

# SONERAI NEWSLETTER

OCT-NOV-DEC 2008

FRED KEIP, *EDITOR/PUBLISHER*  
11428 WEST HWY G  
FRANKSVILLE, WI 53126

PHONE: 262-835-7714  
(AFTER 6PM CST)  
EMAIL: fredkeip@aol.com



## **LEE RIEDEL'S SONERAI ILS AT OSH 2008**

*Lee's very nicely done Sonerai ILS holds a couple distinctions at AirVenture OSH 2008. The first is that his is the first "stretch" Sonerai to come to Oshkosh in a long time. The second is that Lee is one of those rare Oshkosh Sonerai pilots who flew in with a passenger on board. The airplane is equipped with a Great Plains 2180cc VW and a Sterba prop. Lee claims a cruise speed of 135 mph, and a stall speed in the neighborhood of 40 mph solo (60 mph at gross), which he attributes to the Hoerner-style wing tips. It weighs 600 lbs empty. Lee managed to escape Oshkosh before I could get some good photos of the interior and instrument panel, but take my word for it, they were as nicely done as the rest of the airplane.*

## MORE OSHKOSH 2008 PHOTOS



A close-up of Lee's Hoerner-style wing tips.

Roger Godfrey's  
"Fat Wing" (Riblett  
airfoil) Sonerai III,  
from Ottumwa, IA



Roger's Workstation:  
Instruments in the front, and  
gadgets in the back.



Jeff Lange's Sonerai I. Jeff raced in the AirVenture Cup again this year, and clocked a speed of more than 180 mph.

N99FK on display in the Affordable Flight Center.



A nice crowd at the Thursday night Sonerai Picnic. Tim Kline brought his IIL project from Pennsylvania for everyone to review.

## OSHKOSH 2008 RECAP

Just so you don't come into this article with grand expectations, I'm not going to try to give a grand overview of the AirVenture 2008 event. The writers and photographers for **Sport Aviation** do a far better job than I could in a short one page article. I'd like to provide one little (?) Sonerai driver's point of view on the event.

In one sense, Oshkosh '08 was like a lot of other years. It started out with my driving the 100 miles or so from my house to Oshkosh on the Saturday prior to the start to set up my campsite among the bunch that camps with Steve and Linda Bennett from Great Plains Aircraft Supply. Then I drove back home and flew the Sonerai up shortly after the crack of dawn on Sunday. The flight was reasonably uneventful with the exception of being cutoff by a Stinson as I was getting ready to turn base to final for 36 Left. Once the tower saw the situation (after I chided them on the radio), I was cleared to land on 36 Right, the big taxiway. It's funny how narrow the taxiway looks when compared to the big runway, but it is actually 75 feet wide, which is the width of the runway at my home base. So, other than the long taxi to get to the parking area, it was no big deal. Remember, when flying into OSH you've got to keep your eyes open, and be flexible.

After not having the airplane at OSH last year, it was nice to be a "participant" again. Driving to fly-ins is just not as much fun as flying to them. This year I volunteered to be part of the new Affordable Flying Center, and it was a fun experience. The Sonerai was one of seven airplanes on display. The other airplanes included a Sonex, a Pietenpol, an ultralight sailplane, an Airbike, the Husky Chaser II, and an Aeronca Chief. The basic concept of the Center was to show that it is possible to own and fly an airplane without mortgaging your house away, or selling your first born. I know I'd be "preaching to the choir" to most of you when it comes to affordable flying and the Sonerai, so I won't. But I had great opportunity to spread the news about our great little airplanes, and how much fun they are to fly and own for not a whole lot of money.

As a matter of fact, on Monday I did an interview with a TV reporter from Green Bay Channel 2, that ended up on the news that evening (I didn't get to see it, but my sister did and had to call and harass me about it, as sisters like to do). My airplane also was featured in an article in the daily EAA newspaper on Thursday.

As part of the Affordable Flying Center function, I was also asked to give a pair of forums, one on Tuesday and one on Thursday. I titled my forum "Sonerai Stories – 32 years of Affordable Flying". They were pretty well attended, and other than a couple glitches with the PC we were using to drive the projector (thanks to Jeff Lange for figuring out the problem), they went well. I also gave my regular Sonerai Builders Forum to a crowd of 30 or so on Wednesday, and again, Jeff was there to help sort thru the intricacies of the electronics. I'd like to thank Jeff and Ed Fisher for spending a little of their time during the forum to talk about air racing for VW-powered airplanes.

On Thursday evening, Jeff hosted the annual Sonerai picnic at his hangar on the northeast side of Wittman Field. We had a nice turnout, and even had Tim Kline's Sonerai IIL there to peruse and critique. Tim, you are a brave man. Ed Fisher provided the food and drink, Jeff did most of the grilling, and we all had a great time.

I decided take my Sonerai home Friday morning, since I had met my commitments and was pretty well worn out. As I was pushing the airplane out to the flight line to get ready to depart a neat thing happened. The shortest and easiest way for me to get the airplane from the Affordable Flying Center to the nearest taxiway was to push it north thru the North Exhibit area to the big east-west taxiway next to the Warbirds. As I was pushing her north down the taxiway, a red Ford Mustang drove straight at me, then pulled off to the side to let me pass. As I got along side, a very recognizable voice told me that I'd "better get out there and go flying". It was Paul Poberezny. I saluted, and answered "Yes, Sir". Who was I to turn down an order like that. Needless to say, I flew home with a large smile on my face. Then, as usual, I drove back up to OSH to retrieve my gear.

I can't finish up my report, though, without thanking Steve and Linda for inviting me to camp with them way out on the west end of Camp Scholler. There were, at one point, nine campers, tents, and motor homes parked around our communal area. We had folks from Nebraska, Indiana, Missouri, Pennsylvania, and Wisconsin. Believe me, a good time was had by all. And imagine this: Linda wouldn't let me bring any food, and made me eat until I couldn't stand it anymore. Lookin' forward to next year (and I'm bringing the Margarita makings). See you there...

## GPASC FUEL INJECTION by Steve Bennett

*At Oshkosh this year, I had the opportunity to camp with Steve and Linda Bennett in Camp Scholler, so we had lots of opportunities to discuss everything aeronautical. One of the things I usually ask, is "what's new at Great Plains", and this year, Steve said "electronic fuel injection". Of course, I was intrigued, so I asked Steve for more info:*

The fuel injection system we are currently working with is made by Simple Digital Systems. They provide the sensors, computer and tuner. We will provide the intake manifold, injectors, fuel pressure regulator and fuel pump, and throttle body and fuel rails. The parameters the system reads are air inlet temperature, manifold pressure, RPM, CHT, and throttle position sensor. The engine will still run in a "limp home mode" with one of them not working. The system warns of a failed alternator or low voltage. It requires 4.5 amps to operate.

Benefits! No carb heat, all cylinders run the same mixture, or you can program them to run different mixtures. We are currently working on two different styles of intakes. The one shown in the photo, and another one that is a log type manifold that lays on top of the engine. The cost, by the time one is done it will be a \$2K investment. You will have \$1295 for the SDS components, and another \$800 to \$900 for the rest of the components. (I am building the system for myself personally, more as a learning curve than anything)



GPASC Fuel Injection

*Another new item that Steve is offering is the GenniPod.*

The GenniPod is an air driven alternator that will produce 4 amps at 70 mph. It weighs in at 3 lb and 5 oz. Normal mounting is between the landing gear legs. Top speed is 110mph. It will be great for Legal Eagle type aircraft that use a 009 distributor, and up until now a total loss battery system, or aircraft that use, or use to use, a Vertex mag. (We no longer carry the mags as the new price is \$1395.00 (ridiculous)) The 009 kit is about \$170 and the GenniPod is \$249.95. That's a whole lot less.



The GenniPod

Steve Bennett  
Great Plains Aircraft  
[iffyavw@msn.com](mailto:iffyavw@msn.com)

## TIMING MARKS

In the last issue, I discussed the method for making a top-dead-center (TDC) finder that you could use to find the TDC positions for the #1 and #2 cylinders to help with correctly adjusting the valves. The one thing that I didn't discuss was marking the prop hub with the timing mark to allow the correct timing of your magneto or other ignition system.

Once you have the TDC marks, it's easy to determine the location of the timing mark for the magneto. First, measure the outside diameter (OD) of the prop flange. Then, multiply the OD by Pi (3.1416) to obtain the circumference dimension. Next, multiply the circumference by 28 (assuming that you want to time the mag at 28 degrees before TDC), and divide by 360. This gives the circumferential measurement from the TDC mark to the timing mark.

Now, standing in FRONT of the prop flange looking back at the engine, measure clockwise around the flange from the #1 cylinder TDC mark (a flexible,

steel or aluminum 6" machinists ruler works well), and mark this location with a hammer and cold chisel. That's your timing mark.

To time your ignition, just line the timing mark up with the split line in the crankcase with the #1 cylinder on the compression stroke, and mount and time the system.

## VALVE ADJUSTMENT

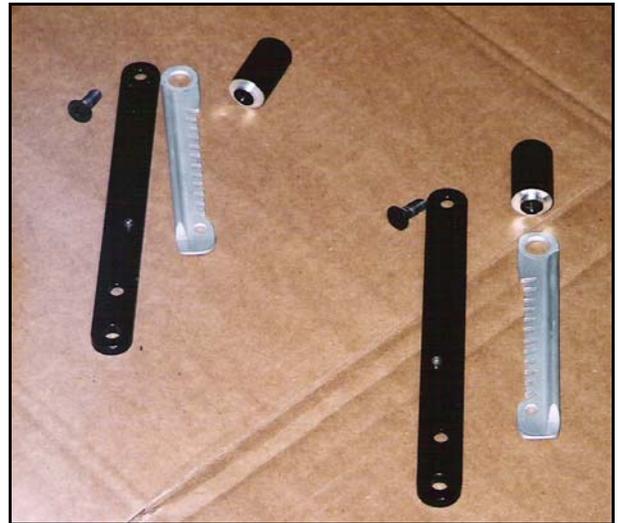
The whole idea of adjusting the valves is to provide .006" clearance between the top of the valve and the bottom of the valve adjuster on the rocker arm when the valve is closed and the cam lobe for that valve is at its lowest position. When you have the piston of the cylinder you are adjusting at TDC on the compression stroke, both valves are closed with cam lobes at their low points. You should be able to rock both rocker arms a little bit. That's your clearance.

Adjust the valve clearances as follows:

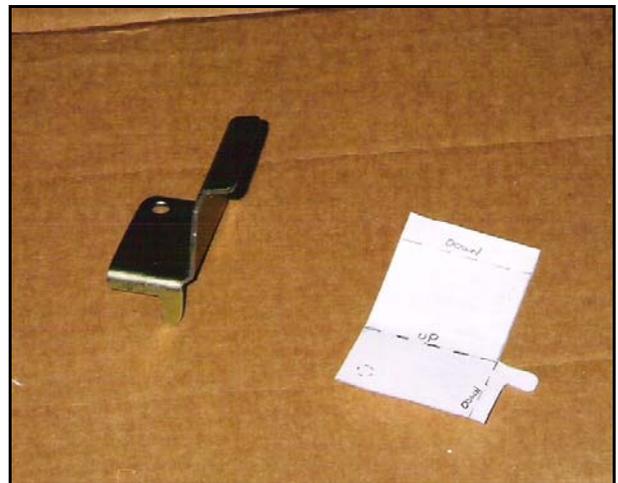
1. The prop hub flange should have marks at TDC and BDC for cylinder #1 (the RH front cylinder when viewed from the cockpit (assumes a tractor installation). The marks line up with the split in the crankcase.
2. Remove the valve covers, and bring #1 cylinder to TDC on the compression stroke by aligning the TDC mark with the crankcase split line. You can tell it's on compression because both valves are closed.
3. Adjust both the #1 intake and exhaust valve clearances to .006".
4. Rotate the crankshaft in the normal drive direction (ccw when viewed from the cockpit) 1/2 turn so the BDC mark aligns with the split in the crankcase. This puts the #2 cylinder (RH rear) at TDC
5. Adjust both the #2 intake and exhaust valve clearances to .006".
6. Rotate the crankshaft in the normal drive direction (ccw when viewed from the cockpit) 1/2 turn so the TDC mark aligns with the split in the crankcase. This puts the #3 cylinder (LH front) at TDC.
7. Adjust both the #3 intake and exhaust valve clearances to .006".
8. Rotate the crankshaft in the normal drive direction (ccw when viewed from the cockpit) 1/2 turn so the BDC mark aligns with the split in the crankcase. This puts the #4 cylinder (LH rear) at TDC.
9. Adjust both the # 4 intake and exhaust valve clearances to .006".
10. You're done. Now, reinstall your valve covers.

## PARKING BRAKE by Bob Schwarz

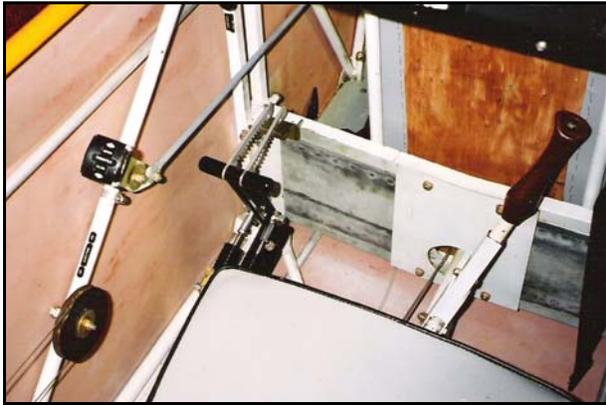
Here are some photos of our hydraulic disc brake master cylinder set-up which has a parking brake arrangement built in. We used the disc brake and master cylinder set supplied by Great Plans Aircraft. The twin master cylinders are bolted to the original brackets that held the mechanical Azusa brake cables and lever.



The dark arms and handles are from the master cylinder assemblies, and are modified to accept the new ratchet arms. The handles have a shoulder machined to accept the ratchet arms, which are free swinging. The original dark arms are fitted with a pin to engage a hole in the lower end of the ratchet arm when it is not being used for the parking brake function.



This is the 4130 steel bracket (and the pattern) that is used to engage the ratchet arm teeth. It is bolted to the main spar carry-thru box.



Here are the master cylinder levers in the park position.



Here are the master cylinder levers in the normal operating position.

Bob Schwarz  
 East Northport, NY  
 rschwarz29@hotmail.com

### 2008/2009 FLY-IN SCHEDULE:

Here's a list of the major fly-in's for the next year or so. Make plans now to go to the one nearest you, and show off your Sonerai:

- Copperstate, Casa Grande, AZ 10/23-26
- SERFI, Evergreen, AL 10/24-26
- Sun-N-Fun, Lakeland, FL 4/21-26
- Golden West, Marysville, CA 6/12-14
- Virginia, Suffolk, VA 5/30-31
- Rocky Mountain, Watkins, CO TBD
- Arlington, Arlington, WA 7/8-12
- AirVenture, Oshkosh, WI 7/27-8/2
- MERFI, Urbana, OH 9/12-13

### ELECTRONIC NEWSLETTER?

In the last issue I offered the option of receiving your **Sonerai Newsletter** electronically, and I'm pleased to say that fourteen of you signed up

(although I expected more). It seems that everyone was pleased with the quality of the emailed version, particularly the color photos.

So, the offer still stands for any of the rest of you to get the "e-newsletter". The advantages, of course, are many. First, you'd get the **Sonerai Newsletter** almost instantly, unaltered by the USPS. Secondly, it would be in color. No more black-and-white photos. And thirdly, since there will be no printing or postage costs, the subscription cost will be reduced. I'm thinking it would be in the neighborhood of \$10.00 to \$12.00 per year instead of \$15.00.

If you are interested in receiving the electronic version of the **Sonerai Newsletter**, all you need to do is email me your current email address. It'll be in .pdf format, so you'll need Adobe Acrobat to read it.

I'm planning to send this issue and the Jan-Feb-March 2009 both ways, and from then on, you'll have a choice as which version you want, standard or electronic.

*Happy  
 Holidays!*

*Fred*

# WANT ADS

*These Ads are provided as a service to you, the subscriber, and are free of charge. I only ask to be informed when the Ad is no longer valid, and needs to be removed. Thanks.*

**SONERAI WING CONSTRUCTION MANUAL:** There are 18 pages of text, 85 photographs, and 12 drawings, as well as a complete materials and a tools list. If you have an older set of plans (The manual is now included with the plans, so you new plans holders already have it.) and would like your own personal copy, send cash, check, money order, or PayPal) for \$25.00. Postage is included. Fred Keip, (262) 835-7714, [fredkeip@aol.com](mailto:fredkeip@aol.com)

**BACK ISSUES: Sonerai Newsletter** back issues are available in three forms. The first is a CD which contains all of the complete newsletters published by Ed Sterba from 1987 through 1995 in ".pdf" format. It costs \$40.00. The second is a CD which contains complete copies of all of the newsletters published from 1996 through 2007, also in ".pdf" format. The cost is \$50.00. If you buy both CD's, the package price is \$75.00. And finally, there are also hardcopy back issues. I have the last two issues from 1994, and all of the issues from 1995 thru 2007 (That's 54 issues!). Contact me for pricing, and I'll make you a deal. As usual, I accept cash,

check, money order, or PayPal for the correct amount. Postage is included. Fred Keip, (262) 835-7714, [fredkeip@aol.com](mailto:fredkeip@aol.com)

**SPECIALTY WELDING CAN SUPPLY YOUR COMPLETELY WELDED SONERAI FUSELAGE AND OTHER WELDED COMPONENTS.** Contact Greg Klemp at *Specialty Welding*, W6461 County YY, Neshkoro, WI 54960, (920)293-8089 or (920)293-8007 (Fax)

**RACEAIR DESIGNS IS AVAILABLE FOR YOUR FABRICATION AND RESTORATION NEEDS.** Contact Ed Fisher, (330)518-8383, [raceairdesigns@hotmail.com](mailto:raceairdesigns@hotmail.com). Over 30 years experience in dope, fabric, welding, and sheet metal. Numerous awards including 1991 and 2004 Oshkosh Grand Champion Ultralight. No job is too big or small. Need a fuselage welded? Give Ed a try!!

**FOR SALE: Sonerai ILLTS project.** Wings and ailerons complete except for mounting the wing tips and balance weights. \$3000 (current materials cost). Basic fuselage frame tack welded with remaining tube and sheet

materials, \$850. Will separately or as a package. Make offer. Dave Bubolz, 248-685-3114. (1/08)

**FREE:** Aluminum bar stock (mostly 2024-T351 from Sonerai landing gear), 1/2", 5/8", and 3/4" thick. Also, some nylon and high density polyurethane. Let me know what you need, and just pay the shipping. Fred Keip, [fredkeip@aol.com](mailto:fredkeip@aol.com), 262-835-7714 (1/08)

**FOR SALE:** Lycoming O-235-C1 engine, runout & disassembled, includes 2 Scintilla magnetos, carburetor, 1 set of std. Piston rings. \$2000. Ken Christian, 660-263-7937 (2/08)

**FOR SALE:** Sonerai ILLS single-place. 200 hr TT, 2180 w/dual electronic ignition, 40 amp alternator, starter, hyd. lifters, and new heads, Sterba prop, extra fuel tank, 5/8" landing gear, Monnett factory-welded fuselage, S-wings, Icom A-20 radio. See the July-Aug-Sept 2007 issue for photos. Asking \$8700. Doug Johnson, Topeka, KS, 785-246-0844 (4/08)



**Rick Tjulander's Sonerai ILLTS "in progress"**