

This Don Archangeli's Sonerai II -- Don is waiting for some wing parts but has a lot done so far. We usually show completed aircraft on our front page, but there are quite a few Sonerai airplanes under construction at this time. We are having a hard time keeping plans in stock matter of fact. Maybe some people are realizing again that the Sonerai is a very hard bargain to pass up in sport aviation.

Welcome to the Jan. 94 issue of the Sonerai Newsletter. It's always hard to get too excited about Sonerai flying up in Wisconsin in January even though I know one of these little airplanes was put on skis a number of years ago. I can't remember where the airplane was but probably not in Florida. The coldest time I ever had in my Sonerai was the second or third trip down to Sun N Fun. The temperature that March was +6 F when I went out to start the engine. My hope was that it wouldn't start at that temperature and I wouldn't have to go.

My mistake was in preheating the engine for about half an hour and then starting it in the hanger instead of pulling it out side. The rotten engine died right up and there was no choice

left but to guts it out. Of course the reason it was so cold was the incredible cold front that had come through the night before, so the wind was really blowing out of the North. The first leg to Bowling Green was made in record time (at least a record that still stands in my log book.)

The next issue comes just before Sun N Fun. We haven't made firm plans for a dinner while there, but it should occur as it has the past few years, usually about Tuesday or Wednesday night so people have a chance to get there if the weather is bad and a chance to leave early in case the weather is bad. A Sonerai Forum is scheduled also. Hope to see you there.

## Aft Fuel Tank C.G.

I had a call from a Sonerai builder the other day asking about the possibility of using the 8 gallon auxiliary fuel tank in his Standard Sonerai II. This tank is normally associated with the Stretch Sonerai. Since the turtle deck of the Stretch is 2" higher in the plans than in the Standard Sonerai I told him it would probably be a good idea to raise it in the Standard anyway. Then the talk got around to the C.G. situation and whether there was a need for a fuel pump to transfer the 8 gallons to the forward tank or could it be fed direct to the engine. My understanding is that you can run the engine at cruise by gravity feed from the rear tank. Of course, it would be nice to have the ability to transfer it anyways, so now we are into a transfer pump.

Then the talk revolved around the C.G. and this new tank and it's location. Using the numbers off my airplane and the expected location of the 8 gallon tank, I played around with some "best case" and "worst case" loadings. Lucky for me, I had made a template for C.G.s for Lotus 123 in my computer, it is just the tool for this type of investigation.

Since the only real concern with this tank is aft C.G., we'll look first at my normal worst case --- no passenger, 3 gallons of fuel left and maybe 15 pounds of baggage (no aft tank yet, and skinny me at 160#). This is C.G. "A".

We end up at 13.14" aft of the leading edge of the wing. When flown like this, it takes a bit of forward stick to keep the nose down but otherwise flies pretty good. With higher power settings the Sonerai wants to climb, and since you are holding forward stick, the airplane goes faster for the same power setting. You can tell that the tail is heavier on landings, however.

If we change the numbers to involve a full 8 gallon aux. tank and a more normal (?) pilot weight of 200 #, then the picture changes. This would be the real worst case in which you couldn't drain the aft tank and yet had to fly the main tank down to 3 gallons. This probably couldn't happen but for the same reason, it almost is certain to happen to someone someday. So ---this is C.G. "B". As you can see, this puts the Sonerai II right at it's rear limit of 16". I have never flown my airplane at this aft

C.G. condition, so I can't comment on the flight characteristics. It is, as they say, pushing the limits of the airplane. Aft C.G. is much worse than forward when you get the airplane low and slow for landing. Buyer beware, as they say.

I ran the numbers one more time. Many Sonerai II's come in a little nose heavy on the empty CG so it is common to put the 5 or 6 # Gel-cell battery in the tail at the inspection plate station. In my case, I have the battery up by me and have added 5 # of lead at Sta. 154. If I were to remove this weight, it would move the C.G. forward .65" with the example "B" shown. This still leaves it over 15" and would most likely not be a comfortable way to fly. The Stretch airplane with it's 12" longer tail moment arm would be better at controlling it.

So were did our original telephone conversation end up? The quorum of two decided to make the aft tank a part of the game plan, but to keep the C.G. in mind and not allow the rear tank to stay full and fly the main one very low. Of course a passenger up front would put C.G. back where it belonged. Perhaps even little toy airplanes like ours need to have the C.G. involved as a part of the preflight.

Loaded Wt. and Bal. Worksheet

FWD. OR RWD. C.G.	Item	Weight	C.G. "A" SONERAI II	
			Arm	Moment
=====	Empty Wt.	541	7.82	4230.62
	Oil	5.5	-43	-236.5
	Pilot	160	33	5280
	Pass.	0	5	0
	Fuel	18	-19.5	-351
	Baggage	15	53	795
	Total	739.5	13.14	9718.12
		WEIGHT	C.G.	TOTAL MOMENT

Loaded Wt. and Bal. Worksheet

FWD. OR RWD. C.G.	Item	Weight	C.G. "B" SONERAI II	
			Arm	Moment
=====	Empty Wt.	541	7.82	4230.62
	Oil	5.5	-43	-236.5
	Pilot	200	33	6600
	Pass.	0	5	0
	Fuel	18	-19.5	
	Baggage/tank	54	53	2862
	Total	818.5	16.01	13105.12
		WEIGHT	C.G.	TOTAL MOMENT

# A letter from Lee Brandon

As a first time builder, I have been intimidated with the admonition to follow the plans without fail. On the Sonerai I this has caused some grief as the Devil is in the details. Some of the problems I have found are :

----- The wing fold mechanism will not work as drawn. The fuselage hinge tubes must be angled up in line with the wing support cross tube. I didn't find this out until too late so I remade the sliding tube in the wing to use a Heim joint connection in the fuselage. Also, the hinge tube on the fuselage should really be on the forward upright rather than on the rear. This would bring the spar at rest on top of the fuselage hinge tube, letting it bear the wing's weight. As it is now, the wing spar hangs by it's sliding tube and bracket. This bracket is poor as the sliding tubes acts as a lever on two in-line bolts in perpendicular. I remade this bracket with 4 bolts, two each in line with the tube.

----- The aileron control rods illustrated bind and do not have enough clearance. I remade them with Heim joints all around.

----- The elevator idler shows a secondary attachment for the elevator control rod. This can't be used due to the type of control rod support shown. It bends the control rod about one inch out of column and binds. I refabricated the control rod support to be adjustable in range and used a phenolic plate as a bearing.

----- There is not enough clearance between the seat and the torque tube. I have redone the seat twice and I can still get contact between the rear seat strap and the torque tube. I should have mounted the torque tube under the fuselage.

----- I think there are too many 1/8" plates welded to .032" wall tubes (torque tube brackets). I found this really difficult to gas weld because of heat and distortion. I think they can better be fabricated of thinner stock in a "U" shape.

----- I am unsure about the canopy latch mechanism. I have the framework completed w/o plastic. In trying it out I find that it can be bowed out enough to release the latches. I think it needs an additional center latch.

----- Make sure you drill 1/16" relief holes in all the intersections before welding. I missed a few with dramatic results (blowouts, bulged tubes, difficult welds).

----- I didn't like the idea of clips or a fairing to secure the brake lines down the landing gear legs. I embedded the lines on the trailing edge in aluminum colored silicon glue. It is flexible but can't be painted.

----- Here is how I am connecting the pitot line so I can easily fold the wings. I drilled a 1/2" hole in the center plates of the spar box. This aligns with a nylon fitting "L" mounted in the wing spar butt. The tube coming from the airspeed will go into the hole and thread into the "L". The tube nut will need an extension tube soldered on.

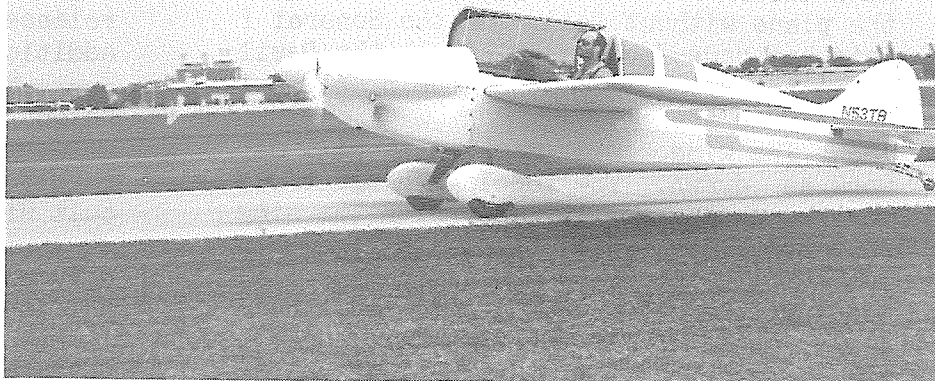
Lee Brandon P.O. Box 451  
Rimrock, AZ 86335

Ed's comments ----- My first comment is that I haven't built a Sonerai I and felt rather inadequate to give much help even though that is supposed to be my job according to Great Plains information sheets. There are enough differences in the basic construction details that leave me in that predicament.

I did indicate in my return letter to Lee that I felt that he needed to be confident in his canopy latching mechanism. Sonerai I's and II's have both had their share of popped canopies mostly caused by improper latching before flight. Use extra latches, springs and aux. catches to so the job on your machine.

My other comment dealt with Lee contacting the people that fly the single place airplane on a regular basis. The Formula Vee racers know how to solve these problems so I gave him the phone numbers to call.

Tim Buechle taxiing in from the  
homebuilt fly-by at Oshkosh 1994



Jim Stanek and his newly completed  
Sonera IILTS.



Tim Thomas and his Sonera II



## Pitot Tube Add-On

The Sonerai plans don't give much in the way of pitot tube installation, and as you walk the show line at Oshkosh or Sun n Fun you can see where "our" people have come up with quite a few ways to get the job done. Most of the Sonerai's have their pitot tube sticking out of the leading edge of the wing whether at the wing tip itself or half way inboard at the wing skin joint. There have been a few souls that have hung the tube under the wing ala Cessna by buying a pitot tube from one of the vendors. The vast majority go the leading edge route.

It can be a good idea to make the pitot tube removable if you have plans to be at major airshows, since the leading edge installation seems to be susceptible to passersby. (I haven't seen anyone try to hang their lawn chair on the pitot yet as they stepped back to take a picture but it has probably been done somewhere, sometime.) Some Sonerai pilots make a habit of immediately removing the tube after landing at one of these busy shows. I have always thought that if you are going to do that, the removed tube should be fastened with velcro or something like that to either the control stick or the throttle so you don't forget it before takeoff or start.

My feeling on the tube is to carry a spare taped inside the fuselage in case the good one is damaged and at the same time, to make sure that the tube is the weak point in the link and not the structure that it is fastened to. In other words, if it is going to get banged into, at least make sure that only the tube is destroyed and not the important stuff hidden inside the wing. For that reason, I have a nice solid block of aluminum bolted to the outboard rib with a hole for the pitot tube and a threaded side for the nylo-seal tubing leading into the fuselage. Some of the guys are smart enough to have a O-ring machined into the tube or block to make for a nice airtight seal. These are the types of people that remove them at airshows. Mine need silicone sealant to keep it airtight, so I don't pull it out all the time.

So what do you do if the wing is all made and closed up and then you remember to make provisions for the pitot tube?

Well, one of our builders faced just such a problem the other day. We brainstormed the situation for a while and his idea was to take an aluminum tube and epoxy on a piece of sheetmetal that could be bent to conform to the leading edge shape. (Some of the aluminum filled putties probably would be best for this.) After a hole was cut into the leading edge of the wing and the nylon or plastic tubing fed out to it, then the connected pitot tube would be pushed onto the leading edge and a screw or two used to hold it in place. This wouldn't be as solid an installation as something fastened internally, but it would be readily repairable if need be. I told him it was either that or just go ahead and cut an inspection hole in the wing at the tip location and do it normally. I hear that most airplanes have these inspection plates anyways.

And one other final note on this subject --- there are types of plastics that can be stiff enough to stay in place for normal air loads and yet give when that lawn chair is hung on them at Oshkosh. I've seen this approach used several times.

## High Voltage

Received a couple of phone calls the last two weeks dealing with the problem of high voltage in the VW charging system as used by most of the engine suppliers. I used to have to keep either my Escort 110 or nav lights on in order to keep the voltage down to 15 volts or so. With everything turned off except the master switch, it was possible to see more than 16 volts. This is after I had acquired a digital voltmeter and found out that my needle type gauge was reading about 1 1/2 volts high. So with everything off, the needle gauge was about off scale.

This little problem is getting compounded on some of the newer Sonerai's since more people are going to hand held Coms and either Lorans or GPS systems. These things don't use very much power and fail to load the 12 volt system like the older radios did. If you have only a single magneto and no auxiliary ignition system using coils, then the load can be just about non-existent. This is of course the reason that my alternator was not replaced (or repaired) when it "went South" as they say.



So what do we do ?? Well, if you plan to have an alternator for whatever reason, then it might be a good idea to have something for it to do. Nav lights would be one good suggestion. You might not plan to fly at night but there may be that time when you are out at dusk and wouldn't mind making a better target for observant pilots. Real airplane nav light bulbs draw a lot of current and cost a lot of money so since we are talking homebuilt and not necessarily "legal" lighting, you may want to use smaller wattage, automotive bulbs. (Wag-Aero lists replacement 12 volt nav lights bulbs at \$22.50 each !!!!) If you have one of Monnetts 10 amp systems, you may find that 3 of these use up almost all your available power anyway. Watts is equal to amps times volts so a 12 watt bulb is drawing 1 amp at 12 volts. Figure it out, and add it up.

Those of you with battery ignition systems that are used full time will have a drain on the system any time it is on. This may be enough to do the job for you. If it isn't and you haven't gone the nav light trick then I suppose it would be possible to get another type of load to so the job. Maybe a reading lamp or Christmas tree lights??

Finally, one of the callers asked about the type of battery to be used for the charging system. He had been advised that a 20 amp system would need a 30 amp-hr battery to protect it. Well, since most of us use a 5 or 6 amp-hr gell cell we must be in big trouble. Al Bertelmann runs his Monnett system without any battery at all; he talked to Synchro and they advised the size of capacitor to use just to smooth out the pulses put out by the alternator. Since the magnets are permanent type and don't need any current to start working, it is self exciting (probably like a lot of you guys on landings).

And lastly -- the talk got around to whether an acid-type motorcycle battery or gell cell was preferable for the Sonerai. I have used both and had good performance with either one, but eventually got nervous about having an acid type sitting right next to me. If the landing went bad and we both flipped over, who wants to worry about acid dripping all over them as they are trying to abandon ship? Gell cells cost about 50% more than lead-acid types from my source (model airplane shops) but give more piece of mind.

## A letter from Danny Kight

I finally got my Sonerai IIL "Miss Mary" in the air! You may remember my plane as the one with the "alternate alternator". After a year and 3 months of work, N622DK flies great, and everything works like it's supposed to. The FAA inspector came to the airport on Sept. 3, officially blessed everything, and assigned me a flight test area. I must admit I was nervous about the inspection. Despite sounding like a regular guy on the phone, I was sure the Grand High FAA Inquisitor would require a complete disassembly and microscopic examination of everything on the plane. Not so. He was a regular guy in person too. He asked general questions about the project, (ones you have already answered a hundred times for visitors in your shop) and looked under the cowlings at the engine installation. We then went inside and I showed him the builder's log and construction photo album. These were VERY important. Experimental aircraft builders are expected to keep a log and photos during the construction, receipts are good to have too.) Keep a camera in the shop and take lots of pictures. This makes a good impression on the FAA, and more importantly, it reminds you how much work it takes to build a plane when you start thinking about building another one.

Anyway, after breaking the engine in for 10 hours, and taxiing all over the airport for about a week, I made the first flight on Sept. 6 (Labor Day). I only invited Mary (my wife and airplane namesake), and Packrat (airplane building/flying buddy and all around swell guy) to the first flight to minimize peer pressure. After a final engine runup and review of speeds and emergency procedures, I lined up on runway 17, gathered my courage, and opened the throttle. I rotated at 60 kts. (Remember, this is a IILT. T is for tricycle gear. Those who have suggested that it stands for "training wheel" are just jealous because I don't groundloop in gusty crosswinds!)

Climb out was at 70 kts to 3000 ft. Leveling off, I was a little disappointed to find that cruise at 75% power was only 105 kts, but the controls were smooth and well balanced, and the plane was no squirrely at all. I slowed down until I got a pronounced pre-stall buffet at 45 kts, but didn't actually stall it. After a practice approach, I entered the

pattern again, landed and taxied back to the ramp victorious. In the following 6 weeks, I flew off the 40 hour restriction making big triangles. (My flight test area only had 3 airports in it.) Aside from shimming the left rear spar down a couple of washers to correct a slight tendency to roll left and adjusting the stabilizer trim, no other adjustments were needed. I don't have a cockpit adjustable pitch trim, but with 7 gallons of fuel in the tank, it flies hands off indefinitely. In fact, in calm air, I can turn loose of everything and steer by leaning from side to side in the cockpit! A trim system would be nice though, especially when carrying a passenger or going on long crosscountry trips where fuel consumption does affect the trim.

To date, I have 71.4 hours of fun on the clock. I have been to several fly-ins and pancake breakfasts and even made a couple of Krispy Kreme doughnut runs to nearby Greenville, SC. (The doughnut shop is about a block from the airport.) I fly my bird as often as I can, and enjoy it immensely. I plan to be at Sun N Fun and Oshkosh next year, and I'm planning "The Great North America Sonerai Tour" for next summer. If anyone would be interested in going with me, or letting me sack out on your couch for a night, let me know.

One final note on public relations-- Like myself, I'm sure most of you approach building and flying a homebuilt aircraft as a means to satisfy personal goals of flight and creativity, not as a way to attract attention. However, many of my (and your) non-flying friends are simply amazed that someone could actually build and fly their own, person airplane. My newspaper reporter neighbor was anyway. I agreed to so an interview and photo session for a short article in the Sunday paper once the plane was in the air and debugged. As a result of the article, I have had several people contact me and request more information about homebuilts in general and Sonerai's in particular, and had two visitors come to the EAA chapter meeting. If you can overcome your basic distrust of reporters give your local newspaper or TV news crew a call and tell them what you are doing. You may be more newsworthy than you think.

Danny Kight 1007 White Oak Dr.  
Anderson, SC 29621

Ed's Comments --- Well, congratulations go to Danny Kight. This is, of course, what it is all about. If you are planning a Great Crosscountry trip, you may want to contact EAA headquarters to see if they will let you have a copy of the Chapter Directory that all of the Chapter Presidents get every year. It has address and phones for the local EAA people. It should be out by February or so. We'll look for the new Sonerai IILT at Sun N Fun and Oshkosh. Quite a few people have asked to see a tri-gear and we haven't had one available either place this last year.

### Landing Gear Directions

I had a call the other day from one of the Sonerai builders in reference to the correct direction to install the landing gear. The plans don't really make a big deal out of telling you which way to put the taper of the gear. This question developed a few years ago from another builder after going over some rather confusing weight and balance numbers. This particular builder ended up with a fairly light tailwheel weight on the initial weighing of his Sonerai II.

The typical questions about the accuracy of the scales was made and then we got into the math part with the location of the datum and where his stations were for the wheels, etc. When we compared the main gear locations, it became obvious that something was amiss. Having the main landing gear installed with the taper in the front instead of the rear moves the wheels back about 3 1/2". I know what this can do to your weight and balance, but would be real curious to see how it would affect the ground handling! If any of you would like to volunteer to give this a try, please send a post card before the first flight. It would also probably be a good idea to not let a strong wind get under your tail. Of course that's a good idea any time, I suppose.

## Mark's Stop Leak

Mark Elyea Box 81  
Garden Prairie, IL 61038

Here is some material you may want to use in your newsletter. It seems that one of the first things I wanted to fix on my Sonerai when I started to fly it, was trying to keep more of the oil in the engine and less on the bottom of the fuselage. This oil separator design works pretty darn good -- just a few drops once in a while. I built it from brass tubing from a hardware store because the diameters fit the acrylic or PVC tube they sold so well. I also built the chamber from brass thin sheet.

I'm also using the stock VW stamped steel valve covers (they are lighter than the cast aluminum ones -- you know!) This makes it easy to solder on the 1/4" brass tube oil return line into the steel valve cover.

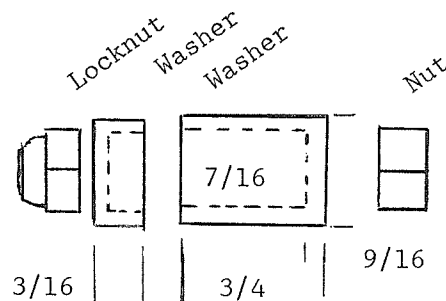
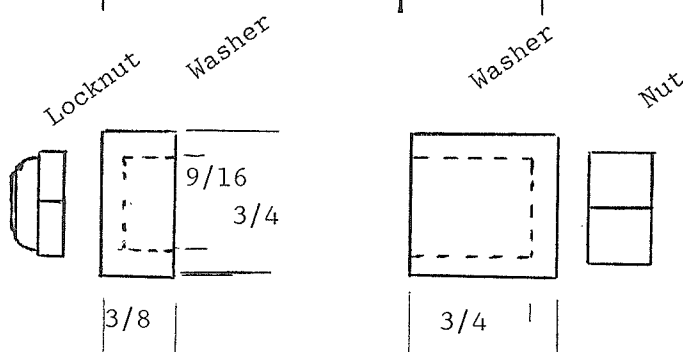
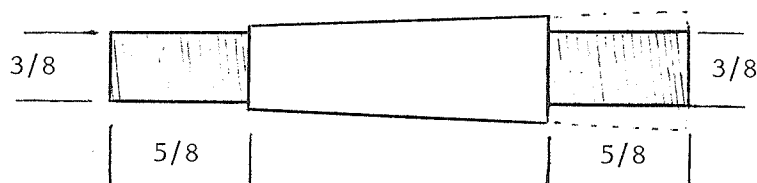
See ya ----- Mark

Ed's comments --- Sounds like a good idea to me, but wouldn't it just be easier to leave out the oil, squirt some WD-40 into the crankcase before each flight and stop all that messiness in the beginning ?? That's what I have been doing for the last 15 years and have had good luck with it. And ---- if steel is so light, how come we don't use it in the frame of our airplanes instead of bamboo ???

1/2" tube from engine case

oil return line to valve cover 1/4" tube

1/2" tube to low press exit at bottom of cowl



Pat and John Kiley sent along this drawing of their solution to the wing taper pin sticking problem. Their pins stuck out far enough through the spar box that there was room for them to thread the big end, and then use specially made cupped washers to pull the pins loose. John Kiley RFD 1 Box 19  
Barnstead, NH 03218



\*\*\*\*\* \*\* WANT ADS \*\* \*\*\*\*\*

For Sale -- Canopy for Sonerai II, bronze  
standard size \$165.00 + ship  
Bill Rossman 1754 Parkview Cr.  
Palmyra, WI 53156 414-495-4370

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 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 IIL low time 1834  
engine w/ HAPI acces. case, starter and  
alternator. Ellison TBI, VSI, T & Slip,  
STS radio w/ VOR. Wing tip lights strobe  
5/8" landing gear. \$ 5000 O.B.O.  
Doug 714-528-7061 So. Calif.

For Sale -- Early Monnett engine mount  
casting w/ bushings and 4016 Slick mag  
unused \$300.00 O.B.O. Also -- V-Witt  
extension casting (Larson) machined per  
Wittman's drawings, Best Offer.  
Bill Spellman 1408 Josephine  
Waukesha, WI 53186 414-544-6252

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

For Sale -- partially complete Son II LS  
on gear with hardware. \$ 800.  
Bob Maassel 219-485-8755 Ft. Wayne, IN

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 -- 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

Wanted -- Sonerai IIL plans. My set #1493  
and photo documentation were stolen!  
Anyone seeing plans or photos of N19JK  
please contact :

Joe Koch 23 Robinhood Dr.  
Fallington, PA 19054 215-736-2247

For Sale -- Sonerai I fuselage complete  
from seat aft including tail feathers  
\$200.00 + ship or u-pick-up. TPX Terra  
handheld 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

For Sale -- Sonerai II midwing, Hapi 1834  
with Monnett mount, x-over exhaust, Posa  
w/ mixture, top mount oil cooler, baffled  
Great America 52x44, Eng. and VFR instr.  
Wing Mod done Firm price of \$4000.00  
John Danak 2015 Yorktown Ct. North  
League City, TX 77573 713-332-9976

Wanted -- Sonerai II Builder looking for  
Engine and airframe parts  
Martin Roy 1342 Magnolia Ave.  
Escondido, CA 92027 619-743-2144

Wanted to buy -- Sonerai II L w/spar mod,  
prefer elec.start, low time engine, good  
condition Harry Russell 1513 Pawnee Cir.  
Olathe, KS 66062 913-782-1620

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

For Sale -- Sonerai IIL 250 hrs. 2275 VW  
Sterba prop, Loran Days 708-837-8130  
Ev. 708-639-0246 \$5600.00

For Sale -- Sonerai II L 2180 Great  
Plains w/ Force 1 hub. 250 TT 110 eng.  
Cleveland brakes and wing tanks.  
Bob Brown 720 Woods Creek Ln.  
Algonquin, IL 60102 708-854-3250

For Sale -- Sonerai IIL w/spar mod, 5/8"  
gear, hyd. toe brakes, low time Aero-Vee  
2020 w/all new cyls, pistons, heads.  
Ultra-carb, Terra 960 nav/com. A&P built,  
new annual. \$8900.00  
Also --- Dual Ignition 92 MM heads, 92 MM  
cyls. and pistons. All have Very Low time  
for \$195.00  
Russ Larson Box 124 Somers, MT 59932  
406-859-3304

For Sale -- Unimat-AL lathe \$245.00 can  
be used for turning, drilling, milling or  
grinding. Bob Schank 35 Clarence St.  
Belleville, MI 48111 313-697-7057

FRED KEIP PD 93  
11428 SIX MILE RD  
FRANKSVILLE WI 53126

To:

SONERAI NEWSLETTER  
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412 S. 5th  
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414-728-1367  
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# Sonerai News



Butch Mankovich and his # 27 Hornet's Revenge at on of the Formula V air races this past summer. The V-Gram indicates there may be as many as 6 Formula V races this next year.