

# SONERAI NEWSLETTER

JAN-FEB-MARCH 2004

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## **MIKE FROST'S SONERAI IILS**

*Mike's bright blue Sonerai IILS looks a little bit different than the average IILTS. That's because the nose holds a Jabiru 2200 4-cylinder 80 hp engine with the Jabiru-supplied firewall forward package and a Sensenich 56 x 50 propeller. Mike claims a top speed of 140 mph, and a cruise speed of 130 mph. It has folding wings, Cleveland wheels and brakes, a 5 gallon aux tank and weighs 608 lbs. Look inside for more photos, and see the ad in the back. It's for sale.*

## **LOOKING FORWARD TO 2004**

As I write this, it's the weekend after Christmas. It's typical southeastern Wisconsin winter. There's either too much snow and it's too cold, or it's warm enough to fly but that's because it's windier than all get out, so I don't fly. Today it was warm and windy, the rock-and-roll kind of windy. So, I'm looking forward to flying in better weather in 2004.

I know the Sonerai is ready to go. She got new cylinder heads last summer, and now she starts

without hesitation. And she continues to fly well. We all know that our airplanes can fly better than we can, so I just let her.

So, what's going to happen in 2004? Hopefully, a lot of good stuff. The first big thing, of course, will be Sun-N-Fun 2004. If you don't know it yet, Sun-N-Fun has been moved up a day, and now starts on Tuesday, April 13, and runs through Monday, April 19. (Last year it started on a Wednesday, and ended on a Tuesday.) I'm planning to be there, and have the Sonerai Builders Forum

scheduled for Tuesday at 9:00 AM in tent 9. I'm pondering taking the Sonerai down again, but we'll have to wait and see. You know, the weather and all that stuff.

In June, there's the Third Annual SAA Fly-In at Frasca Field in Urbana, IL on the 11<sup>th</sup>, 12<sup>th</sup>, and 13<sup>th</sup>. The Sport Aviation Association (SAA) is a real grassroots aviation organization founded by Paul Poberezny. The fly-in is for members only, and it's really a lot of fun. I may be giving a forum on Sonerai's and VW's while I'm there.

And, of course, at the end of July is Oshkosh AirVenture 2004. It runs from Tuesday, July 27, through Monday, August 2. I'm planning on the usual stuff: a forum, a picnic, and other things. It's never too soon to plan.

There are also a lot of regional fly-in's around the country. If you've got one within reasonable distance from you, go and participate. Take your Sonerai if it's flying. Get out there and show the rest of the aviation community what great little airplanes our Sonerai's are.

So, happy flying, and if your still building, keep working. You'll be flying soon.

## SONERAI NEWS

- Great Plains News: If you haven't received the latest copy of the **Beetle Flyer**, you might want to go to the Great Plains website and check it out. The new and revised engine assembly manual is now available, and they've got a sale thru January 16, including 10% off a bunch of Sonerai parts. Give them a call at 402-493-6507, or check it out at [www.gpasc.com](http://www.gpasc.com).
- Address Change: You'll notice a slightly different address on the front page. I haven't moved. It's just that the township government wanted to standardize the street names. West Six Mile Rd. and West Hwy G are the same road, and mail addressed to either name will still get to my house.
- First Flights: No new first flights to report this time. Be sure to drop me a line when you fly your airplane for the first time. A picture would be nice, too.
- Sonerai Wing Construction Manual: It is now available. There are 18 pages of text, 85 photographs, and 12 drawings, as well as a complete materials and a tools list. If you would like your own personal copy, sent me cash, check, or money order for \$25.00. Postage is included. (The manual is now

included with the plans, so you new plans holders already have it.)

- Back Issues: **Sonerai Newsletter** back issues are available in two forms. A 3-1/2" diskette which contains 210 of the newsletter articles published by Ed Sterba from 1987 through 1995 is available for a mere \$10.00. There are also hardcopy back issues for \$3.50 each. I have the last two issues from 1994, and all of the issues from 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, and 2003. If you want any of the above, send me a note requesting the ones you want and a check for the correct

## IT'S TIME TO RENEW

It's January again, and it's time to renew your subscription to the **Sonerai Newsletter**. Be sure to take a look at the mailing label on envelope this issue came in. If it says "PD 03" and you want to continue receiving this fine collection of wit and wisdom, please send me money. (If it says "04" or "05", you're OK.) The subscription rate is still \$14.00 (US funds) per year. So, make your check or money order (cash is acceptable, too) out to "Fred Keip" and send it before you forget. That way you won't miss a thing. And thanks again for your continued support.

## INPUT NEEDED

I know you get tired of me saying this, but I'm going to say it again: Please send me stuff that I can publish in this newsletter. Photos of your airplane, finished or not, are greatly appreciated, (I'm running out of good ones for the front page.) Articles are even more appreciated. You don't have to be a great writer, nor do you have to write lots of words. As your editor, I will correct any spelling errors and embellish where necessary, so you don't need to worry about that either. You can type them up on your computer, and send them on diskette, or via email. Or just hand write them, stick them in the snail mail, and I'll computerize them. Either way works for me.

Also, if you have any suggestions for technical articles for future issues let me know.

As an incentive, when you send an article and I publish it, you'll get the next year's subscription of the **Sonerai Newsletter** for free. For their contributions to the 2003 newsletters, I'd like to thank Jeff Lange, Tommy Warren, Al Bertelmann, Bob Barton, Bob Yonge, C.W. Crane, Dave Bilgri, Ivan Martinez, and Dave Wilcox for their input.

You guys will notice your subscriptions have been renewed.

## E-MAIL UPDATE #6

Here's a list of the e-mail addresses that I've been supplied to date. To help locate someone in your area, I've added the state abbreviation behind each name.

Gary Bailey..WA (IILS) gbail@adams.com  
Bob Barton GA (II) rabarton@mindspring.com  
Al Bertelmann FL (IIL) altonb@hotmail.com  
Dave Bilgri WI (IILTS) dbcpa@powerweb.net  
Wes Blake OR (IIL) blakew@web-ster.com  
Allen Bruggink WI (IL) allenb@hnet.net  
David Bubolz MI (IILTS) dabubolz@umich.edu  
Barry Burns TX (II) barryb@nts-online.net  
Wayne Byal IA waynebyal@peoplepc.com  
George Chapman MB (II) gechap@mb.sympatico.ca  
Jeff Conners NE jconners@cox.net  
Gene Cook TX gc98@juno.com  
C.W. Crane TX (IIL) cwcraze@gbronline.com  
Ken Crowley OH kencrow@1st.net  
Dean Dayton OH deandayton@hotmail.com  
Robert Dunleavy LA honestbobb@netscape.net  
James Feighny TX jfeighny@satx.rr.com  
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Barry Hall GA bahall@lg.com  
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Jim Hardy TX (I) jehardy@nortexinfo.net  
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Ted Hultzapple NY (IIL) thultzap@rochester.rr.com  
Mat Isa Sapar matisa@telekom.com.my  
Joe Jenkins IN (IIL) josaj@webtv.net  
Glenn Johnston TX (IILS) eaa187pilot@hotmail.com  
Tom Jones OH (IILS) tnt@us5.com  
Steve Kaurich LA (II) snakestr@beci.net  
Fred Keip WI (IIL) fredkeip@aol.com  
Anthony Krause IN (II) alskrause@go.com  
Kevin Landers OH (IIL) krlanders331@aol.com  
Jeff Lange WI (I) jeff@sonic-art.net  
Edward Larsen MI (IILS) eclarsen81@aol.com  
John Lundeen MD johnlundeen@netscape.net  
Theo Mattingly CA theo\_rm@aol.com  
Richard McClain OH (IILTS) rsmcclain@sssnet.com  
Steve Miller MA (IILS) stphnair@worldnet.att.net  
Paul Mombourquette NM (II) pmombo@technanogy.net  
Joe Moreno HI alohajoe@aol.com  
Jon Morris FL controlhorn@aol.com  
Vince Nicely TN (IILTS) vincenicely@intermediatn.net  
William Olsen KS whojo@webtv.net  
Chuck Orange ND (IILS) orange@wiktel.com  
Thomas Pekar ON thomaspekar@hotmail.com  
Jeffrey Penn FL jetajeff@aol.com  
George Perkins TX george\_p20@yahoo.com  
Jim Phillips WI (II) jom2@wi.rr.com  
Scott Plischke TX (IIL) scott@plischke.com  
Henry Povolny OH hankp@glasscity.net  
Roy Roberts TX (II) rgrob@techisp.com  
Dan Rudy PA f22clear@aol.com  
Chris Russell OH (IILTS) moichris@ecr.net  
Jim Sass TX jsass@flash.net  
Edward Schrom PA (IILS) eschrom@paoline.com  
Glenn Short TX (IILS) goshort@sbcglobal.net  
Peter Slevin (IILS) k.white@ecu.edu.au  
David Smith david@smithd13.fsnet.co.uk  
John Stewart (IILTS) beajayaero@iprimus.com.au

Ron Teubert IN (IIL) pyltron2rt@aol.com  
Mike Then OH (IILTS) sonerai@core.com  
Tom Warren GA (I) mtneat@hartemc.net  
Steve Weathers IN n6055a@worldnet.att.net  
Lance Wells UT (II) lwellsbunch@hanksville.com  
Dave Wilcox AZ (IILS) david.e.wilcox@honeywell.com  
Ron Wright IL (IIL) sonerairon1@netzero.com  
Robert Yonge FL (II) goosechrt@aol.com  
Gary Zahn WI (IILT) gzahnz@netscape.net

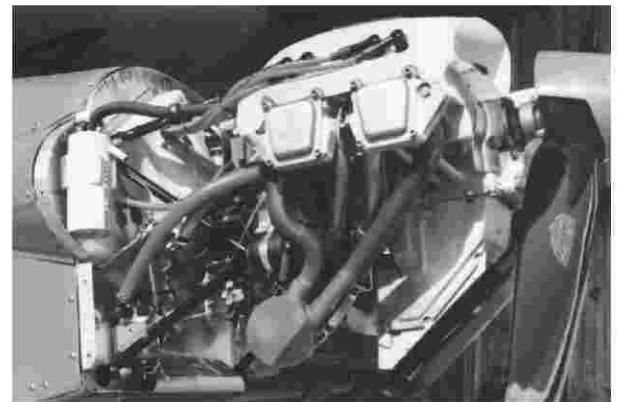
If your address isn't here, or has changed, and you'd like me to add it or fix it, send me an email.

## MIKE FROST'S SONERAI IILS IN PICTURES

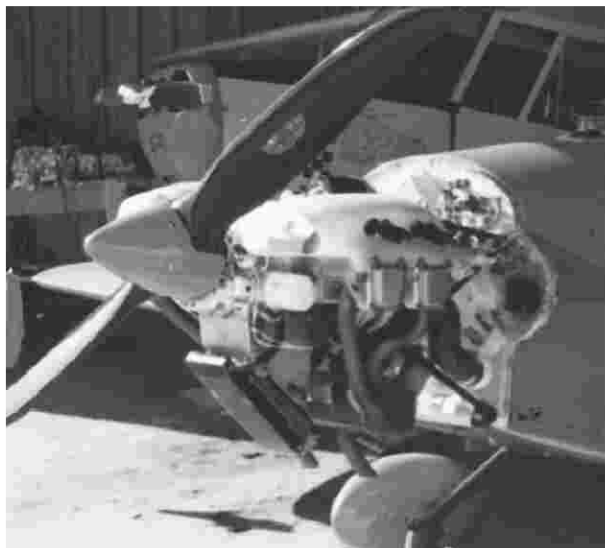
In addition to the front page photo, Mike sent in several photos of his completed Sonerai IILS, and here they are:



This RH front view gives another view of the overall lines of the airplane. The lighter weight of the Jabiru engine requires that it be mounted on an engine mount that pushes it further forward than the VW. This results in the longer nose.



The RH view of the Jabiru 2200 shows the engine mount, and how compact the engine installation is. Note the complete exhaust system, and the standard Jabiru fiberglass baffles. Also note that the forward fuselage up to the firewall is covered in aluminum.



The LH front view of the engine shows the integral oil filter, and the location of the oil cooler in front of the oil sump.



This view of the cockpit looking forward shows several interesting goodies. The first is the toe brakes on the rear rudder pedals. The second is electrical system control module on the RH side of the rear cockpit that contains all the switches and circuit breakers. Also note the neat layout of the instrument panel and the canopy support.



The rear view of the cockpit shows the 5 gallon auxiliary fuel tank mounted behind the pilot, and some nice detail of the seat cushions.

Congratulations to Mike for building and flying another nice Sonerai ILS. We're finally starting to see a good number of "Stretch" airplanes finished and flying.

#### **CYLINDER HEAD TESTER** by Mark Elyea

As we VW flyers know, we must remove our cylinder heads often (perhaps too often) to lap in the valves due to compression loss. This loss is caused by stuff(?), rust(?), unburned lead deposits(?) on the exhaust valve seats. I suppose we could fill this issue at least debating the cause of these deposits. So, suffice it to say, these deposits must be removed to restore compression.

The only thing worse than going through all this work, is to get the heads back on the engine, and find out that you still didn't get the problem fixed. Yes, I've done that. Not wanting to go through that process again, I dreamed up a way to check the compression with the heads off the engine.

I built a simulated cylinder from a 3" PVC plastic pipe cap (it's actually 3-1/2" ID). The OD must be turned down a little to in a lathe to fit into the 92mm cylinder bore in the head (Figure 1).

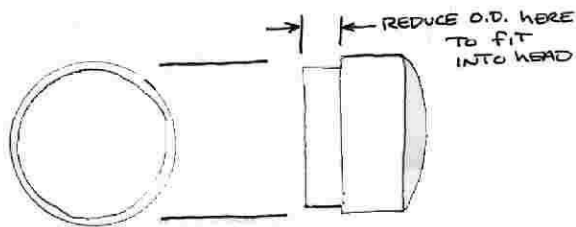


Figure 1

I cut a rubber gasket from an auto inner tube to provide a seal (Photo 1).

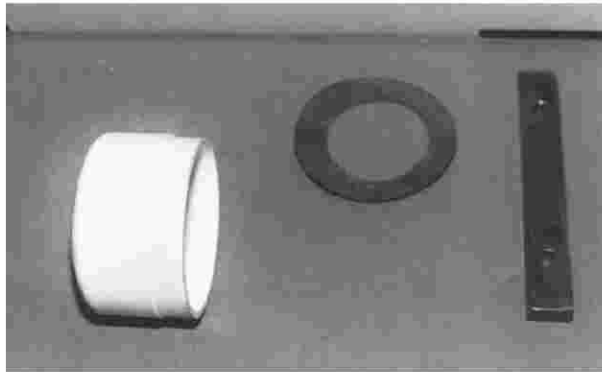


Photo 1

The cap and seal are clamped to the cylinder with a piece of 1/2" x 1" steel bar stock, held in place with 3/8" ready bolts (Photo 2).

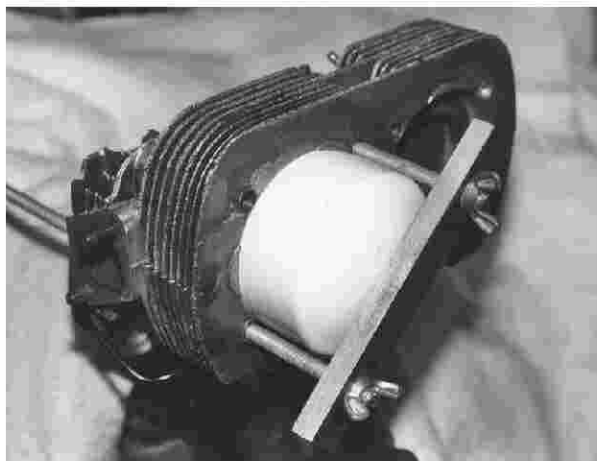


Photo 2

A differential compression tester is used to check the compression. Photos 3 and 4 show my handmade valve spring compressor and other tools.

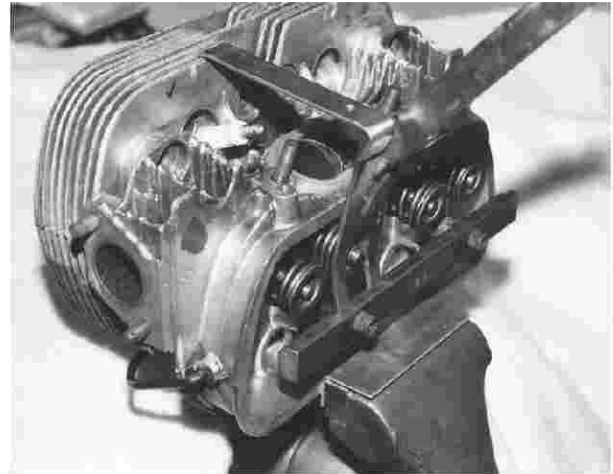


Photo 3

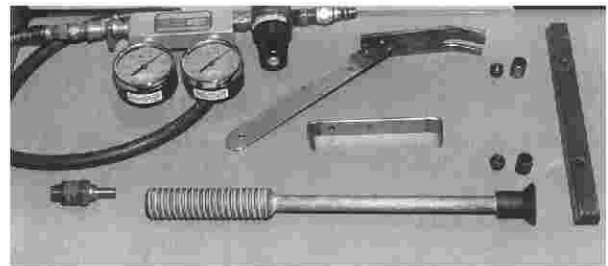


Photo 4

I have a Sonerai IIL that I built. Plans #1650, finished in '91. I've flown it to Sun-N-Fun '92, '93, '94, and '95, and Oshkosh '92 and '94. It has 250 hours now.

Mark Elyea  
Marengo, IL

## A SIMPLE ENGINE PREHEATER

One of the operational considerations that those of us in the northern half of the country have to deal with at this time of the year is *engine preheat*. When the temperatures get down to freezing and below, it is strongly recommended that we preheat our engines to make the starting process easier on the engine's internals.

To preheat our engines, it is necessary to get heat, in some form, into the cowling to bring the overall engine temperature, and particularly the oil, up to an acceptable starting temperature. This can be done in a number of ways. You can spend a bunch of money on one of the commercially available, propane fired heaters. Or, a kerosene-fired torpedo heater can be modified to duct hot air into the cowling. Of course, both of these use an open flame for a heat source, which I'm not too



excited about. Then there's the other extreme: a couple of hair dryers stuck into the cowling inlets.

Another alternative is the set-up shown in the two attached photos. I've used this unit for a number of years, it works very well, and it's cheap. The original idea is not mine. I saw it published in **Sport Aviation** a number of years ago.

The unit consists of a 1500 watt "Titan" heater (\$12.00 in [www.northerntool.com](http://www.northerntool.com)) with standard 6" galvanized sheet metal heating duct components. A 6" mounting flange is attached to the heater outlet with sheet metal screws. A 6" 90° elbow, a length of 6" ducting, and duct-to-register adapter are then attached. The adapter must be cut down and reshaped to fit in the cowling outlet. Everything is connected with sheet metal screws and duct tape.



Engine Preheater

To use it, you simply set the unit on the floor with the adapter inserted into the cowling outlet as shown, plug it in, and turn the control knob to the max setting. Then go to the FBO office and have a cup of coffee for 30 to 45 minutes. When you come back, the air in the cowling will be around 80°F, the intake manifold will be nice and warm, and the airplane will be ready to fly. I've found that

the cowling gets warm enough that I often have to use my "hot start" techniques to get the engine running.



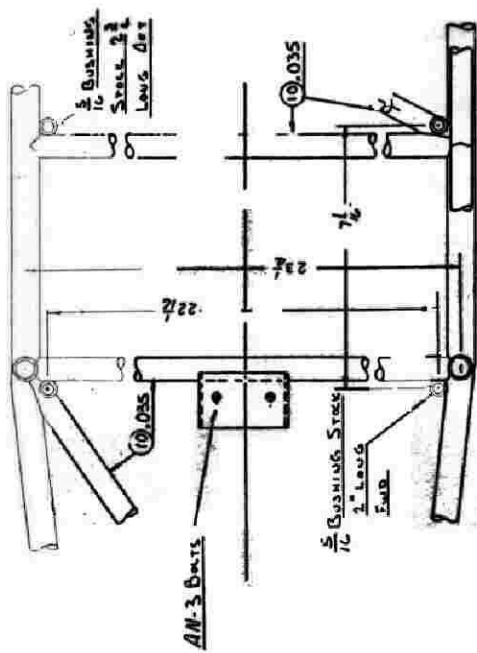
Preheater Assembly

## ALTERNATIVE LANDING GEAR ATTACHMENT

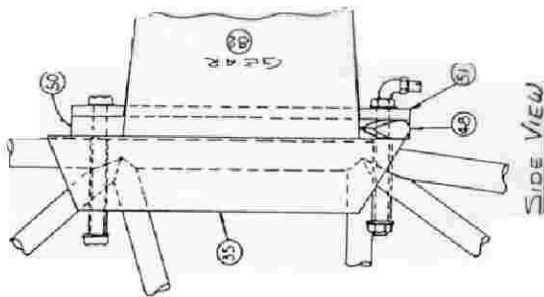
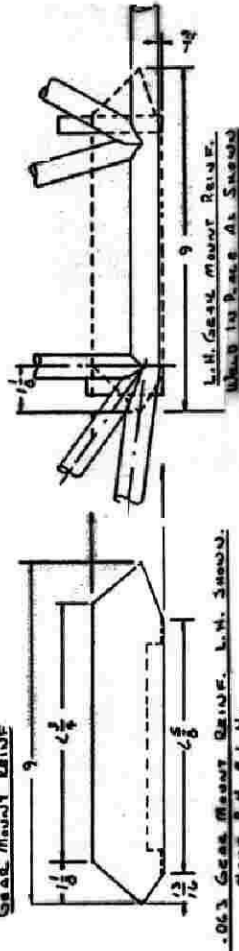
When the "T" (tricycle) version of the Sonerai III was developed, it was found that the standard strap-type attachment for the main gear would not work because there was no place to weld the front mount bushings. The wing spar carry-thru box was in the way. So, the main gear was attached with bolts passing through the landing gear leg.

When the "S" (stretched) version was designed, this method was carried over, and it was used on the tricycle version and the tailwheel version. Several of you have questioned the wisdom of the design, given that severe flexing of the gear legs imparts a bending load on the bolts.

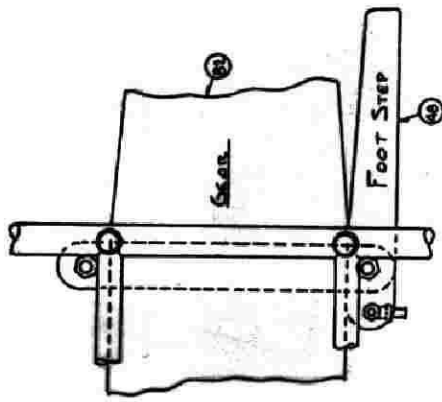
Well there's not much that can be done on the tricycle airplanes, but the original II strap attachment can be used on the LS. All the information you need is on the following page.



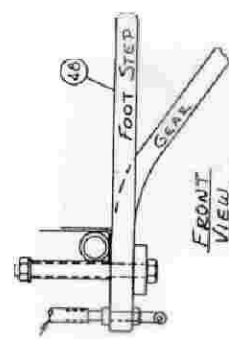
SECTION THRU  
GEAR MOUNT RELAY



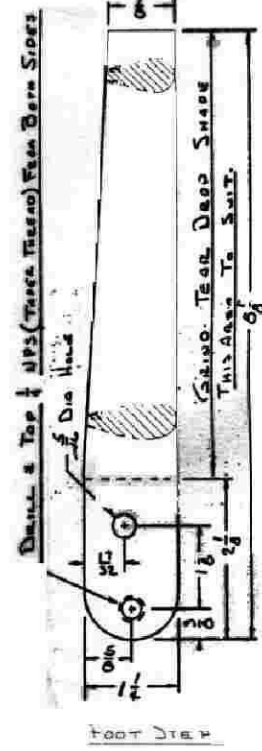
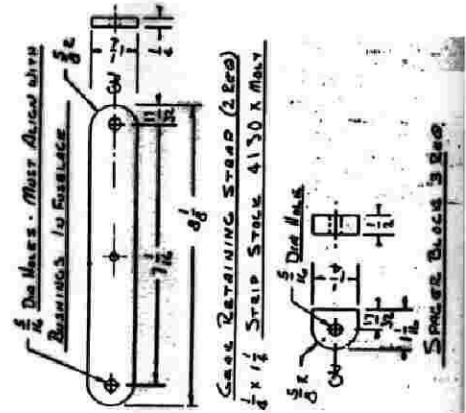
SIDE VIEW



TOP VIEW L.H. GEAR MOUNT



FRONT VIEW



## DIRECTORY 2003

| ISSUE   | TITLE                                    | SUBJECT     |  |
|---------|--|-------------|--|
| JFM '03 | Is It 2003 Already?                      | Misc        | AMJ '03 Keeping Your Belly Clean Engine                  |
| JFM '03 | It's Renewal Time                        | Misc        | AMJ '03 HAPI UltraCarb Critical Maint. Issue Engine      |
| JFM '03 | Help Wanted                              | Misc        | JAS '03 Oshkosh is Coming Oshkosh                        |
| JFM '03 | Directory 2002                           | Misc        | JAS '03 First Flights A/C Report                         |
| JFM '03 | Thinking About Sun-N-Fun                 | Sun-N-Fun   | JAS '03 Sun'N'Fun 2003 Report/Bertelmann Sun-N-Fun       |
| JFM '03 | E-mail Update #5                         | Misc        | JAS '03 Sonerai Restored/Yonge A/C Report                |
| JFM '03 | The 1 <sup>st</sup> Annual SAA Fly-In    | Travel      | JAS '03 Sonerai?/ Norris Commentary                      |
| JFM '03 | Temperature Gauge Operation              | Instruments | JAS '03 A Comment on Canopy Latches/Bilgri Canopy        |
| JFM '03 | From the Archives (Rivets & Bolt Torque) | Wings       | JAS '03 From the Archives (Seat Mod) Fuselage            |
| JFM '03 | How to Test Your Airspeed Indicator      | Instruments | JAS '03 TAS Determination Using GPS/Crane Test           |
| JFM '03 | Elevator Push-Pull Alternative           | Controls    | OND '03 Summer with the Sonerai Travel                   |
| AMJ '03 | Ah, Springtime...                        | Sun-N-Fun   | OND '03 Ray Burgner's Crash Commentary                   |
| AMJ '03 | First Flight Report/Martinez             | A/C Report  | OND '03 Spark Plug Noise Engine                          |
| AMJ '03 | Jeff's First Flight/Lange                | A/C Report  | OND '03 Rudder Cable Installation Details Controls       |
| AMJ '03 | Another Oil Story/Warren                 | Engine      | OND '03 Reserve Fuel Tank Installation/Martinez Fuel Sys |
|         |  |             | OND '03 How Did He Do That?/Barton Tall Tales            |

## 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.*

**TAPER PIN REAMERS FOR FREE LOAN.** Brown & Sharp #3 and #5 for AN386-3 and AN386-5 taper pins. \$150 deposit, shipping one way ~ \$5. Free loan for 14 days, \$2 per day after that. David E. Wilcox, 517 E. Saratoga St., Gilbert AZ 85296.

**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)

For Sale: #68 Zenith Carb, \$75; Monnett X-casting, \$50; Monnett SuperVee prop extension ass'y, \$150; Monnett single-port intake manifold, \$50; Aero-Vee valve covers, \$25; 2" steel prop hub & plate, \$25. Jim Meier, (608)255-6773 between 8am & 5pm, or (608)849-9499 after 5pm (3/02)

For Sale: Sonerai II mid-wing, only needs paint and assembly, 1835 with dual ignition (Slick mag and Bosch 009). \$5000 OBO or trade. Greg Buckley, (559)226-5992, [gibflyfun@cs.com](mailto:gibflyfun@cs.com) (1/03)

For Sale: Sonerai II wing components. One kit w/front and rear spars, ailerons, cap strips, and hinges, \$650. One kit same as above except w/o rear spars. Two sets of 18 ribs, \$400 each. One set of 16 Quality ribs, \$450. Or everything for \$2000. South suburb of Chicago. L. Edwin Langeland, (708)389-6637 after 6 PM. (3/03)

For Sale: Turbo Revmaster engine, 94mm pistons, Warnke prop, 180hrs tt. \$4500 OBO. Kris Kampe (603)367-4322, [kampe1@earthlink.net](mailto:kampe1@earthlink.net) (4/03)

For Sale: B.J. Schramm "Rotorway" 100 hp engine. It is a flat, 4 cylinder, liquid-cooled engine, only factory run-in time. Pickled. Complete w/ Slick Mags, carb, etc. I am presently flying one on my Sonerai. \$2500. Fred Ninneman, (816)353-1161 (4/03)

For Sale: Sonerai IIL, TT 294 hrs, TSTO 170 hrs, 1834 VW 60hp @ 3400, A&P owned, always hangared, Annual due 3/31/04. \$10,900 obo. Ken Christian, (660)263-7937 (1/04)



For Sale: Sonerai IL, 98% complete. Built as low-wing using Sonerai IIL plans as a guide. 1835 VW w/ SuperVee prop hub, oil cooler, & HAPI UltraCarb, Sterba prop. This airplane was 1-2 months from completion when the original builder was killed in a motorcycle accident. Current owner doesn't have the time to finish. \$4,500. Allen Bruggink, (262)335-6459, [allenb@hnet.net](mailto:allenb@hnet.net) (1/04)



For Sale: Sonerai IIL, parting out complete, flying aircraft. 250 hrs TT.

Hangared since built in '91, Poplar Grove, IL. Featured March '95 Experimenter magazine. Wings: "S" mod, filled rivets, fold mechanism, ailerons, spar carry-thrus alodine and chromated prior to ass'y, ready to fly. \$5,000  
Fuselage: Elliptical tail, elliptical F-glass turtledeck, 70" pilot w/ headset fits well, jackscrew stabilizer trim, instruments, cowl, spinner, wheelpants, complete ready to fly. \$5,500  
Engine: 1835 HAPI, 20 hrs since TEC prop hub, single Slick, POSA w/ mixture, carb heat, alternator, s.s. exhaust, prop. \$2,500  
Or \$12,000 for all, no papers. Mark Elyea, (815)568-6836 (1/04)

For Sale: Sonerai IILS, N2533Z, Jabiru 2200 (80 hp/2000 TBO), 60 hrs TT engine/airframe, expertly crafted by experienced builder, custom Sensesich prop, Cleveland wheels/brakes, 15 gal. fuel, Odyssey battery, folding wings(trailerable), flies perfect/hands off, bought L-16...must sell one, \$20,000 firm, Mike Frost (941)729-1050. (1/04)

For Sale: John Monnett's prototype Sonerai IIL, approx 500 hrs TT, good condition, always hangared, engine runs well but probably needs a teardown inspection before flight, needs new tires to fly. \$6,000. Bobby Webb, (662)429-4273 (1/04)