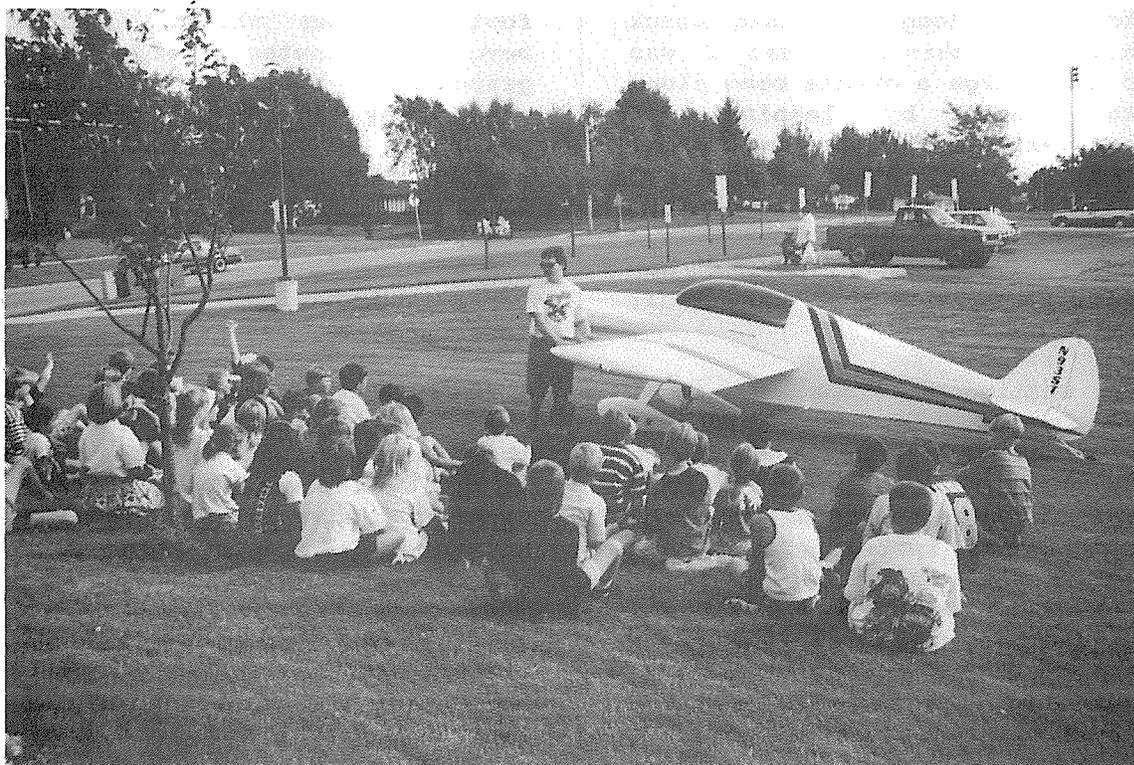


SONERAI OCT-NOV-DEC 95 **NEWSLETTER**



Jim Meier with his Sonerai II in front of a group of admiring young students.

Welcome to the October 95 edition of the Sonerai Newsletter. We have completed another Oshkosh for the year. There were 11 Sonerai's in attendance this year as far as I could tell. We had our forum on Thursday presided over by John Monnett and your's truly, our Sonerai Builder's Club forum on the back porch of home-builder's corner on Saturday and then a pizza party in the Monnett hanger on Saturday night. If you can, try to be there next year.

I tried to get a replacement for my duties as Newsletter Editor and as expected, didn't have to beat off the rush of volunteers. However, before the day was over Saturday, good old faithful Fred Keip came forward with the idea of himself as co-editor. I pounced on the thought! So if you have hesitated to send in your articles and glossy photos because I lose them, you may now do the same to Fred. (Send them in, that is.) Fred Keip 11428 Six Mile Rd. Franksville, WI 53126

Turtle Deck

I have just finished the turtle deck on my aircraft. Constructing it was not a very pleasurable experience. I cut the eight foot long trapezoid blank innocently thinking that I was going to urge a gentle bend along its length by leaning and maneuvering it on the workbench. Being convinced that hundreds of builders have done this before me, and since the construction manual offers no advice whatsoever, I figured that there must not be much to it.

Getting a curve on either end is not much of a problem. But when you attempt to bend the mid section, you are working against the stiffness of the entire eight foot length. Using your hand along one edge with the other edge reacting against the workbench, produces an uneven application of force. The metal begins to yield locally, but the irregular shape caused by the uneven application of force causes the metal to crease in a conical shape about five inches in from the edge. If you are not careful the edge goes into high compression and will double up along the length. (I was not careful). Using a 2x4 or the like to distribute the force, it soon becomes evident that it is going to take a whole lot more than your own body weight to even begin to yield the metal, much less obtain an even curvature along the full width.

After an hour wrestling match with this cursed piece of aluminum, I cried uncle. I threw the abortion in my pick-up and speed off to the local chapter of the Confederate Air Force. These guys really want to help, but are understandably concerned about liability. Never-the-less, their

sympathy for my pathetic situation overcame their better judgment and they opened up their sheet metal shop to me. Within, there were a set of rollers (36" wide), an eight foot brake, and a foot squaring sheer. After several minutes of teeth grinding, I realized that there was no way this turtle deck was going to become a reality per plans. So, I chopped it up into three pieces and ran it through the rollers. It only took about ten minutes to obtain the correct taper on each piece. I then bent the 1 x 1/2 Z sections, made a courtesy donation to the Confederates, and returned to the home shop. I then spent the next three hours splicing the three turtle deck pieces back together with flush rivets.

Unless Ed Sterba has some incredibly simple and obvious follow-up to this story (like why bother bending it at all?), I highly recommend that the readers that still have this task ahead of them do not waste their time trying to bend the eight foot turtle deck. You can cut the three pieces from stock without regard to a full eight foot sheet length and you can avoid the dents and creases caused by convincing yourself that this task is impossible.

Also, I can see no reason to cut the 1/2" x .064 steel for the angled supports. It is much easier to weld on short -6 tubes. Cut the aft slot for the vertical stabilizer and trim for the canopy arc, cleco in place. At two or three locations, staggered in between the fuselage A-frame trusses, drill holes near the Z section to install through sections of 3/16" all thread. Install nuts and washers as required to compress or expand the turtle deck to the proper

shape. Measure the distance at each truss to cut the support tubes. First attach the support tubes to the Z section using a cleco. Then, with the turtle deck Z section positioning the support tube, tack weld the tube to the truss. Repeat as required at the remaining locations. I found that at station 149 7/8 no support tubes were necessary. The 1/2" portion of the Z section may be attached directly to the truss. Add a tube or sheet metal gusset after removing the turtle deck to support the fabric tension.

The following Sonerai's were in attendance:

Jim Meier Lou Novak
Fred Keip Al Bertelmann
Jim Vliet Bill Nelson
Jay Warren Dave Seikmann
Jim Phillips Dave Rawlings
Dave Patterson

Jim Meier won the Best Sonerai Award
Bill Nelson won the Most Innovative Award
and Dave Seikmann won the Greatest distance
award for his trip from Arizona. (Al Bertelmann
came in from Louisiana also.)



Jim Meier's Weird Prop Problem

I talked to Jim Meier before Oshkosh about a failure in the finish of his Sonerai prop. It seems that he was noticing some blisters in the finish and some discoloration of the wood part way out towards the tip. He wanted to know if I could find time during the convention to have a look at it? After meeting him and his wife Sally in the campground (so he could remind me), we eventually got around to looking at his problem.

Yes, indeed, there were small blisters forming in the prop finish at the end of several darker areas in the wood. I noticed that there was a liquid coming out of one of them and a quick check determined the substance to be oil. Now, this is a normal all wood, fixed pitch prop that shouldn't be having any exposure to oil you would think, but there it was and not just on the surface. So, where did the oil come from? This problem is fairly unique, but I have seen it on a Lycoming engined Vari-eze a number of years ago. It had to come from the hub and then be forced down the length of the blade by the enormous centrifugal force as the prop spins.

The Vari-Eze had a crankshaft drilled for a controllable pitch prop that had the holes plugged for a fixed pitch unit. The plug had leaked and let oil into the hub where it quickly started migrating down the blade length. I assured Jim that his problem was much less severe and that aside from the problem with his finish, the glue holding the boards together was unable to be affected by oil. So we were into a clean-up and refinish situation some time in the future, but first, ---- where did the oil come from???

Jim took his prop off after Oshkosh and called to let me know that there was oil in the hub area of the prop. It appeared to be coming out of the prop hub in the area of the keyway. It was at this point that he recalled a part laying on his work bench when the engine had been reassembled. That part was the crankshaft slinger ring. When the part was found Jim decided to rely on the Great Plains Aircraft prop hub seal keeping the oil in the case rather than breaking the engine

down. Probably a sound decision but it didn't keep that oil from sneaking down between the crank and prop hub to emerge a few inches later under the prop nut.

Jim's fix for now is to remove the prop hub nut and use silicone to form a gasket so the oil can only get as far as the prop nut washer. If this works all right, it should be fine until some time in the distant future when the case needs to be split. (Hopefully, the far distant future.) I told Jim to watch the prop and let me know if the finish has any more problems. Mystery solved!

Wingmod/"S" Wing Riveting

I received a call today from one of our new Sonerai builders asking about the clearance between the wing skins and the angle aluminum for the wing stiffening. He was concerned that there didn't seem to be enough room to get a wing skin rivet set without hitting the aluminum angle. This question also came up at the Sonerai Forum at Oshkosh 95 and was answered by John Monnett. I hope I do justice to John's answer.

Since there may not be room to fully seat the shank and head of the skin rivet as it is inserted into the hole, it should be possible to gradually start "pulling" the rivet at the same time that you push it further down until the head of the rivet is touching the wing skin. In other words, as the rivet is "pulled", it obviously gets shorter, so you can get it to seat before the shank is broken off in the rivet. Give it a try on a test piece to get the feel of it.

John second explanation had to do with lowering the angle aluminum slightly on the spar caps to provide a bit more clearance. This is what the builder that called today may be able to do since he had only drilled a few lineup holes and could possibly make it work.

At any rate, if this seems to pose a problem, you can feel slightly more secure in knowing that you are not alone.

A letter from Bill Essenburg

Dear Ed,

I just thought that I would send you a letter to give you a status report on what must be the world's slowest Sonerai project and renew my subscription to your magazine. I don't know if you still have the issues for this year that I have missed by renewing this late but I sure would like them if they are still around.

Our house was flooded a few months ago and the second slab of my fuselage was in the jiggging table in the garage. The house received 32" of water and the garage got 34" of water. I had built the jiggging table to be 34" tall and covered it with half inch plywood so the second half of my fuselage came within half an inch of going under water, so it was a relief. My Jaguar sports car was sitting next to it and it wasn't so lucky, but then Jaguars are always happier when they are not moving so I guess it doesn't matter (right?...sob, sob).

I did find that your suggestion of using snips to cut the fishmouth joints on the tubing works very well. I have found that buying a couple of files from an industrial hardware store with 1/2" and 5/8" diameter cross section can make the joints fit together beautifully. Can't wait to get the torch fixed so I can start again.

Gene Cook 114 Imperial Ave.
Friendswood, TX 77546

Ed's comments: The method of cutting your 4130 with aviation snips was first brought to my attention when I bought the plans from Monnett Aircraft. As a new A&P, we had been taught the old hacksaw and grinder method at Embry-Riddle, and it was quite a revelation to see how a tubing cutter and the snips worked.

As for the recommended height of your work table, most EAA construction manuals tell you to consult with the Army Corps of Engineers to find the limits of the flood plain in any particular area.

Dear Ed,

Just wanted to respond for the benefit of anyone who's interested, the results of increasing the vertical height of the tail and rudder on my Sonerai IIL.

You may remember me as the guy who was measuring Sonerai tail heights at Oshkosh last year. My samples at the airshow showed a range from 34" to 42" measuring from the rudder horn to the top of the tail.

This winter I sectioned the tail and rudder horizontally, added 8 1/4" of height by reusing the top sections and splicing tubing in the gap, resulting in the tail height of 42 1/4".

I was very pleased with the results. The airplane now flies ball in the center with my feet off the rudder! When the rudder is displaced left or right, it centers itself.

The airplane is more stable and more relaxing to fly both in cruise and landing and takeoff. I can see no speed loss.

A picture is enclosed. I also think it looks better proportioned. I'm pleased with the results.

Bill Essenburg 415 E. South St.
Viroqua, WI 54665

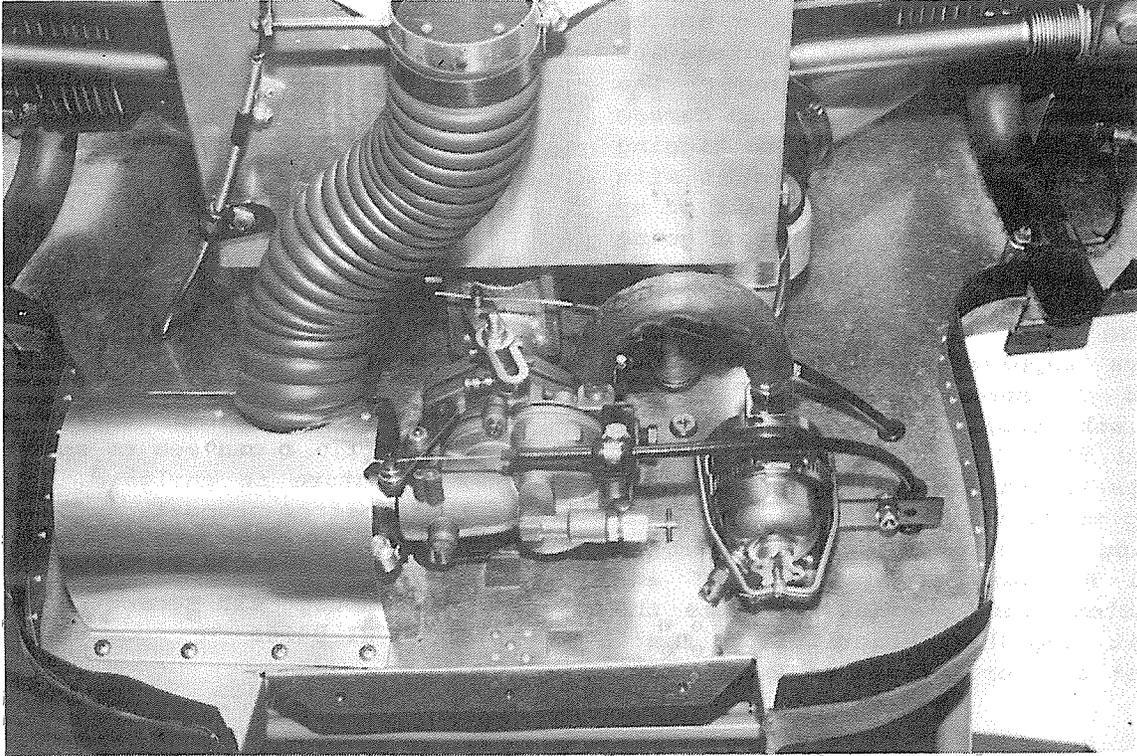
Ed's comments -- Thanks for the experient, Bill. I know of several Sonerai II's that have had the tail height increased by 6 inches and they flew fine. Both of these aircraft had the turtle deck height increased by 6 inches to accommodate a taller pilot. My totally objective answer to people contemplating an increase in the turtledeck has been --- if the increase is more than 2", then why not increase the vertical fin and rudder the same amount. I believe that the designer of the Sonerai series feels that the aircraft is made to be flown hands on all the time since that is it's purpose, and the resultant neutral stability is expected for this purpose.

Pictures from John Leone

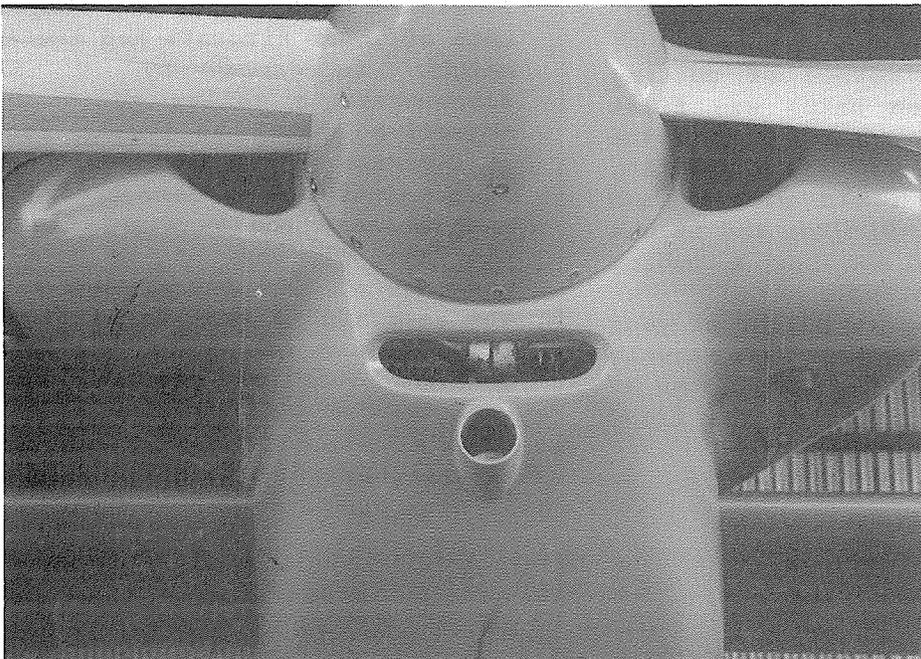
John Leone sent in a batch of pictures of his Sonerai II. I am going to elaborate at the end of the article on the captions stuck to the back of each print. John's airplane was voted Best Sonerai at Oshkosh 1993 along with Most Innovative. Maybe he has some ideas worth considering!

John Leone 10008 Lakeview Rd.
Traverse City, MI 49684

Picture 1. This is how I mounted my Zenith carb. The intake was an old Monnett Y casting cut off and a flange welded on. With the intake butterfly closed, air temp is 103 F. for carb heat. Open, it is blasting outside air into the filter. I have 100 plus hours on this installation using auto fuel with no problems. The downside is that I lost 100 RPM and some top speed. The Posa was working well when I made the switch.

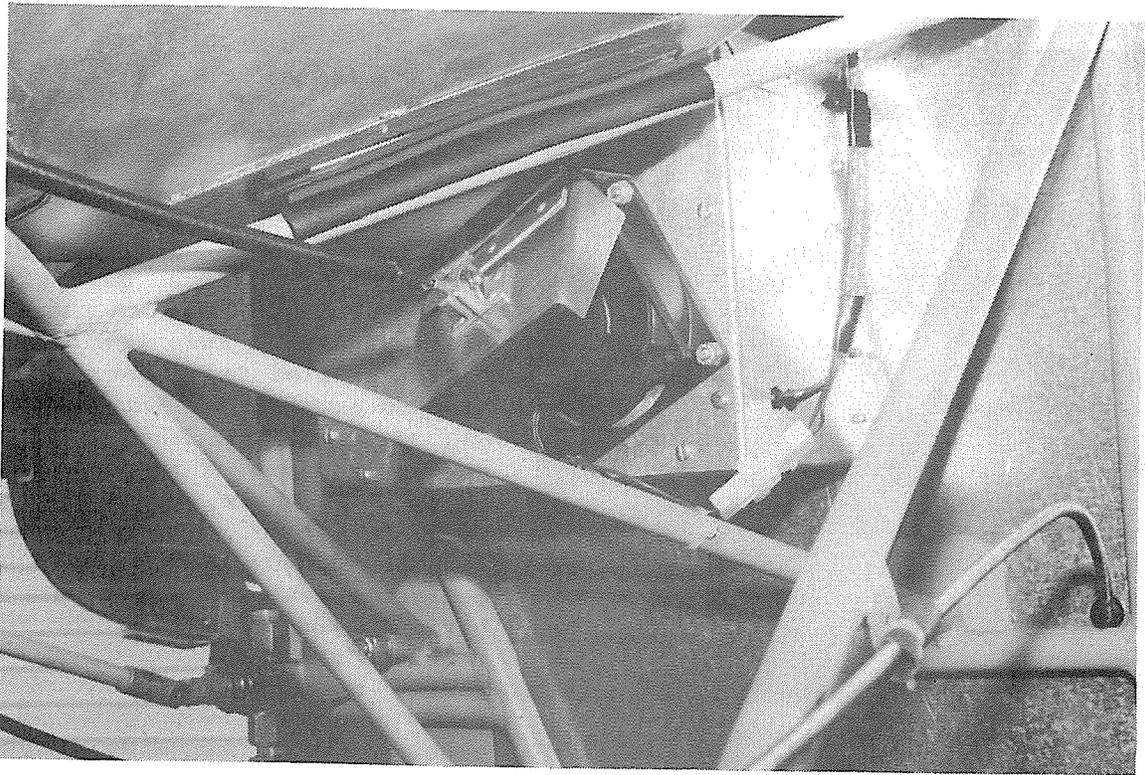


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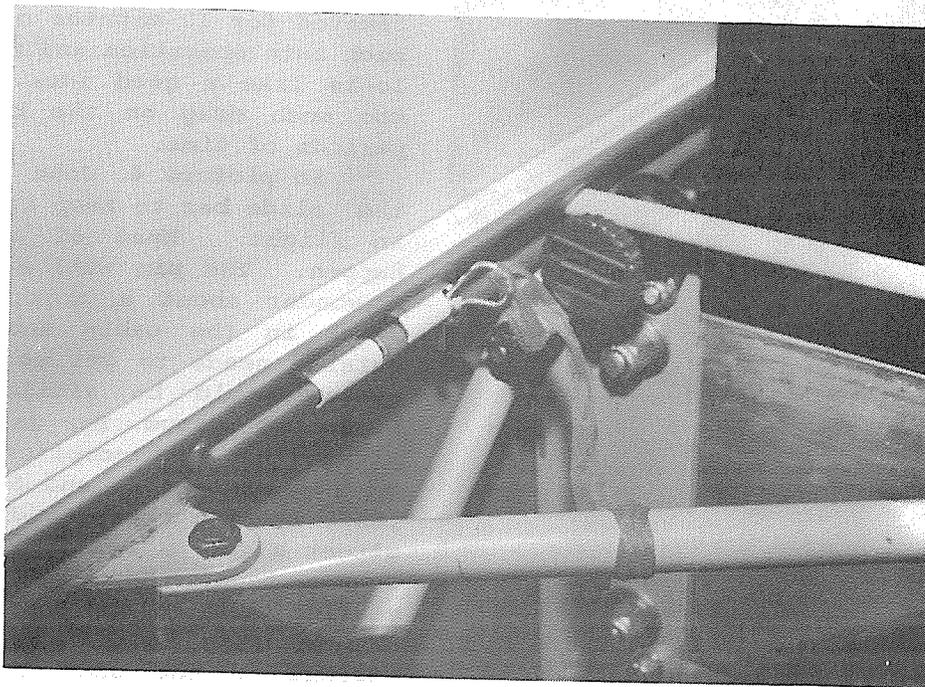


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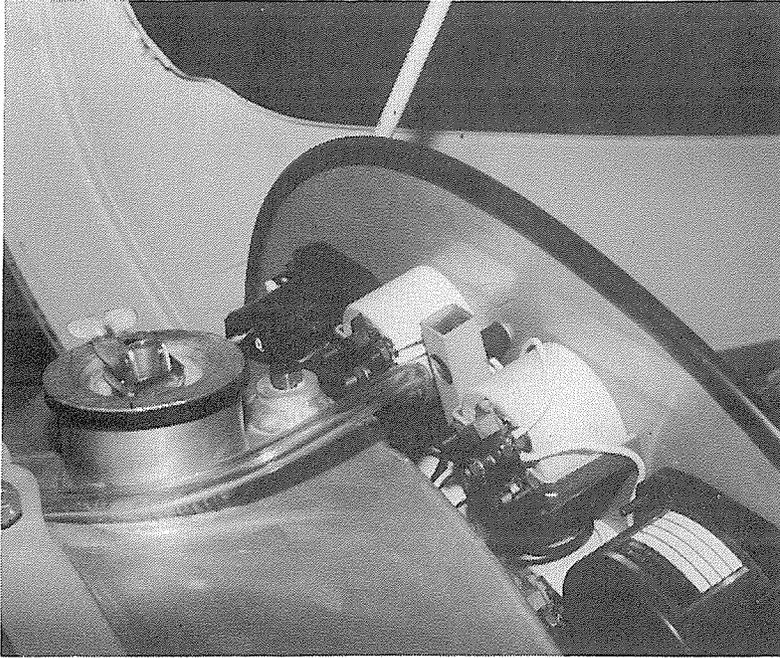
This is John's nice ram air inlet.



Picture 3. This is my magneto cooler and cabin heater. The fan is a 12 volt 3" muffin fan from the Northern Hydraulics catalog (\$5.00) and is used when the engine is shut down.



Picture 4. The cheapest and quickest way to lock the canopy.



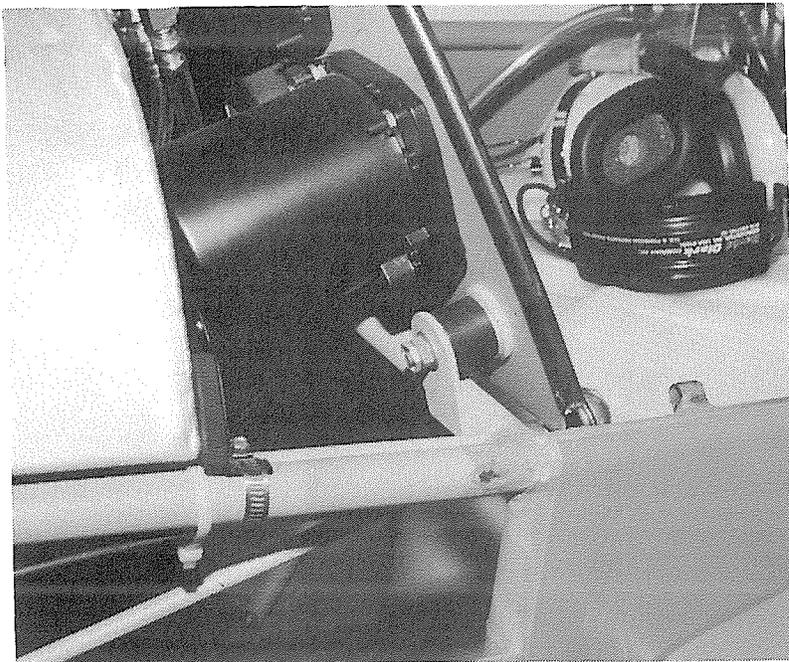
In picture 1, it isn't easy to see that there is a nice big canister air filter inside the sheetmetal housing on the left. The lower push-pull cable is actuating the choke and the top one the throttle. One comment on the clamp holding the cable, I have seen the rubber insert type clamps get slippery when coated with oil and lose their grip on the cable housing. Keep them dry and you are O.K. or else a piece of safety wire wrapped around the housing, over the clamp and then back to the housing will keep things in place. I never had fire lagging on my fuel hoses, but it sure is a good idea.

In picture 3. it looks like John's mag cooler/cabin heater dumps warm cowling air into the cabin when the vent is open. I used a similar arrangement on N78ES with fairly good results for my passenger's feet, not mine. For those of you worried about carbon monoxide problems, this method struck me as a whole lot safer than wrapping a shroud around an exhaust pipe like the certified planes do. I assume that the vent must also be open on the ground in order for the cabin air to go in and cool the magneto. My own experience with a hot mag occurred after shut down when it was so heat soaked that it refused to fire the plugs. After the cowl was removed for 10 minutes or so, things went back into operation and we went home. This looks like a good idea. It shouldn't be too much drag on the battery for short periods of time.

In picture 4. John has a pin through the slide bar to keep it from moving open in flight. Most of us know this can happen. The pin will solve the problem. I wonder about a crash I which we are stuck in the cabin and someone on the outside needs to get us out?? My locking system would be similar to John's in hindering rescue. How do you do both jobs without too much complication?

In picture 5. and 6. we see the nice panel mount rubbers holding up the stolen street sign. (Remember to drive slow in John's town, there are apparently signs missing near each Homebuilder's house.) Anyhow, they look to do the trick. Also visible in the side shot is the clamp holding a 90 degree pad to keep the fuel tank from sliding aft on takeoff. The fit to the altimeter doesn't leave a whole lot of room on most of our Sonerai's so you don't want that nasty old tank moving around on it's own.

Picture 5. & 6. The two large mounts are Harley-Davidson, the center mounts are Cessna type. The panel is made from a street sign (.080 6061-T6). It is surplus highway dept.



Ed's Comments -- Thanks for the pictures. John. They are worth a thousand words, but I'll try to be briefer than that.

Wanted -- Variety of good used or new Sonerai parts: cowling, canopy, 5/8" landing gear, spinner, S wing kit. Also interested in a Son IIL project.
Mike -- 219-534-2900

For Sale -- unused fuel tank for Sonerai II, intake manifold for 2180 Engine and Stub Exhaust kit for 2180
Raymond Bergner 1310 Parker Rd.
Lakeland, FL 33811 813-646-0953

Wanted -- Used, worn out, junk 4000 series Slick magneto. Super Vee prop hub and casting.

Bob Schank 313-697-7057 after 5 P.M.
35 Clarence St. Belleville, MI 48111

Wanted-- 1850 or larger long block suitable for Sonerai II Super Vee, in good working order.

Nick Pourdraine RR # 1
New Glasgow, N.S. Canada B2H 5C4

For Sale -- Sonerai II LT (easily conv. back to conventional gear) Wing Mod, VFR instr., Cleveland wheels and toe brakes No engine or prop.

Ivan Haecker 8434 FM 2673
Canyon Lake, TX 78133
210-438-3354 weekend 210-899-4824 eve.

Wanted -- Sonerai prewelded or tacked fuselage with tail feathers. Also, landing gear kit.

Joe Burr 4098 Eddystone Dr.
Cincinnati, OH 45251 317-827-7195

For Sale -- 2 Ray Jeff Lorans, Pl-99 w/ self contained battery packs, both w/ new chargers. \$175.00 ea. or both for \$300.00. In cartons w/ manuals.

Mike 219-534-2900

Wanted -- Cont. A65 taper shaft prop hub and professionally welded fuselage for Sonerai (set up for Cont.) Also, I have Bendix mag rotors to correct the S-20 AD.
John Mc Laughlin 25839 Tallwood Dr.
North Olmsted, OH 44070 216-734-5575

For Sale -- Subaru engine 1985 EA82 turbo engine complete with EFI computer, turbo all access, 5 subaru repair manuals, \$1400 for all. Also, EA82 non-turbo engine TBI injection. Car ran but engine may need work. Bob Stieg 815-397-1533 days
815-234-2283 eves.

For Sale -- Sonerai IIL 1700 VW, 1000 TT 100 STOH, new ICOM A21, Intercom, new interior, excellent paint, 110 mph on 3.5 gph \$8000 Runs Flies and looks great!
Steve 605-336-7791

Wanted -- Sonerai parts
John Bauer 14601 SW 272 St.
Naranja, FL 33032 658-8357 beeper

For Sale -- Smith Miniplane 40 TT 0-290 40 SMOH Stretched-widened, txp, enc, com elt, room for 6'2" 200+lb pilot \$15,000
Robert Wray 1806 Kansas Ave.
San Angelo, TX 76904 915-949-5813

For Sale -- 1991 Sonerai II VW 2074 TTAE 75 hrs \$7000 Call after 7 PM
404-296-0937 Buying engine for Ercoupe

Wanted -- Son II project or completed aircraft. Preferred to have it 70-80% completed.

Dave Valaer 2833 Summit St
Souix City, IA 51104 712-277-2823

For Sale -- VW 1835 engine. All new. Hd. lifters, SCAT heads, Hapi access case w/ dual alt., elec. igniton, prop hub installed, Zenith carb. Might separate. Apart for inspection. Can assemble.
Bob Stieg 815-397-1533 days
815-234-2283 eves.

For Sale -- Sonerai II midwing, Supervee cowling, Sterba prop, 2100 engine w/Revmaster prop ext. Also, 4016 Slick mag w/ 100 hrs, and misc. instruments.
Eddie Eiland 1350 Thunderbrook
De Soto, TX ph.214-230-8475

Wanted -- Son II mid-wing preferably 2180 GPAS. Must be quality constr. and currently flying.

Marty Hammersmith 1777 Oakridge Dr.
Lawrenceburg, IN 47025 ph.812-637-2122

Wanted -- Son II LTS, LS, or LT w/2180, but will consider a taildraggerw/ smaller engine. Prefer wing mod already done.
Bud Aumann 11340 w. 38th Ave. #26
Wheat Ridge, CO 80033 ph.303-420-6071

For Sale -- Porsche 914 2 liter engine project. Motor ran, mostly converted. 9" prop extension. Ellison carb. 650 Honda alt. Aluminum welded manifold. Potentially best VW conversion yet. Very cheap.
Roger Durham 1370 Thompson Ave.
Glendale, CA 91201 818-846-9163

Wanted -- Complete of nearly completed wings for Sonerai II midwing and canopy
309-633-2365

For Sale -- 2 valve covers, 2 dual port int. man., 1 external oil cooler adapter, 1 oil cooler eliminator(bypass). All above are cast aluminum \$65.00 total. Also-- 4 exh. flanges, 2 steel "U" bends for exh. \$25.00 total. Also -- 1 dist.hole ruber plug \$5.00 Everything together \$85.00
210-899-4824 even. or 210-438-3154 week.

For Sale -- Pitts S-1c 180 hp, full inverted, many features. Call for details.
Joe Norris 715-886-3261

For Sale -- 1 Type 3 Supercase by Claudes Buggies, 1 forged crankshaft w/hub and prop extension, 2 cyl.heads w/ S.S.valves, 1 set of NPR piston rings. All for \$500.
217-935-5345 evenings

For Sale -- Sonerai II midwing w/ 1700 Monnett conv. needing to be rebuilt. Aircraft partially disassembled. \$6000.
Tom Freeman 708-526-3180

Wanted -- 5/8" main gear, S-wing kit, taper pins, fabric, canopy, interior kit, wheel pants for 5.00 X 5 and 11.4 x 5 Lamb, rubber donuts for tri-gear, rivets and misc. hardware.
Darwin Mc Kinney 610 S. 318th Pl.
Federal Way, WA 98003 206-839-6531

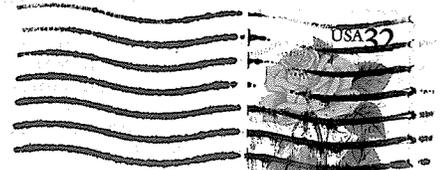
Wanted -- Clecos and Rib Forms used to build Sonerai wings.
Walt Augustine 6948 Neptune Ct.
New Orleans, LA 70126 504-245-8940

For Sale -- Sonerai II LT, Great Plains 2180 (brand new), Sterba prop, hydraulic brakes, fuse. primed, canopy finished, fabric covering, some minor finishing, wings ready to skin. Owner actively working on project. Great project for quick finish.
501-968-2794 or 501-964-5384

Wanted -- Sonerai II in flyable condition with trailer if possible.
Steve 916-489-5514

SONERAI NEWSLETTER

C/O Ed Sterba
412 S. 5th
Delavan, WI 53115



FRED KEIP PD 95
11428 SIX MILE RD
FRANKSVILLE WI 53126