

# **SONERAI**

JAN-FEB-MAR 1995  
**NEWSLETTER**



## **Gary Stucker in his Sonerai II**

Gary has been flying this Sonerai II constructed in the late 70's by Pete Buck when he was employed at the Monnett Factory in Elgin, IL. See inside for a letter from Gary and this editor's comments.

Welcome to the Sonerai Newsletter for 1995. A new year and hopefully some new ideas for enjoying these great little airplanes. Keep me informed of any goings-on and anything you learn this year whether it be safety related or just some new way to make your Sonerai more efficient or more enjoyable.

For those of you going to Sun N Fun in April, I have been in contact with the Forums committee people and they have the official Sonerai Forum scheduled for Tuesday, April 11th at 10 AM. There should also be a Sonerai Dinner during the week, time and place probably to be determined. I have talked to many new Sonerai builders this last few months and it finally came

to me that if a person is committed to building a homebuilt of any kind, he or she could probably justify the cost of the trip to Sun N Fun or Oshkosh in the time and money saved working on the airplane. To be able to spend several hours a day looking at the aircraft and talking to people that have finished a Sonerai, could very easily save you the heartache of cutting out mistakes and rewelding in the correct size of tube. And, of course, very few plans give you the information needed for the placement of radios and accessories that make the airplane your own. So, try to make one of these events if you are building or getting ready to build. I did in 1977 and it really helped.

## Kerry O'Day First Flight

I received a call the other day from Kerry O'Day to let me know that he had just flown his Sonerai for the first time. Congratulations are in order for anyone who accomplishes such a feat. There are still quite a few Sonerai's being built and judging from the number of plans out of Great Plains Aircraft, there will be in the future.

Aside from Kerry's first flight, he was able to experience his first rough running engine while on the climbout. While we would all like the first flight to go off perfectly, I doubt that most of them do so. This prompted a discussion of possibilities for the occurrence. They are all things that have been in this Newsletter before, but I don't think they have been put in this troubleshooting type of context. Here is a quick list of what we went through in just a few minutes (after determining that he had a VW engine with a Posa Supercarb and a Slick magneto).

1. Fuel level in the tank -- Kerry only had about a half tank of fuel, which eliminated any chance of developing back suction from a full load of fuel trying to run out the tank breather and pulling a vacuum on the fuel line. This has affected many of us in the past with heart wrenching suddenness. The remedy?? Keep the tank less than all the way full.

2. Fuel tank vent not adequate -- We only have about 1/4 to 1/3 PSI of fuel pressure to work with when you are gravity feeding our fuel system. (It takes 40" vertically to have 1 PSI.) I asked about his fuel tank vent line and found that he had it pointing straight down with the end cut off square. As a rule, I think that most of us like to have the vent pointing forward into ram air to help pressurize the tank and promote fuel flow. If Kerry had the vent facing aft even a small amount it could be pulling a negative pressure ( that is how the Posa operates after all ). We agreed it is something for him to look into.

3. Fuel flow while wide open -- This is of course something that everyone should check before the first flight, but if you used the same size of line and fittings as the plans called for, how could anything possibly go wrong ? Maybe, and maybe not. How about a collapsed fuel line or one of the Aeroquip fittings cutting a slug of rubber off the wall of the tubing? I once had in mind to make a fuel flow meter for N78ES. Since normal cruise is right at 4 gal/hour, I had to set up that flow on my bench. It works out that this is actually 1 cup per minute. A nice easy round number to work with. Figuring wide open fuel flows to be easily 6 to 7 gallons per hour ( please, someone correct me if I am wrong ), you had better get 2 cups per minute at a minimum. This is very easy to check.

4. Type of fuel -- You have all probably heard me rag on the use of auto fuel in our VW's. I feel the lower vapor pressure can produce vapor lock under certain conditions because of our very low fuel pressure. I have used it in the past with fairly good results up until the hot day that the engine lost power on the second takeoff of the day. That was the end of my use of car gas. But, part of it's problem is the Posa carb and it's lack of a float bowl to remove the bubbles of vapor before they can get into the metering jet. So if you are using something other than the Posa, then it may work just swell for you. If you do have a rough running engine on auto fuel, at least try switching to 100 LL for a day.

5. Spark plug gap -- Your VW engine manual states that we should be using about .028" on the spark plugs so many a new Sonerai owner has followed the book to the letter. Of course most VW manual writers never dreamed that some fool was going to stuff that thing into an airplane, which is actually a very good place to "stuff" it. They have battery ignition putting out some 30,000 volts and we have a magneto with significantly less voltage depending on engine speed. We should use .016" to .019" gap. My engine has been known to cut out with .025". Harry Fenton of Slick magnetos found that

using a larger than specified gap caused the magneto coil to have to work harder to jump the gap, with a corresponding rise in coil temperatures. Keep the gap where it belongs for the type of ignition system you have.

6. Magneto cooling problems -- You need to keep the magneto cool for it to function properly. This normally means at least two 1" diameter blast tubes directed right on the mag. Failure to do so can lead to a miss that first time the engine is asked to run fast for more than the minute or two it did during the ground running phase of your testing. My experience had to do with the engine failing to start when asked to do so after a very brief shutdown period. The removal of the cowl for about 10 minutes cured the problem, but reminded me of my usual practice of waiting longer before a restart.

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Well, there are 6 good reasons why someone could have problems on that first flight. Any one of them may cause consternation or worse. Which one will solve Kerry's problem? He first suspected a too rich mixture and that may well prove to be the case and easily remedied. The high fuel level is obvious once you know about it. Fuel type will be your own preference, but if she is running rough on car gas, try the 100 LL. I heard one Sonerai owner at Oshkosh a few years ago argue that the vent line had to be pointed aft, but no one else since then. Fuel flow is easily checked, and should be, on every homebuilt before the first flight (plugged lines happen more than we think). Plug gap has a way of sneaking away from you, I believe our 100LL 8.5/1 engines burn open the gap much faster than an old O-200. If you overheat the coil too many times on your mag in the beginning, I find it hard to believe it won't fail sooner than one kept cool in the beginning.

#### A Letter from John Mettler

Going back through the papers with my plans I did find the engine mount warning. This little engineering screw-up is entirely my fault.

Basically, this is what the plans depict in the line of engine attach points, this is what I welded up. (Drawing # 1 ) I happened to find the dimensions to the Diehl Supercase in the Great Plains catalog.

In our telephone conversation you emphasized the point of keeping the centerline of the crankshaft for the Supercase, on the same location as the centerline of the crankshaft on the Monnett case. (The crank Centerline on the Monnett case being 5 5/8" from the top of the mount bushings.) Now that I have the dimensions of these cases, couldn't I work from the center outward to find the missing mount locations?

The hole pattern on the Diehl case is uncomplicated, 9.6" from top bushing to top bushing and 9.6" between bottom bushings with 11.1" distance between top and bottom bushings. The crankcase is 5.55" from the top bushings. So at a quick glance at things, the Supercase would appear to be mounted .075" lower at the top mounts than the Monnett case in order to keep the Centerline of the crankshaft location.

Ed, feel free to jump in here to stop me if I screw up somewhere, I need all the help I can get!

If my calculations are correct in the second drawing I have another problem, that being, the starter flange boss on the Diehl case. This boss comes in contact with the two diagonal braces, preventing the Super case from being bolted up squarely. Would this suggest the need of spacers and if so, of what dimensions?

Enclosed is a page out of the Great Plains catalog containing the dimensional data of the Supercase as it is mounted to the Type 1 engine case. I'm installing a Type 4 case to be built up to 2.4 L

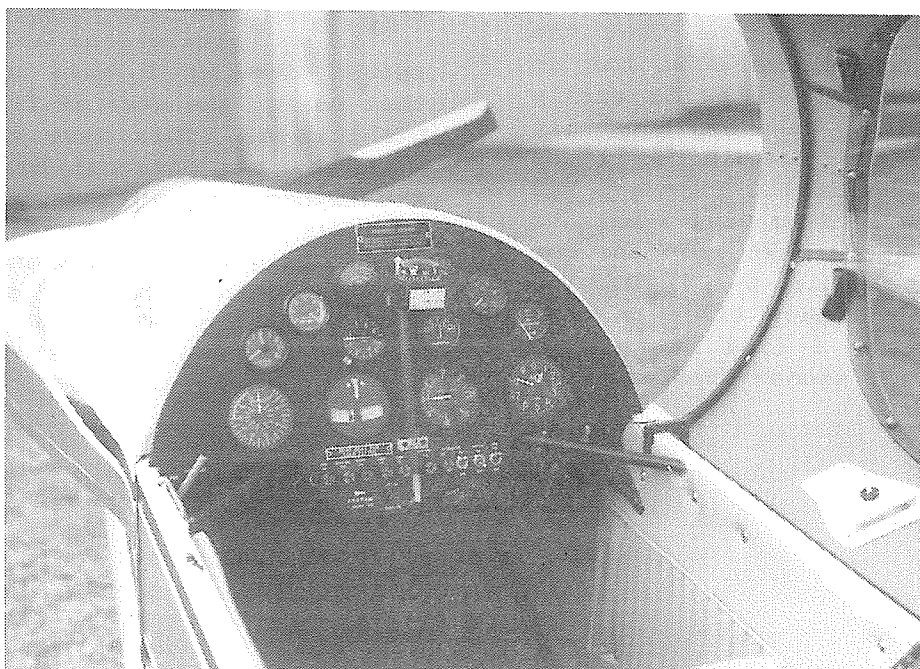


#### A Letter from Rich Foster

Here are some pictures of my Sonerai IILS. It took 20 months and 1700 hrs. First flight was Oct. 3 1994. My plane has a mostly Great Plains 2180 cc engine, full electric with starter, oil filter, regular carb, electric fuel pump, full interior, aux fuel tank, strobes and transponder. Empty weight came out at 598 lbs. with 6 lbs in the tail. It also has a trimmable rear stabilizer.

Rich Foster 9193 Happy Hollow Dr.  
Norwalk, IA 50211

Ed's comments -- Most of the people who are new to the Sonerai and get my name as a source of information assume that the majority of the flying airplanes are the Stretch ones, which is of course not the case. Their next assumption is that everyone builds the tri-gear version, which also begs the truth. Rich has a real nice looking example of the Sonerai II LS. The number of hours spent building this airplane is evidence of the fit and finish he desired and accomplished.



### My First Flight by Ed Sterba

I decided to build an airplane in 1977 because I had worked as a A & P and knew what it cost to repair a certified aircraft engine and pay for an annual on those old airplanes with worn-out landing gear and control bushings, etc. When I heard about the possibilities of using a VW engine and maintaining your own aircraft, it seemed like something I could afford. Having Monnett Experimental Aircraft only a half hour drive away made it the only choice of the 5 or so VW designs at that time. On my first visit to see John and Gregg Erikson in Elgin, the sale of a set of plans was ensured when I was asked to hold the tail of the original Sonerai I as it's newly overhauled engine was started for the first time (500 hours since new, and an exploratory overhaul to see how it looked inside -- the verdict was "fine").

Construction of my Sonerai II took 18 months and about 750 hours with absolutely no deviation from the plans. It was nice and light with a new Monnett 1850 and no radio. Since I didn't have a pilot's license when the project was started, I had been getting my Private in a Cessna 140 along with the building process. My first lessons from age 14, a second try while in the Army in Oklahoma, and the final successful check ride in the C-140 added up to about 120 total hours when it was time in November of 1978 to fly N78ES. It never entered my mind to have someone more experienced perform the first flight, and being a shy person at the time, I wouldn't have known whom to ask. (You don't ask for help on your wedding night, do you?) It seems that I am being inducted into the EAA's new Flight Advisor program to help people prepare for their first flights. I wonder what my advice is going to be when it comes time to advise a Sonerai pilot of similar experience to mine?

At any rate, preparations were made, taxi tests were run and friends were notified of the big event. My sister-in-law was especially helpful by checking to see that I had my best pair of underwear

on in case there was a mishap; a guy wouldn't want to be embarrassed twice in one day should something happen. Taxi tests were made up to about 40 or 45 mph although John Monnett seriously cautioned about this since quite a few people before (and since then) have lost control of their new aircraft when they tried to chop full power and deal with every aerodynamic force known to man changing at the same time. So I approached the higher speeds by using partial power and gradual reductions in that power to minimize rapid control changes. I know of about 4 Sonerai's that ended up upside down from taxi testing, all because of rapid power changes.

One of the most frequently asked questions from prospective Sonerai builders/purchasers is whether the Sonerai is "difficult to takeoff and land". Well, the answer is that it shouldn't be and if it is, then something is wrong and should be fixed. My little airplane seemed to handle well on the ground and we would shortly find out about the "in the air" part. I had friends manning an 8 MM sound camera on the ground and my flight instructor and brother set to follow me with another 8 MM sound camera in a Cessna 182. No chance for any goofs in front of two cameras I always figured.

I had rigged the airplane using a "water level" (e.i. plastic tubing filled with water as a reference point) and felt that it was pretty much as straight as a Sonerai should be. The weight and balance had come out to the forward end of the envelope but aft C.G. had me scared, so that seemed to be a "plus". At least we knew that it should require holding aft stick, the question was, how much? The engine had never missed a beat and took full power well.

So with the crowd on hand, a temperature of 32 degrees and very light wind, it was time to make some "aviation". The Skylane went off first and was given time to get back around the pattern and into position. If you have a chance to have a chase pilot of some experience, may I suggest you use him. I have followed a number of friends on their first flights and with radio contact established, it was reassuring to them to know that they



weren't trailing smoke or wobbling all over the sky and when it came time to return to the airport, you could find it for them and help clear traffic from a safe position.

N78ES did just fine on the first flight. With forward pressure on the stick, the tail came up at about 40 mph and then we rotated at the normal 60 mph. The liftoff was easier than expected and like any small homebuilt, it was much more sensitive that anything else around without an afterburner. Nothing smelled too weird and nothing was dripping onto my legs from the fuel tank, so we were ahead of the game. Since I was no radio for the first few years, my chase pilot couldn't really add anything to the situation, so we continued to motor along.

The aft stick needed to hold the nose up was greater than anticipated and increased with airspeed until it was probably 3 to 4 pounds at cruise. We circled the airport and eventually got in some slow flight but no stalls this time around, thank you. I have 30 minutes recorded in the log book but it seemed shorter than that. According to the film report in the C-182, it got rather boring after awhile, but that's how most Cessna flights are, aren't they?

It came time for the landing and what most first flight pilots dread the most. I set up about 80 mph and simply did my best to not stop flying for as long as possible. Those of us with time in this little airplane know that we don't normally land at our stall speed since it results in an unacceptably high nose angle, so we embrace a slightly higher touch down speed of 50 to 55 mph (?) to hit the mains with the tailwheel. I did this on that first landing and have several times since then. Honest, it's on film. The rollout had been done many times in the recent past so it was no big deal.

Even though I was a low time pilot for this test flight, I inadvertently made the correct decision to maintain my flying skills in the \$25.00 an hour Cessna 140. I had flown about 80 hours in the last year and a half in it and while it didn't prepare me for the quick controls of the Sonerai, it did keep my feet limber.

The nose heaviness was caused by the stabilizer being all the way full up whereas it is now down about 3/4" or 12 washers. There are also about 4 pounds of lead at that same station, probably needed as a result of my personal "lightweight airframe". When it comes time to decide whether to use the stabilizer adjustment or weight for your trim changes, you will have to decide how you like it to fly. Personally, with this combination, and no inflight movable trim system, the faster I go beyond normal cruise speed, the greater the amount of forward stick needed. I believe that this contributes to a higher top speed. Maybe not?

My second flight reports the stabilizer down 1/4" and by the third, we had the lead onboard. I have three more log books of mods and changes; I don't think it ever ends and I don't think it is supposed to. Good luck on your first flights.

#### A letter from Gary Stucker

Enclosed is my newsletter renewal fee. I have enclosed a photo my wife, Inka, took of Pete Buck's old Sonerai II. We have added a Revmaster carb, 5/8" landing gear, my own design tailwheel, Cleveland disc brakes, 5 X 5 Cleveland wheels and toe brakes. The plane flies great! Single place I do loops, rolls, spins, hammerhead turns and split S's. I have gone past 210 mph with no problem. Loops have caused the failure of my spinner backing plates. I reinforced them with heavier backing plates and have had no further problems. I also stopped doing so many loops. The 5/8" gear works great in my aircraft carrier landing. If you do not need the enclosed photo, send it back in the enclosed envelope.

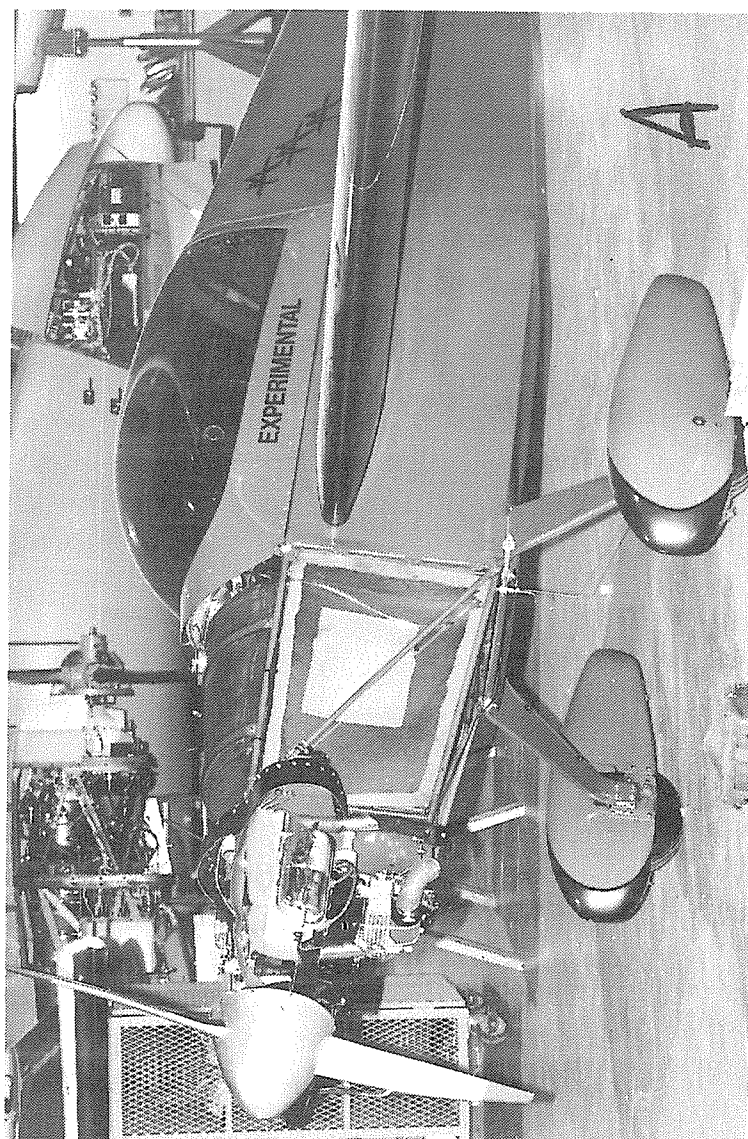
Ed's comments --- Well, I guess I'll have to send Gary's picture back to him after using it in this Newsletter, even though it is more important to me than he thinks. Because of this Sonerai II made by Pete Buck, I have a job that I like a lot. It is Pete Buck who suggested that I should make a propeller for my Sonerai in 1980.

He and I flew our planes at approximately the same time while he was employed by John Monnett and I was teaching high school. Pete made a prop for his airplane out of what he thought was mahogany but it seemed to be rather more flexible than he had expected. I told him that I thought it was made from Luan rather than what he thought and that explained the strength. His suggestion was for me to "build one myself", which I proceeded to do.

At the time I had access to the tools and materials in the woodshop where I taught, so Christmas vacation of 1980 found me hacking and chopping on a maple/cherry block. Ten days later a straight blades little prop emerged from the shop and was bolted onto a Sonerai. The first few flights showed that it did hold together and gave the RPM and performance I had hoped for. I flew that prop for about 3 months and then let Pete use it on his airplane; he decided that it worked good enough to make another for him and by May we had S.N. 002 on his Sonerai II.

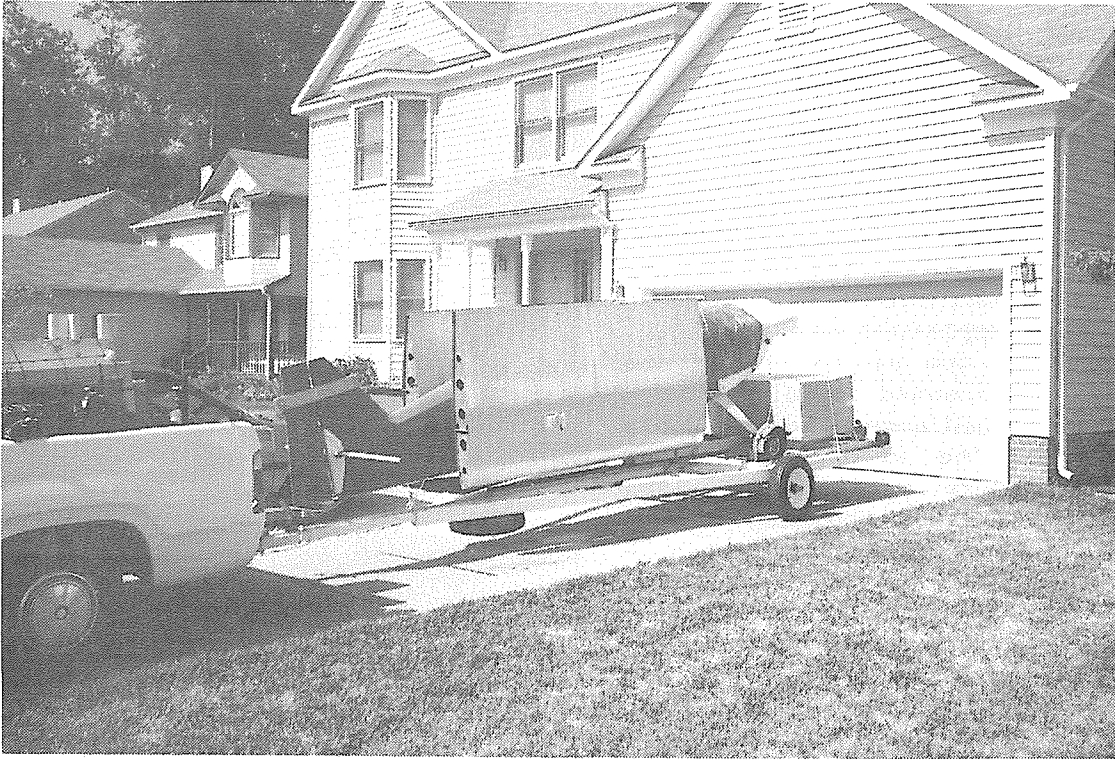
It seems quite audacious now, but at one of the next few EAA Chapter 153 meetings at Monnett's facility in Elgin, I made the announcement that I was willing to make props for other Sonerai's as long as they were about the same size as mine. Number three went to Bill Hiller and number 4 to Bob O'Day. It was about at this time that John Monnett was experimenting with the KFM 112 four cylinder engine of 1600 cc with a claimed output of 80 HP or so. However, it didn't seem to be putting out that much so John asked me to make a normal 1850 VW prop to use as a baseline. Of course he already had a "wall of props" as they say, but the KFM tried to get fancy and make the engine go the same direction as "normal" airplane engines -- so I needed to make a "right-hand" prop. It seemed terribly difficult to do at the time and it was. The rest is just history as they say, but I like my job and if it wasn't for Pete Buck and John Monnett, well, I wouldn't have it now. It's good to see Pete's airplane being flown and improved.

Gary Stucker 1511 Devonshire Dr.  
 Inard, CA 93030

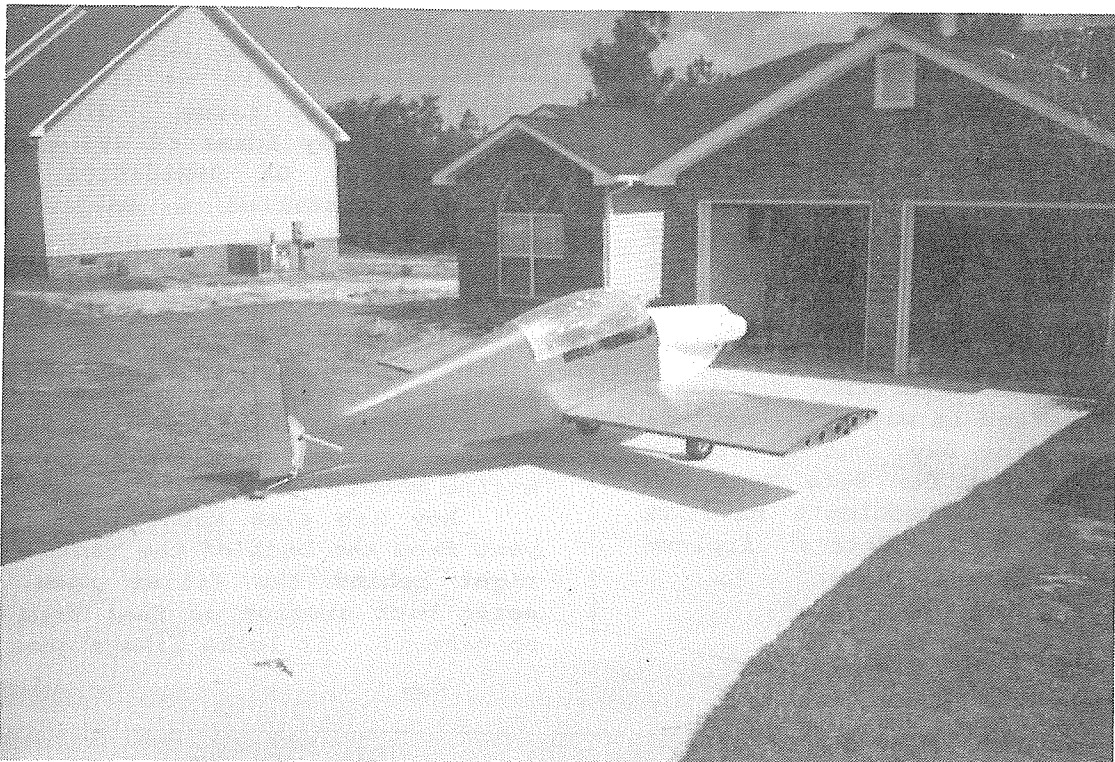


Sorry that the above photograph is sideways, but that is the only way it would fit this issue. The Sonerai II belongs to Roy Adams of 489 Ebenezer Rd. Fayetteville, GA 30214-5103. He has recently installed a Mosler secondary ignition system but the previous owner of the aircraft had removed the Monnett style 10 amp alternator since it was inoperative. Roy has been using the secondary ignition only on takeoff and landing since it is now running on battery power. He is interested in coming up with an alternator that will retrofit his engine mount. Any help out there??

Roy has also mounted the fuel tank vent from the back of the tank to the top, right behind the filler neck, to help solve back suction of fuel from the tank on takeoff. It looks like a good idea.



John Avents Sonerai II L as it is being moved from Virginia to South Carolina. He hopes to have the airplane flying in 1995. He says that the biggest jobs remaining are to mount the canopy and get the surfaces ready for painting. Looks like he should make it! 449 Old Sudlow Lake Rd. North Augusta, SC 29841





# WANT ADS -- MUST HAVES -- GIMMIES

For Sale -- Sonerai II LTS w/GPAS 2180 complete original Monnett kit. A/C hours from completion--painted, excellent workmanship. Asking \$10,000 Bill Rosman 1754 Parkview Cir. Palmyra, WI 53156 414-495-4370

Wanted -- Monnett parts: Super Vee prop hub and casting. Machined Electro-X casting (engine mount) and mag drive assy. Bob Schank 313-697-7057 after 5 P.M.

For Sale -- Sonerai I 8 1/2" long engine mount \$35, Monnett intake "y" casting \$25.00, four 2 3/8" Sonerai II engine mount alum spacers \$6, wing and aileron fiberglass wing tips \$30, Revmaster accy. case w/ flywheel, starter and solenoid, rubber mount bushings, alternator stator and rotor \$250.

Bob Schank 313-697-7057 after 5 P.M.

Wanted-- 1850 or larger long block suitable for Sonerai II Super Vee, in good working order. Nick Fourdraine RR # 1 New Glasgow, N.S. Canada B2H 5C4

For Sale -- Sonerai II LT fuselage on gear 1834 installed, dual plug heads, VFR instruments in panel, wing kit. (No canopy, cowling, spinner or prop.) Flat bed trailer included. \$5500 invested, sell for material price.

Curtis Anderson 714-521-4075 Calif.

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

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

For Sale -- Sonerai I project, airframe professionally welded, wings done w/cowl, bubble, tail, gear, wheels, brakes, tank, engine mount for A-65. \$2000 With 0 time A-65 \$6000. Ann Harner 706 N. Green Rd. Goshen, IN 219-533-7325

For Sale -- will part out A & P built Sonerai IIL w/spar mod, 5/8" gear, hyd.toe brakes (from Tomhawk) Terra 960 nav/com, new annual. \$8900.00 Also --- Aero Vee 2020 Dual Ignition, Ultra carb, New heads, cyls, pistons, low time.

Russ Larson Box 124 Somers, MT 59932 406-859-3304

For Sale -- 1991 Sonerai II VW 2074 TPAE 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

Wanted -- Variety of good used or new Sonerai parts: cowl, 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

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

Tom Freeman 708-526-3180

Wanted -- Sonerai II in flyable condition with trailer if possible.

Steve 916-489-5514

For Sale -- Sonerai II midwing, 1979. 1700 Monnett conv., Slick mag, 260 TPAE, 150 SMOH, 4 into 1 exh., Smoke system, Loran. Built for 6' pilot. \$7500 OBO

Mike Smith P.O.Box 800 Starksville, MS 39759-0800 ph. 601-324-2801

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 I fuselage complete from seat aft including tail feathers \$200.00 + ship or u-pick-up. Tpx Terra handhel w/charger \$250.00 Ray Jeff Loran \$200.00 A/S \$75.00 Alt. \$75.00 ROC \$50 009 Dist. w/ 90 cap \$30.00 Mike Kellems 341 Ellington Pkwy Apt D214 Lewisburg, TN 37091

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 Builder looking for engine and airframe parts

Martin Roy 1342 Magnolia Ave.

Escondido, CA 92027 619-743-2144

For Sale --- HAPI 55 hp 70 hr. TT POSA, hyd.lifters,starter,stub exh,dual elec. ign, Sterba prop, oil press & temp tach. \$2600 or best offer.

John Mitchell 402 S. Hickory Shannon, IL 61078

Wanted -- Right wing for Son. II L and landing gear for Son II.

Jerry Van Nort 719-738-1290 day 719-742-3746 nite

For Sale -- Sonerai IIL 1700 VW, 1000 TT 100 SMOH, 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

DeLavan, WI 53115  
412 S. 5th  
C/O Ed Stierba

**SONERAI** NEWSLETTER

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