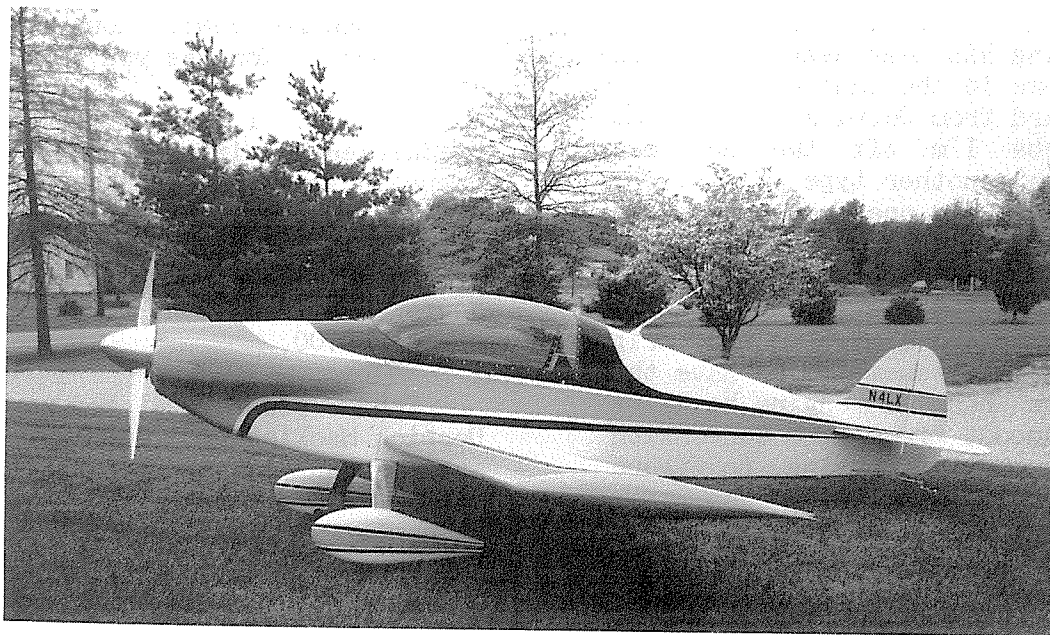


SONERAI

JAN-FEB-MAR 1993
NEWSLETTER



**Tom Lester's beautiful Sonerai II L
3321 Outville Rd. Grandville, OH**

Welcome to the first 1993 edition of the Sonerai Newsletter. Winter's here and N78ES is safely tucked away for awhile. I still have to drop out the old oil and put in some new. There is the usual amount of rust prevention to be taken care of but no major changes for this year (as far as I know at this date). Those of you in the warmer climes probably just get to shift to 10 W 30 instead of 10 W 40. Well, Sun n Fun is just around the corner, isn't it?

Mistakes last issue ----

Aside from any noticed grammar errors, I did make one or two mistakes. One had to do with misnaming one of the pictures -- I grovel sufficiently later in this issue. The pitot-static article last time looked real good when it was done, but I believe the final analysis is wrong. You would be 600 ft. higher, not lower as stated. But then again --- maybe it is lower. I get confused, so you figure it out.

Now,--- I did get a note from Chris Russell of 289 Gladys Newark, OH 43055 reminding me that we should give credit for an Oshkosh arrival for those people

that were turned away by the controllers. Chris was knocking at the Oshkosh gate 2 hours before air show time and had to turn away to Fon Du Lac. Yes, even if the field is full, they are supposed to let you in with a Show Plane, but apparently they wouldn't at that time. So, sorry Chris, you should have been there! He also said that there was one more Sonerai there. Let me know if you would like to see your name in print, even if it's only this old Newsletter.

I was watching the Discovery Channel the other night. The Sky Bound series was on with an episode called "New Pioneers". It was mainly about the homebuilding movement with most of the show based at Oshkosh. If you should get a chance to watch it and your name is Fred Keip or Dale Severs make sure your Mother gets to see it too. Make copies for your friends, the guys in the office, other relatives, that sort of thing.

Addendum to Mica Doane's Story
(from the Oct. 92 Newsletter)

I believe that Mica Doane is going to not only cut me out of his will, but also remove me from his Christmas card list for putting his name next to Derrick Mackie's picture in the last Newsletter. I haven't heard from Derrick by the same token so maybe I'm off two Christmas lists (and on another type of list). Derrick Mackie is the one from Canada and Mica Doane is the one from Oklahoma.

Mica sent a letter to give an update on what actually happened at Oshkosh this year and his subsequent trip home. If you don't remember or have the last N.L., he had an engine backfire problem on climbout from the Convention and spent some time trying to figure out what caused it, without success.

On that initial climbout, every time he gave the engine more than 3/4 throttle he would get backfiring until it finally blew off one of his intake rubbers. This caused the engine to quit on base as he pulled the power off to idle. A nice dead stick landing resulted. When I came onto the scene, he had already gone over most everything imaginable without success. I couldn't help the situation either.

Well, he drained the gas as stated in the Oct. issue, and got good full power run-ups. He went out and made four takeoffs and full power climbouts to 2500 ft. with no problems, so he and his friend spent 10 hours fighting headwinds back to Oklahoma. The fuel used in both cases was 100 LL but there must have been something in the load picked up on the last stop before Oshkosh that just didn't appeal to his VW - Posa combination. The same fuel was used in his friend's 172 without problem. Mica has used 100 LL exclusively since having an autofuel vapor lock problem about 4 years previously. Could it be that the batch of fuel picked up wasn't really 100 LL ? Hard to tell. Could it have been contaminated? Maybe.

On another note, he wanted to let me know that the cooling baffles portrayed in the picture below Derrick have been working great. His CHT used to run over 450 but is now normally in the 375 range and often nearer to 300 - 320 which is very good indeed. This method is similar

to my under head baffling system and accomplishes the same result in a slightly different way. It is easier to keep the air going where you want it (I feel) with this box - type baffling than the pressure cowl. However, either one will work as long as you make it do the job.

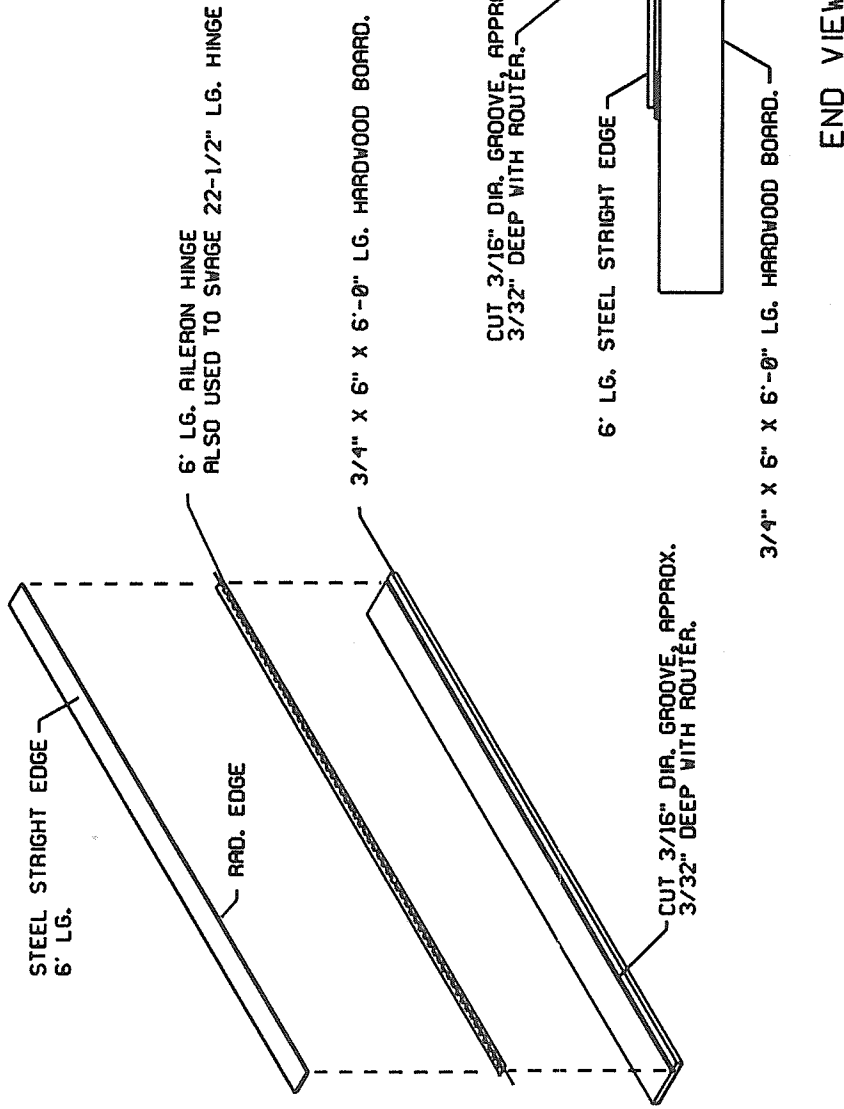
Finally, I was informed that the breakerless ignition is not optical, but magnetic and sold under the "IGNITOR" name through most VW speed shops. Installation is 15 minutes and it all fits inside the distributor cap. Mica has 25 hours on his with no problem. Cost is about \$60.00.

Thank you Mica. Now, what about Derrick Mackie? Am I safe because he is across an international border? What happens when the free trade agreement goes through? Will my family sleep safely at night?

Solar Year Update

So my Sonerai II spent it's first year of life with no electric system other than the 110 ma solar battery charger and did it just fine. There wasn't much flying done the last two months mostly because of the rotten weather so I didn't get much of a chance to do any sunny weather charging, but the 5 amp Gell-Cell ended up with at least a 3/4 charge. The Sun N Fun trip was the toughest test since it required the use of the Aux. pump. But of course the airplane got to sit for the better part of a week and that was more than enough time to fully recharge it.

For normal weekend flying it was just a matter of setting the solar panel on the wing when we got to our destination and plugging it into the battery circuit. Every hour it sat was worth two hours of flying time since the Loran only pulls about 50 ma. On those days that I was out at the Sonerai doing oil changes or other normal maintenance, it could get in a month's worth of charging in just one afternoon. I'm giving up my strobe light and haven't used the nav lights in years since I don't fly at night, so I'm trying to figure out what I have lost in flying capability by not having an alternator. I haven't seen anything yet. Is Mode S dead for sure?



Aileron Hinge Swage Devise

by Bill Rosman
 1754 Parkview Circle
 Palmyra, WI 53156-9737

AILERON HINGE SWAGE DEVISE

Your aileron hinges need to have a bit of an offset in order to fit well. This isn't such a big deal if you have the older style with three small hinges, but on the "S" wing version with full span hinges it can be a bit tougher to bend in the offset. Bill Rosman and Harold Rehm (the prop maker) came up with this method for Bill's airplane. It looks like a good "low tech" method for getting the job done.

- NOTE:
1. PLACE ROUND PART OF HINGE FACE DOWN IN GROOVE,
 2. CLAMP STEEL STRAIGHT EDGE ALONG BEND LINE.
 3. PLACE CLAMPS APPROX. 6" APART, APPLY PRESSURE.
 4. WITH CLAMPS IN PLACE, TAKE SINGLE CLAMP & APPLY PRESSURE APPROX. EVERY 1" ENTIRE LENGTH. THIS WILL GIVE YOU THE RECD. .065 OFFSET FOR THE AILERON HINGE.

END VIEW

Danny Kight's Alternator
1007 White Oak Dr. Anderson, SC 29621

At Sun N Fun back in April, I was wandering the flightline basking in all the aviation when I noticed the line of Sonerai's. I was aware that these planes existed, but this time I really Noticed them. This was the perfect airplane! A sporty two seater made from time-tested building materials and using a relatively inexpensive and easy to maintain power-plant. I was hooked. I talked to Sonerai pilots and subscribed to the Newsletter, including the back issues. Anyway, through a classified add in the back I found a completed but damaged Sonerai IILT with an 1835 HAPI engine in Superior, WI. This was exactly what I was looking for - a project to work on without having to start from square one. OK, everyone knows where Oshkosh is but where the heck is Superior? Come to find out it is as far away from South Carolina as you can get and still be in Wisconsin. I called my Dad on the phone - "Hey, I found the perfect project. You want to help me pull a trailer 3000 miles to Superior, WI on Memorial Day weekend to pick it up?" "Yeah, I'm game- but where the heck is Superior?" "Don't worry, I've got a map."

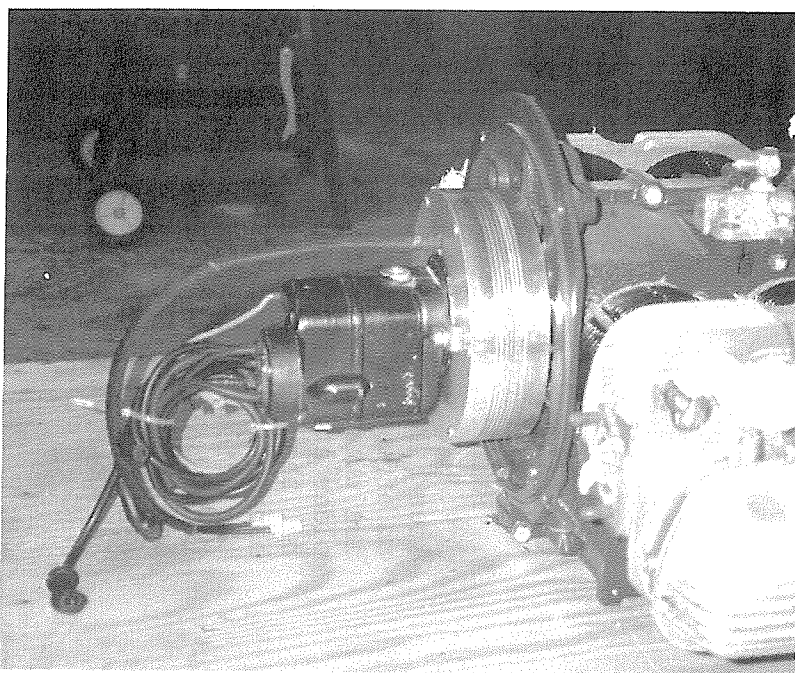
The trip took every minute of the three days, but N3229Z was finally in my garage. The previous owner explained that a lack of cooling air to the magneto caused it to overheat and quit. The

resulting landing in a soft field wiped the gear off the airframe. The crankshaft was also bent, and the wing skins were wrinkled in several places. Six months after I started, the engine is ready and the airframe is about 70% done. I hope to have it at Sun N Fun '93 but our second child is due around Christmas, so we'll see.

The engine only had the single Slick mag, but I really wanted the piece of mind of a second set of sparks. The easy part was installing a Bosch 009 distributor and coil and having Great Plains drill the second set of plug holes in the heads. The challenging part was finding a way to install an alternator to keep the battery (and the second ignition) going. Installing an accessory case was not a good option because 1) my engine is mounted on a conventional welded steel tube engine mount and the bolt pattern on the firewall is different. 2) Changing the pattern would be a pain. 3) An accessory case would add more weight to the nose, and 4) any type of adapter plate would add even more weight to the nose.

There had to be a better way. I considered several different ideas - wind driven? Too much drag. Belt driven? Not enough room around the engine mount. Squirrel driven? We were getting desperate here. I finally decided that the 20 amp alternator normally used with an accessory case would work if I built a housing around it that would fit inside the engine mount and still allow the mag to be bolted to the rear.

What I built is essentially a "mini-accessory case" that is 7 1/2" in dia. by 2" deep. It is made entirely of 6061-t6 billet aluminum and consists of four pieces: 1) A 1/4" front plate that bolts to the engine. 2) A disc that bolts to the crankshaft and has lugs to engage the phenolic mag drive. The magnet ring of the alternator bolts to this piece also. 3) The cylindrical housing body (7 1/2" O.D., 6 1/2" I.D., 1 1/2" long) and 4) the back plate to which the stator is bolted on the inside, and the magneto is attached to the outside. Studs in the back plate accomodate the mag hold down clamps.



Larry West's Reduced Flight Manual

302 A Julian Ave.
Honolulu, HI 96818
808-422-5683

Larry West reports that he has scanned his Sonerai Flight Manual into his computer and then reduced it's size in order to stowe more easily in his Sonerai. It is now about 5"X 6". He says he might be willing to crank out "custom" versions for people if they would send him their clean unfolded manuals to be scanned. (wt. & bal. too). Cost would probably be in the \$15.00 to \$20.00 range.

Meanwhile, his Sonerai is stuck in Iowa (heaven) while he is on tour in Hawaii (paradise). Must be a different type of Service than when I was in. I only got 2 hours in Hawaii once.

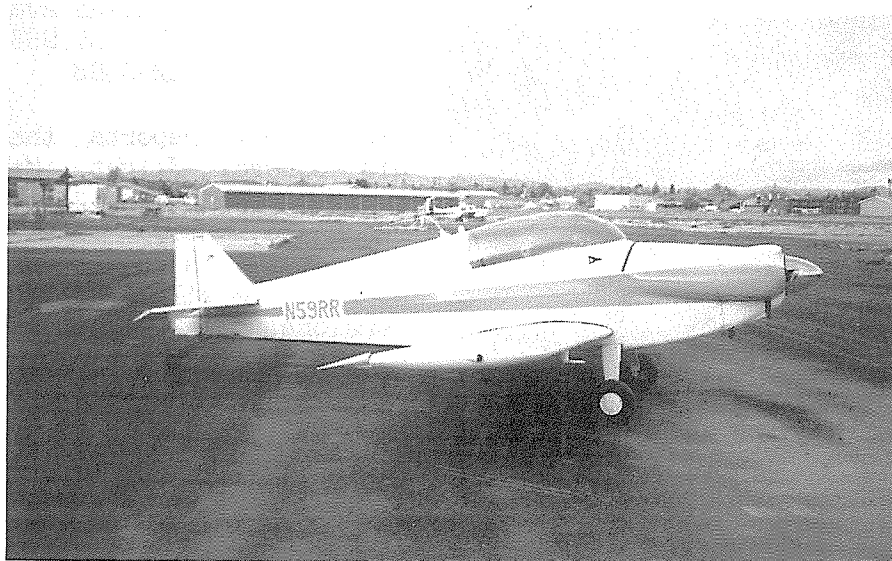
The unit is light but rugged and only moves the mag back 1/8" from it's original position. Every piece was turned on a lathe and shoulders were machined into every piece so no misalignment is possible. Assuming the magnet ring is balanced properly, there should be no vibration in the system. I'll find out in a few more weks! I'd also like to add a special thanks to Larry "Packrat" McLees for the use of his machine shop and all the assistance he's given me on this project. Hopefully, we'll fly in formation to Sun N Fun next April.

Below you see the work of Joe Norris. He promises all of us that he will have this Sonerai II at Oshkosh this next year and it is our responsibility as his friends to make sure that he does so. If he doesn't get it there hundreds of people will be very disappointed! If you would like to write him on a regular basis to remind him of this fact, his address is:

1951A County Hwy. D
Wis. Rapids, WI 54494

I would say from the look of things that Oshkosh is definitely in the future for this Sonerai II.





A few notes from -----
 Russ Larson
 Box 124 Somerset, Mt 59932

My Sonerai II L works very well after a year of improvements and modifications, the most important being the Ultra Carb, dual ignition, phenolic mag coupler, Matco tail wheel, hydraulic brakes and an oil cooler. The brakes, wheels, cylinders and parking brake are from a Piper Tomahawk. Toe Brakes.

The only annoying problem now is exhaust smell in the cockpit, especially during descent. It gives me a headache. I have extended the exhaust pipes but still get gassed. Any ideas? How about a fresh air breathing tube? What about CO and lead compounds?

Engine is a Monnett AeroVee 2020 with 8:1 compression burning avgas. Slick mag with 009 distributor. Terra TNX 960 Nav Com. Max cruise is 140 mph.

Ed's comments -----

Scuba tanks are a bit bulky for inflight use, so that's probably not a good idea for stopping the exhaust smell. If one of your exhaust gaskets was leaking along with your firewall, then you could get the smell. However, on my Sonerai, I get a lot of airflow onto my passenger's lap and the back of my neck which is great in the summer, not so good in the winter. The flow into the front seat seems to be coming from the fit of the cowl halves just forward of the instrument panel on the left side. When cleaning the airplane of exhaust stains, the left hand prop usually causes more stain on the bottom of the left wing and top of the right wing as you might expect. You must be getting some of this air forcing it's way in. It could also be on the right side where the canopy opens. I don't notice it in my airplane and other people haven't complained. Check the flow.

A Letter from Tom Lester
3321 Outville Rd. Granville, OH 43023

Tom sent the following information on his Sonerai II L which first flew on Sept. 26, 1992 ----

Powered by a Monnett conversion 2180 with single ignition using Bosch .009 dist. Carburetion is a modified Posa w/ mixture Covering is Stits Poly-Tone paint.

He began construction on Jan. 1984.

Empty weight is at 585 lbs. with 2 gell cell batteries, transponder with mode C, Narco Nav and Com.

Plane is very responsive but definitely a "hands-on" airplane. Landing is very easy but roll out requires all of your attention. Initial cruise speed is a little slow at 120 IAS mph but he doesn't have EGT or manifold pressure so he is just guessing at the power setting and hasn't checked the airspeed against anything. It was a long time coming (over 8 years he says) and was possible only with the support and understanding of his wife and kids. Tom wants to know if anyone knows what to do with an empty basement????

Ed's Comments --- It's great to see someone persevere and get their Sonerai in the air regardless of the time involved. Think of it as having less time in life to have to worry about what to do with that empty basement. I talk to a number of people that have just flown or are about to fly their new Sonerai. I feel that the handling of any small, low wing loading homebuilt is probably going to be a bit of a challenge for those of us trained on "real airplanes". But after a few flights an airplane like our Sonerai can make everything else seem pretty tame and uninspiring.

His "low" cruise speed is fairly normal in the beginning -- it takes a while (a year) to sort out the rigging and get the engine doing it's correct job. As he says, without a manifold pressure gauge it is difficult to know what power setting you are really at. The rule of thumb for most props is to

take 90 % of your max. wide open RPM and use that as 75 % power. This isn't as good as M.P. or a vacuum gauge to really know what's going on in there (23" to 24" is a good cruise setting). As for the landing roll out characteristics -- just don't expect to do any knitting during the last few minutes of any flight. His red-white-black paint job sure looks nice, and a little familiar.

Fast Start

They always tell people not to turn the prop on an airplane because it could have a hot mag and start right on up. And so, we are all normally real careful to keep from doing such a thing in our daily flying affairs. Since those of us with Posa's know that very often you can have the engine fire up on the first blade after it has sat for an hour or more, I feel we have to be especially careful with our Sonerai's.

So I flew down to Olsen International to get some Sonerai parts delivered to Steve Bennett just before Oshkosh this year and having arrived early, spent the better part of 20 minutes waiting for him to show. This was fine with me since I never like to do an immediate start-up with a hot engine. (Mine tends to be very stiff for about that long.) He showed up on time, we did our business and then it was time for me to go.

The engine was a bit stiff turning over and I did my normal hot start routine which is to leave the fuel off and be ready for a quick start up. Well, I believe it may have been that first blade that caught and kicked around several times. But before I could catch it with the fuel valve, it stopped just before the impulse fired with one blade sticking out at the 9:00 o'clock position. It stopped that way just as it sometimes does on engine shut-down, probably because of the stiffness of the crank with low oil pressure.

So I did what I normally do in that instance, -- I gave it a slow gentle push down through firing position so I could reach over to grab the next blade. Only this time as I was pushing very slowly ----- it fired and caught! I jumped back and missed turning the fuel valve on so it soon ran it-self out of gas, but that is the first time in my memory that it had actually fired from such a slow turn. I feel that if I had shut the ignition off, stopped the prop in the firing position and then somehow got a spark to jump that plug, it would have started from a dead stop. Talk about a startled puppy, I sure was that.

So what would I do in the future? Probably the same as always --- the slow push through compression, but maybe the ignition should be turned off for the few seconds it takes to move that blade over. Or you could push it back up the other way, I guess and give it another go from there. But, boy it sure woke me up!!

Darwin Mc Kinney's Type 4

610 S. 318 th Place
Federal Way, WA 98003

(Ed's comment first --- I sent a note to Darwin about a phone call I had received from a prospective Sonerai purchaser who indicated that the builder of the Sonerai II had installed a Type 4 VW and had the aircraft signed off for flight but had not flown it. In the weight and balance forms it showed that the empty weight of the plane was 470 lbs!! With a Type 4.)

Received your note today. 470 lbs. does sound awfully light, maybe he has his wings sealed with helium or something. No, I can't give you any hard numbers yet, except for the engine.

My Type 4 engine with 009 distributor and single Slick mag, Diehl accessory case, alternator, and starter weighs in at 189 lbs. That's ready to go except for oil, coil, carb, intake and exhaust manifold. Great Plains calls out a weight of 208 lbs and I'm sure I'll make that weight or less.

I've done a lot of weight and balance calculations but it's all guess work at this point. But, I have shortened the fuselage at station 0 by 2 1/2" and will be shortening the forward fuel tank or doing away with it completely and putting in a bigger tank in the back.

I still need all the parts listed in your want ads from the Oct. 92 issue. I'm working full time on my plane so I should be needing stuff soon.

Ed's other comments --- This relates to the weight and balance information in Mark Elyea's article last issue and the subsequent talk about the Type 4 engine installation. Since the LTS gives 6" of additional leg room to the passenger over the standard Sonerai II, removing half of that increase is still better than not having it to start with. Having flown in a Stretch, 6" is more than most of us need, so maybe Darwin will have a good compromise. The truth will be known when she hits the scales.

But what about the 470 pounder? It sounds like a case of inaccurate bathroom scales. As they say, if you must use them at least take time to calibrate them to a known good set. I used my boss at the school by taking him down to the nurse's office and adjusting my scales to his rather large weight. When our Chapter used to run it's CAFE efficiency races, we weighed before and after to get the fuel burn. A number of homebuilders got a bit of a shock the first time on good scales.

***** WANT ADS *****

For Sale -- Sonerai II N176EM TTA 81 hrs
TTE 12 hrs. Excellent condition 1700 cc
Monnett conv. Warnke adj. prop. Genave
100 radio, 519 lbs. empty. Has Monnett
spar beef-up done. Asking \$6500.00
Tom Kolb 216-257-7529
Ed Fisher 216-428-7947 after 6 PM

For Sale -- Sonerai I Project: Welded
fuselage-tail-controls--primed-- spars,
caps, ribs and sheet stock, some hardware.
Manuals and video. \$1700.00
Bob Schank 313-697-7057 home

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 -- Sonerai II 1850 Monnett conv.
427 hrs. TT, 35 hrs. on top OH, wing mod.
Genave radio, Sterba prop, asking \$7000.00
James Mc Dougall 13950 Oxnard St.
Van Nuys, CA 91401 818-782-9031

Wanted -- Sonerai II Stand. or Stretch
Finished or project
Mike Agin 614-872-4201

For Sale -- parting out Sonerai II LT
airframe repairable, some wing damage,
HAPI 1834 w/ starter, with trailer
asking \$2000.00
Jim Poole Box 2483
Boone, NC 28607 704-963-4091

For Sale -- Sonerai II midwing 177 hr.
TTAE, new -- tires, tailwheel spring,
paint and fabric. Must sell \$6000 OBO
513-378-3040 after 4 PM

For Sale -- Sonerai II 1834 HAPI 100 TTAF
with S-wing, folding wings, dual ign.,
starter, gen. Health forces sale. Asking
\$6000. Dave Zeidler 516-868-8827

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 -- 2 place Intercom for an old
Sonerai II Ed Sterba 414-728-1367

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 -- Top cowling for Super V
Sonerai II -- also handheld radio wanted
Bob Florence 8832 Airport Rd.
Georgetown, OH 45121

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 midwing w/ spar
mod done 1835 Monnett conv. 320 TT
currently undergoing TOH, electrics, no
radio, new tires, hyd. toe brakes
asking \$6500.
Mica Doane Rt 2 Box 82
Meno, OK 73760

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 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

FRANKSVILLE WI 53126
11428 SIX MILE RD
FRED KEIP PD 93

To:

414-728-1367
DeLavan, WI 53115
412 S. 5th
c/o Ed Sterba
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