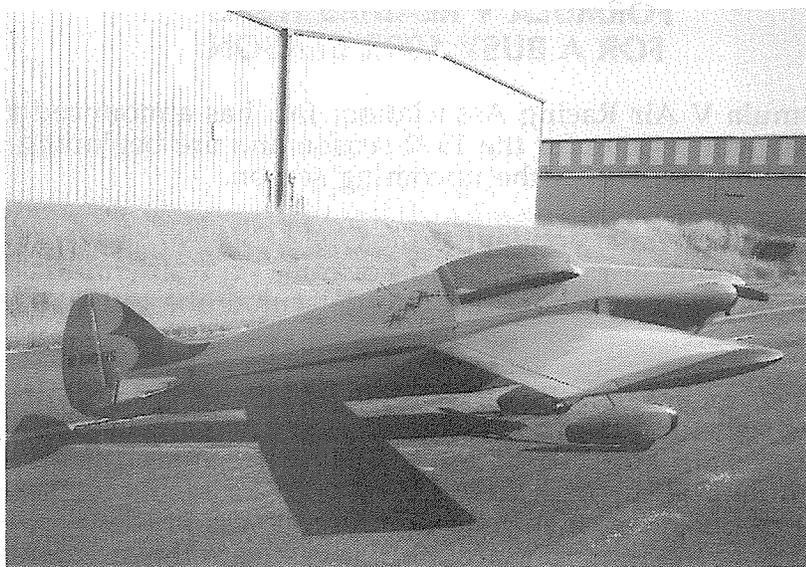


SONERAI

JAN-FEB-MAR 92

NEWSLETTER

Merry Xmas
Happy
New Year



Ben Cannon's
Sonerai II

Radio Wars continued--

Welcome to the Sonerai Newsletter for 1992. If you don't see a "PD 92" after your name on the mailing label, then you haven't paid for the year and shouldn't have this in your hand. Mistakes happen. By the way, if you have an ad in the back of the newsletter that is pretty far out of date or incorrect, then please let me know.

The press release from the Formula Vee Air Racing Assoc. has been included in this issue, even though it will be in Sport Aviation, at the request of Jim Vliet, the V-Gram Editor. He felt that it is important enough to us Sonerai pilots that no one should miss it in the magazine. I'm not sure that would be possible. In our conversation, Jim was careful to point out that Rick Leonard's wing separation was the final result of prior, undetected damage caused in an incident two years prior to Quad Cities. The fix, required only of racing Sonerai's, will be the replacement of spar rivets with AN bolts in the inboard wing bays. Those Sonerai I owners interested in the particulars may contact Jim Vliet at the address in the press release. The Formula Vee's are planning to resume racing this next year so we'll try to keep you posted as to events and locations.

So now I have a Delcom 960 handheld to go along with the Interphase Loran and my "glass cockpit" is complete, or so I thought. However, I find that any time the handheld is within 10 feet of the loran it picks up this washing machine noise from the loran's circuits. Not the loran antenna, the machine itself. Rats! So I talked to a few of the guys about the problem and the general concensus is "cheap radios". Dale Severs is very knowledgable about these things and had time to ponder the problem since he is recovering from neck surgery at home. (He didn't know how his neck got hurt, but if you have ever seen him land his Sonerai you could understand it easily.) Anyway, we talked through all the possibilities on antennas and shielding and a call to Interphase seemed in order since it was putting out the noise.

The service department proved to be very helpful and fully aware of this type problem, to the point of letting me know when to ship the unit back so it could be in the next "group" to be internally shielded for RF emissions. No charge. So hopefully this will bring harmony back into the cockpit in time for the Spring return to Sonerai Aviating. Of course the rest of the installation still has to be done, but I can't see any other problems developing, can you?

FORMULA V READIES ITSELF FOR A BUSY 1992 SEASON

The Formula V Air Racing Association, Inc. has announced that Formula V races will resume for the 1992 season and are beginning their normal race booking efforts for the upcoming season.

As a result of the fatal accident at the Quad City Air show on June 23rd, 1991 which took the life of race pilot and Formula V President, Rick Leonard, a complete investigation was conducted to determine the cause of the structural wing failure.

Formula V spokesman, Jim Vliet stated " We have determined that the cause of the structural failure was undetected pre-existing damage to the wing spar of Rick's airplane. Although the Sonerai-1 aircraft is a proven design for Formula V air racing and has been used for racing for 15 years without any prior instances of structural failure, it was prudent for our organization to take the time to thoroughly investigate this accident before resuming Formula V races."

Formula V is responding by inspecting all current Sonerai 1 raceplanes for previous wing damage and to date there has been no damage found in any of the other race planes.

All Formula V raceplanes are subjected to a technical inspection at every race event by Formula V officials prior to participating in any race. Aircraft records and pilot certificates are also verified by the FAA prior to races.

The June 23rd accident was the first fatal accident experienced by Formula V. The organization had until that time rightfully claimed a perfect safety record in its 15 years of operation with no injury to participants or spectators.

For further information:
Formula V Air Racing Association, Inc.
12 Cooper Blvd
Red Bank, NJ. 07701
(908) 747-2581

October 1991

✓

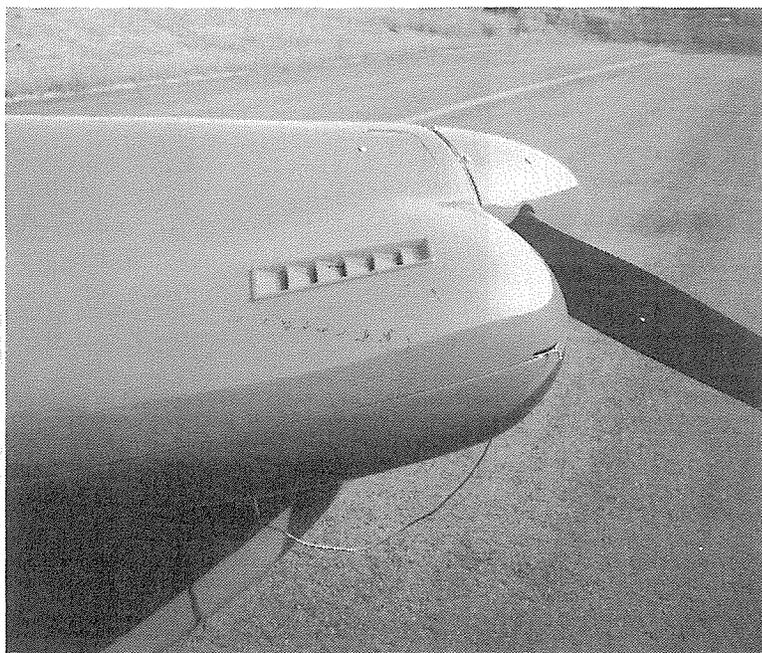
A letter from Ben Cannon
355 Paine Crossing Rd.
Social Circle, Ga 30279

Dear Ed,

Find enclosed also pics of my Sonerai affectionately known as "You Bitch" (something is always broken). The pictures of the cowl show upper air outlets and "machine guns" (air intake pipes for cyl. heads) in the "smile". This system works very well -- the upper vents allow cooling air after shut down (first pull start - hot every time). This airplane has 5/8" landing gear and is very forgiving (it was a killer with 1/2" gear). You can bounce it all over the place with complete control - Notice the low pressure "fence" at the lower air outlet, this was effective but has since been reduced to clean it up a bit. It lowered cruise temps 10 to 20 degrees to 340 - 350 but climb temps went back to 360 - 370 which is certainly acceptable.

Notice the full interior in mohair (or similar) it is fully paneled on the sides with 4 map pockets. Notice also the baggage compartment door which is fixed to the canopy (not an original idea, but nice). The big knob on the spar is the trim. The aircraft is painted in Monocoupe paint scheme with scallopes on all leading edges with painted pinstripes and Monocoupe "ducks". The tailwheel now has a wheelpan. I just finished installing Matco full disc hydraulic brakes with single pull master cylinder but haven't been able to try them yet, since I don't have my prop.

The Zenith carb is excellent after some minor rejetting, easy hot and cold starting - about 3 to 3.5 gal/hr. fuel burn - main jet requires turning 1/2 turn in or out with ambient air temp. changes of 20 degrees. Normal EGT is 1200 F. at cruise but if temperature drops 20 F. then EGT goes to 1300 F. then you richen 1/2 turn at next convenience. No evidence of carb ice in varied flying conditions over the past year (we have humidity about 80 to 90% all summer). My carb sits sideways also, on the original Monnett manifold with a flange welded

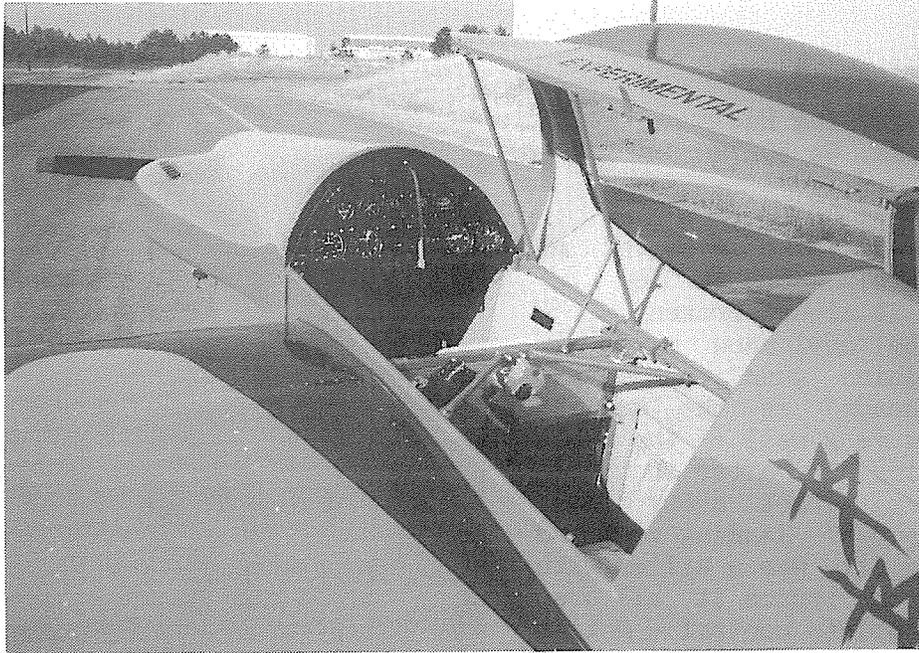


on. It has a K & N paper air filter. This airplane is also non-electric, a 9 volt radio battery runs the Hobbs meter through the normal oil pressure switch. I also have an ICOM radio and battery powered Loran (100 hrs. per battery charge). You don't need solar cells unless you just want to try them.

Well, enough bending of your ear.
Carve on my prop like mad.

Ed's comments -- It's a beautiful Sonerai, Ben. You've thought it through a lot obviously. I don't like the baggage door idea though, since that is where I keep my Port-a-pottie and it wouldn't be available in flight when I need it.

Other people have installed the top cowl vents to their satisfaction. If the magneto people want us to keep our mags cool, then the heat soak they get after shut down is not a good idea. I have seen a few Sonerai people open the oil inspection door to achieve the same sort of thing. I see you are keeping your airplane's exhaust pipes plugged when not in use, I seem to be having better valve life because of it. The cowl outlet lip didn't help my cooling back when I tried it, but 10 to 20 degrees is rather hard to see on most of our little instruments.



Engine Mount Locations

This should probably go under the heading of "Why didn't anyone tell me about it?". Each of the engine manufacturers has their own mounting locations for their accessory cases on the VW conversion. You didn't know that??? Sorry you had to find out the hard way. The guys that have learned this lesson "that way" are the ones who had to convert from one system to another. You have to cut off the old mount bushings and weld in the new ones at the correct location but be careful that the distance from your firewall to the engine case itself is approximately the same. One nice feature of the Soneral mounting method is our aluminum spacers at the firewall. The length of these may be varied to adjust the whole engine in and out for cowling fit. You must leave enough room for the intake Y casting to fit between the engine and the firewall.

A second consideration with this spacing has to do with the type of propeller flange you purchase. The original Monnett shrink fit with the EV cowling should match quite well, but if you then go to a taper shaft prop flange it will tend to move the prop and spinner out about 1" or more leaving a gap that big between cowl and spinner. You could move the engine back to accomodate this

change but then the Y casting may not have room. A second method is to fiberglass in the nose of the cowl to take up the gap. Or you can do like a lot of people have done and just live with the spacing. The best method is to have your cowling, engine accessory case, spinner, etc. in hand before fit-up so you can see what is going to develop when they all go together. With Monnett-style Electro-X casting no longer available, we will be seeing more of this in the future.

Some of the important dimensions taken off my Electro-X casting installation are:

Distances -----
 Firewall to engine case ---4 1/16"
 Length of spacers -----2 3/8"
 Thickness of X-casting ----1 3/8"
 End of spacer to engine ---1 3/4"

I guess the final dimension to consider is the first one since it determines the where the prop hub sits in relation to the cowl. Some people have the instrument panel forward of the cowl lip and others have it aft, it can go either way depending on how all these numbers add up. Good luck.

Baffle Airspeed

Steve Bennett at Great Plains Aircraft asked that I do the following experiment since one of his customers was having a cooling problem with his Sonerai with an EV cowling. It seems the engine was running hot and as a method of trying to find the problem, the owner put a pitot tube in his cowling and hooked it up to a second airspeed indicator in order to get some idea of the velocity of the air coming into the cowling. I don't know the positioning of this second pitot tube (somewhere on top of the cylinders) but apparently the instrument was showing about 70 to 80 mph at the normal cruise speeds for a Sonerai. So for a normal airspeed of 125 (?) mph, he was getting about 60% of that velocity into his baffling. Steve had no good idea on whether that was real good or real bad.

Enter 78ES and a spare (but new) airspeed indicator. I have the box baffles described in the last Sonerai newsletter with the additional overhead baffles that direct air from the front of the "D" opening up under the outer portion of the heads for extra cooling out by the valves. Anyway, it is still box baffling. I took a piece of 1/4" Nylo-Seal tubing and drilled a hole through the back of the left box baffle so it could be adjusted forward or back and then held in place with a piece of coathanger wire (it's all I had handy). The first position was at the top of the forward cylinder about half way between the top of the baffle and the cylinder. This was later moved to the top of the rear cylinder or slightly behind it for the second flight. It was then hooked up to the airspeed which was held in my lap for each flight. So ----

The first interesting thing is that the second airspeed reacted to takeoff (and taxi) power before the wing tip airspeed. I guess this was to be expected but I couldn't keep my eye on it for the whole takeoff roll, so my next look was about 80 mph on initial climb-out and the baffle airspeed was right there with it at 80 mph. Huh? So now we get up to a

little altitude and let the speed build up and at an indicated airspeed of 125 mph, we are showing 115 mph through the baffles. Huh, again. The baffles stayed at this 10 mph differential through the normal cruise airspeeds but returned to match the 80 mph when the power was left on and the nose was raised. When it came time to land and I had about 80 mph on final, I believe the baffle airspeed lagged below the aircraft airspeed which is expected since the power was off. For the next flight the baffle pitot tube was moved to the rear position and the results were exactly the same as far as I could tell which sort of surprised Steve and me. We had expected a lower velocity, but got to thinking that since there was about the same area of baffling left, then the velocity should be the same.

On the next flight I had time to hook up the static side of the airspeed to another piece of tubing and position this on the "low pressure" side of the baffling, in other words after the air has done it's cooling job and is just trying to find some way out of the cowl. This position was on the firewall behind and below the left cylinder bank with the tubing facing down so it wouldn't get any ram effect. On this flight the baffle airspeed dropped to about 85 mph at cruise showing that there was "back pressure" holding that 115 mph air on top from going through the baffles. I could pull the static tube off the back of the instrument and get the airspeed to jump back to 115 mph. Holding the static tube to my nose showed a definite flow of air with an interesting smell. (?) A final flight with the "smile" cooling hole almost entirely closed off showed a slightly higher airspeed.

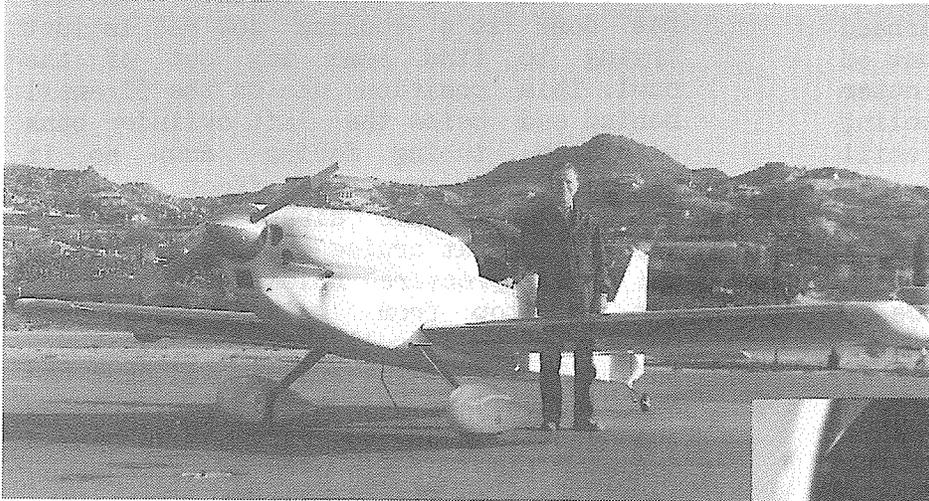
So now to analyze the results --- First off, I guess this might show why my engine runs reasonably cool and the other engine did not, although we all know that there is a lot more to it than just this. But there was a pretty big difference to at least start with, or stated another way, why was his airspeed so low? Well,

we don't know if he had a static tube hooked into the system. If not, then his speed was significantly low otherwise we weren't that far off. I have the EV cowling with the bottom air outlet left as it came from the factory and no cowl flap hanging down. I tried a lip on the outlet one time and didn't get much of a result which is sort of confirmed by this test since there obviously wasn't much left to gain over the 115 mph. But a lip might help someone with 80 mph a lot.

Secondly, I don't think we were really measuring airspeed as much as we were pressure in the cowl. After all, the airspeed is only measuring the difference in pressure between the pitot and static systems, and the air in the Nylo-Seal was not really "flowing" through the tube once the airspeed had stabilized, it just got dammed up and was reacting to the pressure forcing it in the tube. I have this book on how aircraft instruments work that has a table of conversions from indicated airspeed to actual pressure in PSI. So what we would like to know is the difference in pressure from the inlet to the outlet of the cowl or finally the ambient air pressure.

This scale is not a linear one either, as the airspeed decreases, the pressure decreases at a greater rate. So, looking up 115 mph and 80 mph on the airspeed chart showed pressures of .315 psi and .150 psi respectively. Or in other words, there may have been twice as much air pressure forcing flow in my cowl as in the other Sonerai's cowl. That is a little more dramatic I think, and may help explain the cooling difference to a greater degree.

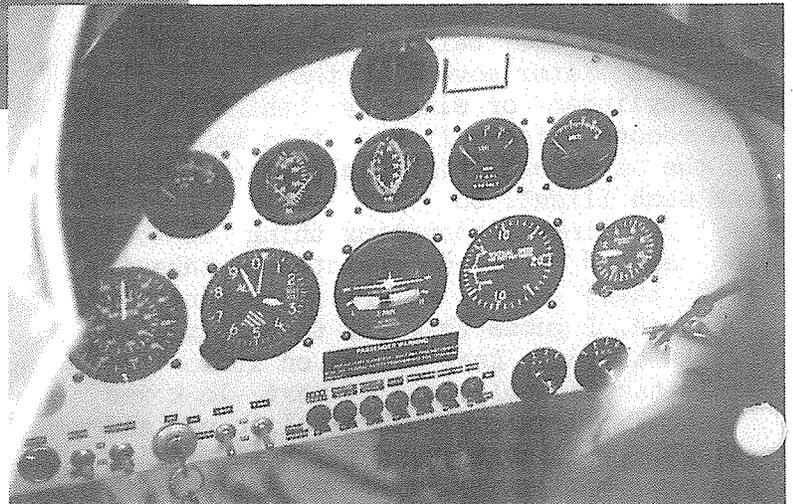
We had plans to do this test on a pressure cowl installation but the weather has probably gotten the better of us this winter. Anyone in a warmer climate is encouraged to give it a try and let the rest of us know. My next Spring time testing will be relocating my carb air temp probe to the outside of the carb to see what the air inlet temperature is -- before it gets through the bellmouth on the carb. After engine shutdown I have seen it go as high as 125 degrees F. as the cowl heat soaks into the body of the carb. Could this have anything to do with "hot starting" problems with the old Posa? I can't imagine.



Verne Tobin's recently finished Sonerai II. You may notice a few modifications to the plans. Different canopy treatment and a change to the "smile".

Verne's panel is above the average on quantity and quality. What's that funny gauge in the middle for?

Verne Tobin
61773 Crest Circle Dr.
Joshua Tree, CA 92252



A letter from a new owner.

Just received the newsletter and your note on the front is correct. I purchased a Sonerai in late August from a builder in Minnesota. I had called you to get your help in checking the airplane out and you were not interested in flying another builder's airplane.

I flew to Minnesota and watched as the builder flew a few touch and goes. I purchased the plane and taught myself to fly it. It took about 5 to 6 high speed taxi tests to get the feel of the controls. I then took off with a friend flying a Cessna 170. He was in charge of navigation and I just had to fly along.

My first landing was at a small strip in northern Wisconsin. Tall corn on both sides and high tension power lines made the experience interesting. One pass to check it out, second pass was too high and too fast, third time a charm.

The second stop was in Richland Center. Nice wide runway and a perfect landing on the first shot. More fuel and a large crowd gathered. Darkness was approaching so we beat a hasty departure.

The final stop was at Kirkpatrick's private strip at Big Foot, IL. We were past official darkness and the strip was unlighted. The first approach was aborted because I was off-line, the second was not perfect but more than good enough.

A few days later, I moved the airplane to Big Foot airport just west of Walworth. They have a good, lighted North-South and I was able to bargain for a hanger space. Unfortunately, the hanger leaks and has no door, however it is better than nothing. After about 10 hours of flying the plane is put away for the winter and a list of things to do before Spring has been started.

Ed's Comments -----

Yes, it is true that I don't go in for flying other people's homebuilts as a rule. I have flown three Sonerai II's altogether and taxied a few more to see how they felt on the ground. Everyone of

them has felt quite different from the varying location of the brakes, to the unusual sounds and vibrations. Each is a custom built airplane just as it says on the registration forms.

The hardest Sonerai person to talk to on the phone is the perspective Sonerai purchaser. They need to know "What they are like? How do they fly? And do I need any taildragger time?" It doesn't seem to be the number of hours the pilot has flown near as much as the number of aircraft they have been involved with.

You start off with --Be Carefull!
One important advantage the builder has over any purchaser is the amount of stick time logged before the Sonerai ever gets flown for the first time. As the builder, you have been in the cockpit for any number of hours installing and adjusting things and just having a good time. This is very valuable time that a purchaser never gets unless the aircraft is delivered for them or stays based on the same field. This doesn't seem to happen all that often. More often it is jump in and go -- to the new home base. And I would hate to have to do that too many times myself.

I try to tell purchasers to get it home however it needs to be done and then if possible spend some time with the machine before launching into a full fly-in breakfast schedule. I believe most people do this but I know of a number that haven't. I suppose the success of this approach depends on how well de-bugged the Sonerai is.

A letter from Larry west

P.O. Box 2572

AP0, NY 09464

By way of introduction, I'm Larry West, the new owner of 36 VJ, S.N. 01552L. This Sonerai II was built by John Vercammon up in Michigan and then purchased by Rich Perkins of Belleville, NE. I met Rich shortly after he picked up 36VJ - he was

keeping it in the hanger next to the one I was restoring a Meyers OTW in. Being the typical airplane nut, I wandered about and went over for a look-see. Well, one thing leads to another - first a little help with oil leaks, then brakes - anyway, Rich and I ended up being partners and I finally bought his half out (he got severely bit by the BD-5 bug). I've put about 20 hours on it myself and all total it's got about 200 hours on it now. Great Fun! Of course I consider working on them almost as much fun as flying them (good thing, to!)

Right now I'm stationed overseas in England with the USAF, so 36VJ is tucked away with the OTW being taken care of by a close family friend in Iowa. So far not too much has given me trouble with it - if you don't consider a broken crankshaft trouble! Seems that John had the engine built up by a VW race shop and they used the race car version crankshaft - well, it broke, so now it has a fresh overhaul with a new crank from Great Plains and I don't expect any more trouble. I got GPAS's new catalog - good to see some one pick up the Sonerai supplies.

Since I'm down for a complete engine rebuild, I decided to go whole hog. I am putting the Diehl supercase on it - complete with starter and 20 amp. alternator. I guess I am getting lazy. Also going to replace the Posa with an Ellison throttle body, and thank goodness someone came up with some new hydraulic brakes to replace the Azusas. Yes, I am going to watch the weight! Well, that the best part - I think I can save almost as much as I'm adding by converting 36VJ from an "LT" to an "L" model. Thank goodness John thought ahead and put in both style gear mounting fittings. It should be a relatively painless conversion - I'll let you know. All this will take awhile as it will be another year before I get back to the States. So far the best level flight speed we have seen is 163 mph flat out - sorry I don't remember the RPM. At that speed it takes an incredible amount of right rudder to keep it straight, -- is that typical of the design? If so, I'm sure going to build a rudder trim system. Even at 140 mph (typical cruise) I have to hold in right rudder to the point it sure wears one's leg out. Again, I don't know if this is typical.

Since I'll have to have the Feds come out and inspect again after all the mods, I'll try to run a full flight test profile and let you know what I find with a taildragger. Well, best wrap this up.

Ed's comments ---

Larry seems to have a good attitude for homebuilt flying, don't let minor problems like crankshafts get in your way, and that sort of thing. The amount of rudder needed to hold the ball centered at high speed doesn't seem to be present in my Sonerai II. The airplane is supposed to be built straight on the vertical fin so maybe an alignment check is in order. There could be a misalignment of the engine mount rubbers but I don't know if that would make itself felt at high speeds or high power setting. Any comments out there?

Keith Embree asked me to put a little notice in the Newsletter about his elevator trim system. It seems that he talked to a number of you at Sun N Fun and proceeded to lose your names. It is of the Jack screw type. His address is: 9250 Cadiz Rd. Cambridge, OH 43725 He says you may also see him at Sun N Fun this next year -- I don't know if that is a threat or a promise.

Fred Keip gave me a copy of a set of plans and instructions on a Sonerai II RC model plane. The article and plans are by Bertil Klintbom and the plans are sold through RCM Company. It looks real faithful to the design and a section in the text talking about the flight characteristics caught my eye. To quote Bertil: "The short wingspan might seem frightening, but the model is easy to fly and good take-offs and landings are easily performed. It is also a perfect model to bring with you when you traveling for holidays, etc. It is very fast when equipped with a good engine and is also very maneuverable. It has to be flown all the time, however, but this is easy when you have learned to fly low wing models."

I guess that sort of sums it up pretty well, don't you think? Have a good Holiday Season and fly safe.

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

For Sale -- Sonerai II N176EM TTA 81 hrs
TTE 12 hrs. Excellent condtion 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 IILT, great winter
project, light fuselage and wing surface
damage. HAPI 1834 engine 110 hrs.TT
\$3000.00 Chip LeLand 5414 Oakes Ave.
Superior, WI 54880 715-392-7644

For Sale -- Sonerai IIL Kit - all welding
done, 50 % complete, 1900 Limbach engine
and access. \$ 6000.00 or best offer
303-666-5494

For Sale -- Sonerai I Project: Welded
fuselage-tail-controls--primed-- spars,
caps,ribs and sheet stock, some hardware.
Manuals and video. \$2000.00
Bob Schank 313-697-7057 home

For Sale -- Sonerai IILTS project, fuse.
welded, have rest of kit to finish
aircraft including Stits material, two
fuel tanks, no engine \$ 3000.00
Pete Fidler 708-526-3022

For Sale -- Sonerai II midwing, HAPI 1834
dual ign.,starter, heater, stab.trim,
under 100 hrs.excellent cond.,trailerable
asking \$ 8500.00
Dave Zeidler 516-868-8827
3490 Stevens Rd Baldwin, NY 11510

For Sale -- Sonerai IIL Kit-- all welding
done, 50% completed. \$1500 + Limbach
engine and accessories. Trade?
303-666-5494

For Sale -- Hapi Magnum engine 82 HP,
hydraulics, cooler, dual Electronic Ign,
35 amp alt., Supercarb, High torque
starter, Diehl case. 15 hrs TT
asking \$ 4800 Also, BRS-4 ballistic
parachute for Sonerai II \$ 1700
Ray Macaro
124 Longmeadow Brandon, MS 39042
601-825-8067 evenings

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

For Sale -- New Sonerai Spinner \$30.00
Tail spring \$20.00, Slightly bent 1/2"
landing gear \$30.00
Gary Eichhorn 4680 Glenridge Tr.
Stuart, FL 34997 407-287-3912

For Sale -- Sonerai II EV Cowling
\$200.00 plus freight
also Wanted -- Sonerai I Fuel Tank
Mike Kellems P.O. Box 507
Burkesville, Ky 42717 502-864-5658

For Sale -- Parting out Sonerai II with
220 TT airf. & eng.-- incl. HAPI 1834 w.
starter and alt., transponder, STS Loran,
Ellison carb, Hydraulic brakes, STS
handheld and headset, two props, & more.
Floyd Blaine 1127 Taylor Ave.
Godfrey, IL 62035 618-466-8996

For Sale -- Sonerai IIL project, fuse. on
gear - prof. welding, complete wing kit
w/ mod., cowling and tank. \$1600.00
Steve Steinmetz ph. 815-962-1772
428 N. Pospect St.
Rockford, IL 61107

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

For Sale -- Sonerai II L 170 TT, 20 on
new engine, 720 Comm, Loran, excellant
workmanship Asking \$13,000.00
Dale Severs 221 Southridge Dr.
Gurnee, IL 60031

Give away -- misc. Son IIL parts incl.
rudder, elevator, int.manifolds, rear
spar, Azusa wheels and brakes, aileron,
wing rib set, horiz. stab., etc.
Verne Tobin 61773 Crest Circle
Joshua Tree, CA 92252 619-366-2262

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



Sonerai News

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