome John! He has been with us for about two months and really appreciate his input in that department.

First Flights

Donald Johnson IL #259
1211 Highland Dr.
Washington, NC 27889

Flew his Sonerai I Low wing on April 10, 1983.

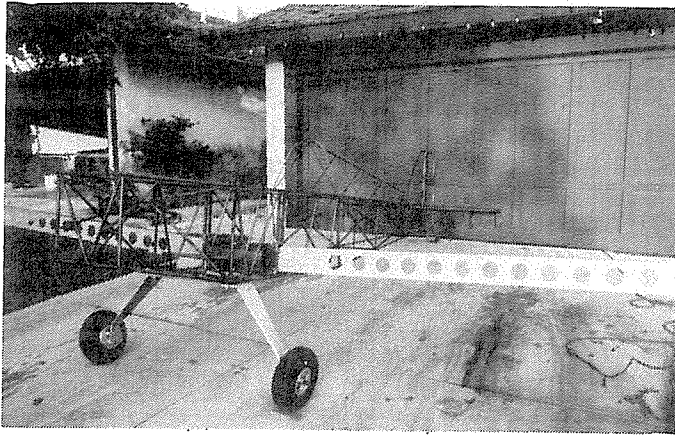
Fred Hauser IIL #1087
R1
Johnson, KS 67855



Mentioned his first flight last time but now have a photo.
Flew January 12, 1983.

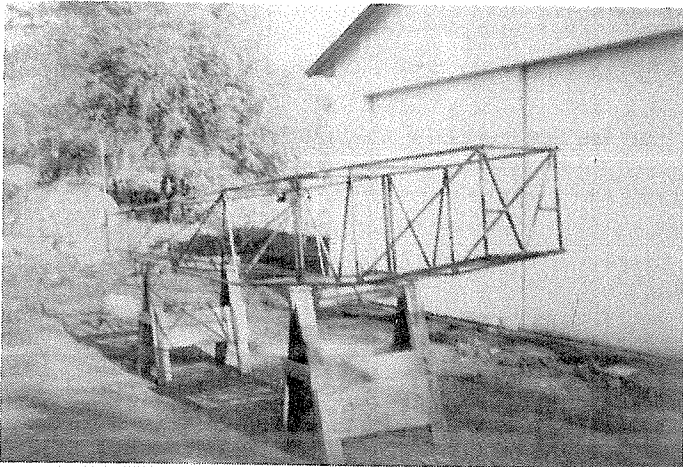
News From Builders

Curtis Anderson IIL #1245
17526 Vierra Ave.
Cerritos, CA 90701



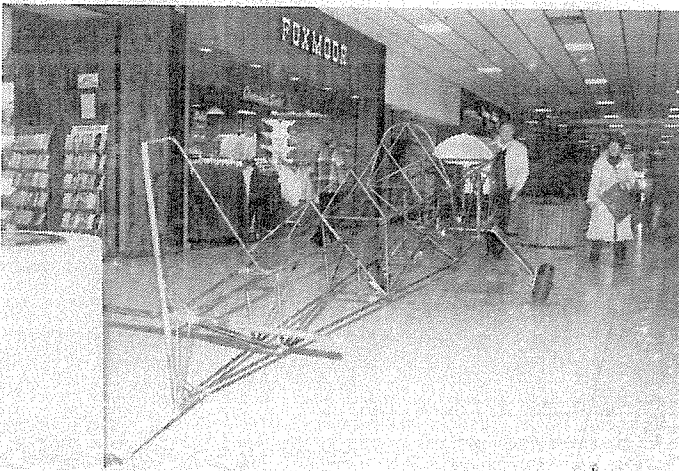
Progress as of Feb. 13, 1983.

Doug Hagerman IIL #1066
Rt. 1 Box 303D
Oroville, CA 95965



Doug writes....."Born 3-1-83, presently ready for gear and tail. She's a fine airplane! Sure alot easier to build than my Pietenpol."

Joe Norris IIL #1206
1951A County Hwy. D.
Wisconsin Rapids, WI 54494



On Display!

Wanted

Harold W. Corsette
2539 E. Lake Shore Dr.
Crown Point, IN 46307
219/988-4692 evenings

Sonerai I - in midwest area, flying or near completion.

Jeff Canen
Rt 2, Box 416F
Pleasant Grove, UT 84062
801/785-1292

Sonerai II Mid Wing Project, Less wings, prefer fuselage already welded.

For Sale

Glen T. Bumpous I #283
421 Westwood
Frankfort, KY 40601
502/875-4618

Sonerai I - 1800cc, A/C Brakes and wheels, 55 TT, 140 mph, 4 GPH, CHT, EGT, Super Vee, Restrictions flown-off. \$6,450.

Novak's Nitty Grittys

MONI BUILDERS

Bracket 13 - Shown on the full size template sheet, their locations in the fuselage structure were inadvertently left off of the drawings. They are riveted to the tops of tubes #1 and #8 just aft of the firewall. The steel gussets (Brkts #3) are riveted to the bottom surface of these tubes. The rivets used for Bracket #13 are CCP-42, with the exception of Note #2 on page 35 of the drawings.

Sheet 23 - Shows a large flat washer installed between the front and rear roll horn brackets (see note #3). Disregard this washer. There is nothing between the front and rear brackets, except for the roll horn itself.

Sheet 31 - There are four (4) places on this sheet where a bracket is referred to as #7. This is actually Bracket #4.

Sheet 12 - Reference cutting diagram for 3/4" square aluminum tube. Tubes #14 are shown on Sheet 31, as being riveted to the aft side of Formers #2. Tube #13 is shown on Sheet #26 as the bell-crank mounting tube.

Sheet 44 - The dive brake doors only open to approximately 70-75° from a line parallel to the fuselage center line. Also, at each end of the spreader channel, three

rivets are used to connect it to the wheel pant. The center rivet (at each end) is also used to hold the small plastic clamps in place. On the full size template for the wheel pant, this center hole is shown larger than it needs to be. It should be drilled to 1/8 inch, the same as the others.

Sheet 14 - Notice the reference made to the top rear longeron "clecos typ. this seam". Do not install any rivets in the top longeron aft of the bend line. Sheet #32 shows how the turtle deck skin must fit in between the longeron and side skin.

When building any part of the structure it is always better to cleco as much as possible and check ahead in the drawings for any problems before actually riveting.

Sheet 41 - If desired, a master fuse or circuit breaker can be installed in the electrical system. It should be connected in series, between the master switch and the common screw terminal. A 10 amp. fuse would be more than adequate for most installations, yet will still protect the system from serious damage. You could, of course, install separate smaller fuses for each individual circuit. The size of fuses required will depend on the equipment installed in the aircraft.

Control System - All of the moving parts in the control system must be lubricated on assembly, and at 50 hour intervals. All rotating bolts, torque tubes, and moving parts should be coated with a general purpose grease during assembly. Every 50 hours or so the rod end bearings and all moving parts should be lubricated with a few drops of oil (10W30, etc.)

Wing Attachment - In one of the previous newsletters, a method of mating the wings to the fuselage was mentioned. Even with this alternate method, it would still be better to drill partially into the spar block, remove the wings, remove the blocks, bolt them together (less spar) and drill them through in a drill press, reinstall the blocks, reinstall the wings, and finish drilling into the front angle. A normal fit for the avibank pins is .003 loose or less with a loose fit of .005 inch being the maximum allowable.

Engine Oil - According to the current KFM engine manual that all of the Moni builders received with their engine, the only "approved" oil for the 107E is Valvoline, 2-stroke oil P/N 451. Unfortunately, as some of you have found out, this oil is no longer marketed by Valvoline in the U.S. Some of the more recent engines were supplied with a quart of the oil by KFM of New York, who can supply you with the P/N 451 oil.

The original Moni's have been using Valvoline, 2-stroke oil P/N 461 for some time, and have experienced no problems.

Cowling - Many of the earlier Moni kits were sent out with cowls that are too narrow to fit on the engine/airframe properly. The builder can try to modify it, if desired, to make it fit or just return it and we will replace it.

Tools - During construction you will find areas where a special tool would make things a lot easier. You will need a 120° counter sink. You can buy the type with depth stop (Micro-Stop), or just buy the bit and gauge the depth by eye. Most aircraft rivet counter sinks are only 100° so be specific when ordering.

Another tool required for riveting is the 120° dimple die set available from Monnett. All of the aluminum, .040" and

under, must be dimpled in order to use the flush rivets. Again, the 120° tools are used only for your pop-type rivets, the standard 100° tools (aircraft) will not work very well.

A tool that occasionally comes in handy is called a "hand nibbling tool". It's great for cutting holes of any size and shape, and does so without stretching the metal. It is also available from ATS.

For drilling in some of the tight places a 90° angle drill attachment makes it a lot easier. This attaches to your existing drill and takes special 1/4 - 28 threaded drill bits. You must also order the drill bits (#30 and #40, one each minimum) #11 (3/16") and #2 (5/32") bits are also available from ATS.

A lot of the other tools you'll use are not that specialized and are available from local hardware stores or can be made by you. For bending up fittings, when at home, I use two blocks of oak to hold the part and bend it over with a rubber mallet (see figure 1), and for adjusting or making

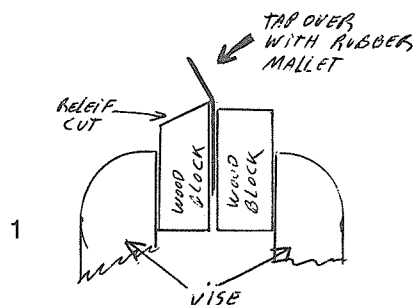


FIG. 1

slight bends in metal flanges, we have made up a simple tool that you use like a pliers, but it does not scratch the metal. (See figure 2)

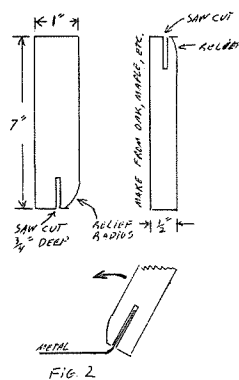


FIG. 2

SONERAI BUILDERS

Brake Cables - With the standard Sonerai/Azusa brake system, the brake cable housing are routed so that they exit the fuselage just aft of the gear attach points, run down the aft side of the leg, and end in a cable adjuster at the remaining brake housing/cable adjuster bracket. Normally, the cable is retained to the gear leg in two places: the top position being just below the top bend in the gear, and the bottom position being just above the bottom bend. In each position, drill a 1/8 inch (no larger) approximately 3/8 inch from the aft edge. A small aluminum "U" shaped clamp can be made to fit over the cable housing and trail

ing edge of the gear leg, and held to the leg by a long 6-32 machine screw through the 1/8 inch hole. Otherwise, safety wire can just be wrapped around the housing and through the 1/8 inch hole. Wide plastic or metal tape can be used along the trailing edge length to fair the cable housing to the gear leg.

Fuselage Layout - The station dimensions shown for the fuselage side layout, are given as the number of inches that station is aft of the firewall station tubing. When the sides are turned on edge and bent in, these dimensions will no longer be true center line measurements and are usually used as reference points for various points along the fuselage length. The vertical tail post, being welded in later, can be positioned using the fuselage side or fuselage center line as the measuring reference, the latter method being normally used. If the fuselage sides are used to find the tail post location, it will decrease the aft fuselage length by approximately 1/2 inch, and will have no effect on flight performance or handling.

Randy Novak

HAPI recently issued the following Service Bulletin in case you have missed it:

**POSA CARB SERVICE BULLETIN
FEBRUARY 23, 1983**

Affects all models of POSA carburetors

Two incidents of the main metering needle turning in flight, causing fuel starvation have been reported.

POSA's are equipped with a plastic insert around needle to restrain needle from moving when subjected to vibration. This plastic material is subject to shrinkage and embrittlement with age or when subjected to high temperature over prolonged periods.

If you are using a POSA carburetor, before next flight, remove dust cap check torque required to turn main metering needle. If positive resistance to turning (approx 4 inch lbs) is not present remove from service and replace needle lock bushing, POSA part #LS18-008. This part should be replaced on a biennial bases.

This procedure should be followed at each carburetor adjustment. Periodic inspection at each 25 hours for flight and at each annual inspection, is also recommended.

HAPI ENGINES INC.

P.O. Box 1000V

Eloy, Arizona 85231

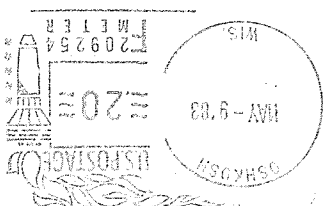
Please note: We do not carry this part and since HAPI is now manufacturing the POSA, you should write directly to them.

We have had to make a couple of **policy changes** in the office. Due to the increased number of bounced personal checks lately, we have had to change our policy on accepting them. **Orders paid by personal checks will have to be held at least 10 days for processing** (check clearing the bank). **No personal checks will be accepted on C.O.D. orders or pick ups.** These must be paid by Cashier's check, Money Order, MC/Visa, or Cash. We are sorry after all these years of accepting your credit that we have been forced to do this. Also a change, **all returns must have a copy of the original invoice and are subject to a 10% restocking charge.** All items must be in good condition.

Another change: the *Monink* will be now published at the beginning of the two months listed at the top of the newsletter. Things are getting a bit confused with my putting our newsletter out after the fact! In order to work around to this and not loose any issues, the publication schedule will be changed a bit. May, June issue will be mailed the 1st of June, and the July, August issued will be mailed the 1st of July. From then on you will be receiving your *Monink* the first part of the first month listed. Now that you are totally confused - I'll be back in a month!! With more exciting news for Monnett Experimental!

Betty Monnett

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