Several different models of the Sonerai were available, such as single seater, mid-wing, low wing, etc. My model version of the Sonerai II was drawn to the scale of 1:8 that yields a model with the span 29⅜" and the total weight of only 30½ ounces.

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 are 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.

The amount of materials needed to complete the model are minimal, I built mine from the pieces in my scrap box! I suggest that you start first by making a "kit," cutting out all the fuselage formers and wing ribs. Note

The full scale Sonerai II is an experimental aircraft designed by John Monett (formerly Monett Aircraft Inc.). Numerous aircraft were built from his full scale kits, and many examples may be seen each year at the giant EAA convention in Oshkosh, Wisconsin, which is also the site where the Monett Aircraft Company was located. The aircraft is a two place tandem seater and it is designed to be powered by converted VW engines that are very popular power plants for use in homebuilts.

SONERAI II

1/8 sport scale model of a popular homebuilt.

By Bertil Klintbom

that F2A is built up from two pieces of plywood.

Fuselage:

Cut out the fuselage sides up to the centerline from 1/16" balsa sheet using light balsa. Mark out the correct places for the formers and glue them to the fuselage sides.

Align the center of the formers to a straight line drawn on your building board to ensure that the fuselage will be built straight and symmetrical. Add the 3/16" square balsa pieces and the reinforcements in the fuel tank compartment.

Glue the rear of the fuselage together and add former. Next, glue the tail group pieces in place making sure that everything is properly aligned before you leave it to dry. Note

that the rudder has a 1/8" plywood reinforcement where the music wire tail wheel piece goes into it. Continue with the remaining balsa planking and the balsa fillers for the fin.

Wing:

The wing is of conventionally built-up construction with 18 ribs cut from 1/16" balsa (medium hard). Start by gluing the ribs to the leading edge and to the wing spars and the 3/16" x 1/4" that serves as the trailing edge.

The center section is built up by using formers F1B and F2A.

Test fit your aileron servo now to make sure that it can be easily installed when you have completed the wing. The ailerons should be formed as shown on the plan sheet. Make sure you have a good fit so that the air leakage through the hinge line will be minimal. Use three hinges for each aileron and secure them with wood (toothpick) pegs after covering.

The aileron linkage is hidden inside the wing and uses conventional mini bellcranks.

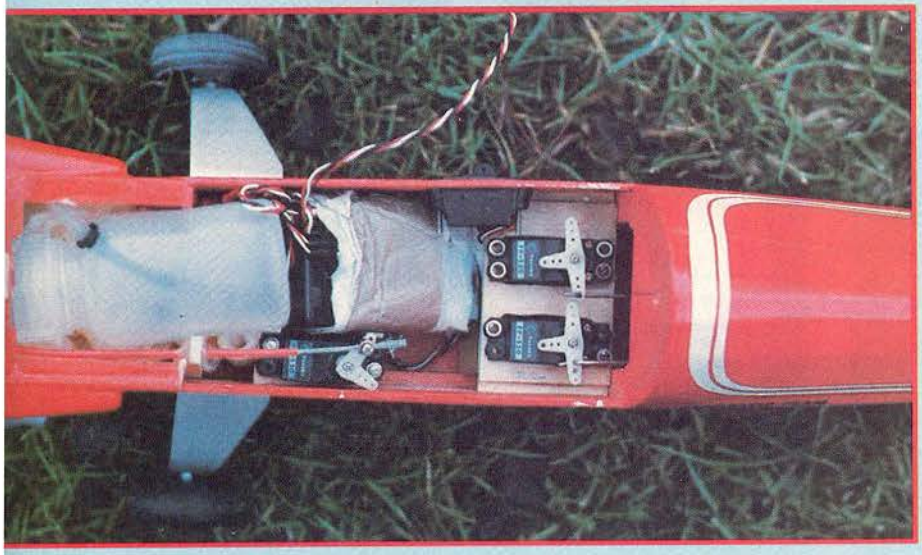
Now complete the wing with the planking and the capstrips. The planking is easily bent by first moistening the outside. It will then bend by itself to form the proper contour. Test fit the wing to the fuselage and attach it with a metal screw at the front. Measure the incidence angle or angle of attack; it should be 0 degrees.

Landing Gear:

A conventional aluminum gear is shown on the plan sheet, but one made up from music wire could be used as well. Mount the landing gear to the plywood plate in the fuselage with two nylon bolts.

Engine Cowling:

The plans show the outlines for a glass fiber cowling made the following way:



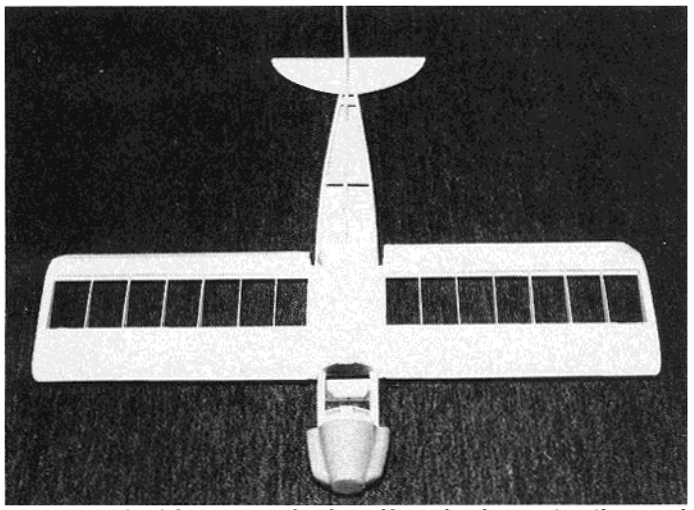
1. Glue a piece of styrofoam to Former F1 and shape it using a knife and sandpaper; form using small cuts.
2. Paint the formed plug with urethane paint, use at least four coats, sanding between each coat. Continue until the surface is perfect!
3. Now remove the plug from F1 and give it a good coat of car wax, and polish it to a nice smooth surface.
4. Put the plug on a sheet of glass and cover it with a mixture of plaster of Paris. The plaster should be at least 3/8" thick at the thinnest point. Let it dry for at least 24 hours before you pull out the styrofoam plug.
5. Let your form dry for a few more days before you give it a fairly thick finish coat of wax, and then polish it to a high sheen, using lots of wax!
6. Now fabricate the cowling from polyester or epoxy resin and fiberglass cloth. Use approximately two layers of lightweight fiberglass cloth.
7. Let dry thoroughly and then remove the cowling with a piece of plastic, then trim the edges and cut out the holes necessary for the engine. Small dents can be filled up with epoxy and micro-balloons. Save the plaster form, as it can be rewaxed and used for making additional cowlings.
8. Attach the cowling to the fuselage with small wood screws.

SONERAI II

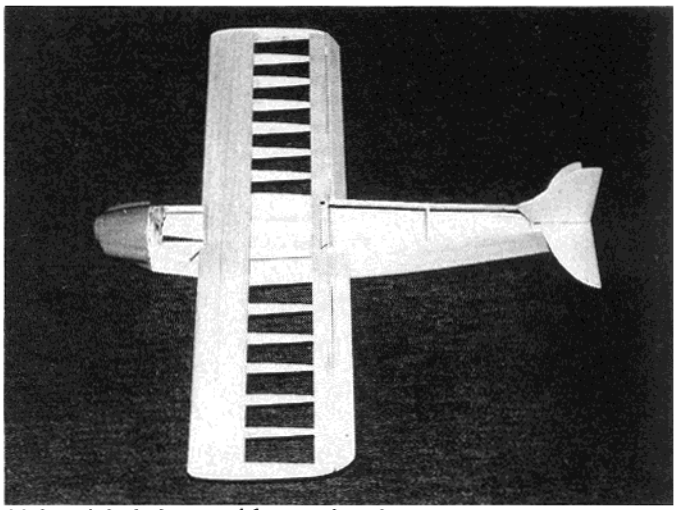
Designed By:
Bertil Klintbom
TYPE AIRCRAFT
Sport Scale
WINGSPAN
29⅜ Inches
WING CHORD
7¾ Inches
TOTAL WING AREA
225 Sq. In. (Appx.)
WING LOCATION
Shoulder Wing
AIRFOIL
Symmetrical (2412)
WING PLANFORM
Constant Chord
DIHEDRAL EACH TIP
None
OVERALL FUSELAGE LENGTH
28½ Inches
RADIO COMPARTMENT SIZE
(L) 6.0" x (W) 2½" x (H) 2.0"
STABILIZER SPAN
11⅝ Inches
STABILIZER CHORD (incl. elev.)
4¾ Inches (Avg.)
STABILIZER AREA
55 Sq. In. (Appx.)
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Center of Fuselage
VERTICAL FIN HEIGHT
4.0 Inches
VERTICAL FIN WIDTH (incl. rud.)
5.0 Inches (Avg.)
REC. ENGINE SIZE
.051-.10
FUEL TANK SIZE
2-3 Oz.
LANDING GEAR
Conventional
REC. NO. OF CHANNELS
4
CONTROL FUNCTIONS
Rud., Elev., Throt., Ail.

BASIC MATERIALS USED IN CONSTRUCTION

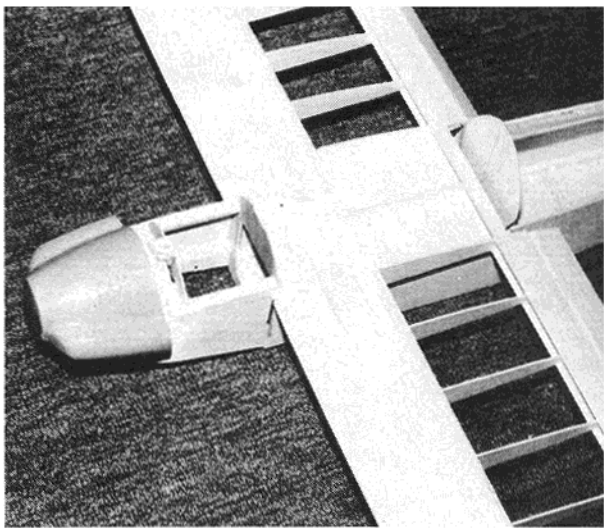
Fuselage	Balsa, Ply
Wing	Balsa
Empennage	Balsa
Wt. Ready To Fly	26½-28 Oz.
Wing Loading	16.9-17.9 Oz./Sq. Ft.



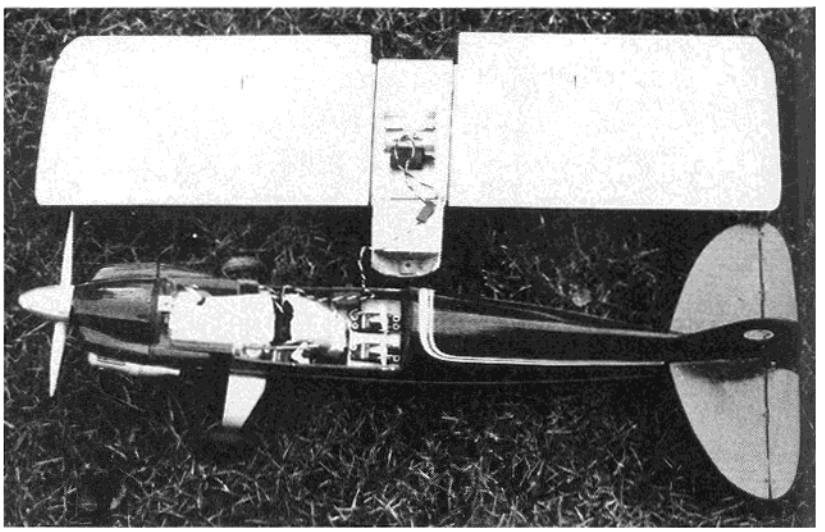
The basic airframe parts in place. Very simple construction used throughout.



Lightweight balsa used for most parts.



Styrofoam plug used to make mold for fiberglass cowling.



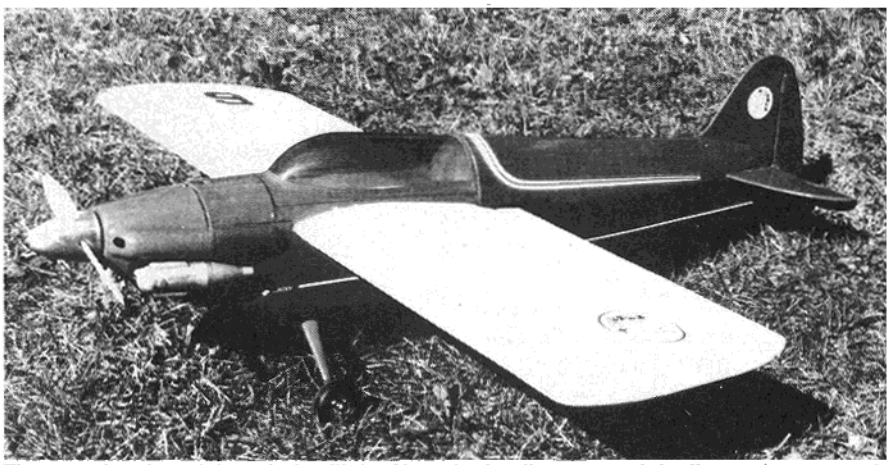
Plenty of room for radio equipment if new micro-size gear is used. Note that canopy/hatch is part of wing assembly.

Canopy:

My canopy was vacuum formed over a wood master plug. The forming equipment that I used was homemade, and utilized an oven and an ordinary vacuum cleaner as vacuum pump. It worked nicely. A commercial canopy or a piece of butyrate plastic could also be used.

Engine:

The engine was mounted inverted with the cylinder pointing downwards and the muffler is then hidden under the cheek cowl. Any good engine between .051-.10 would do fine. I used an O.S. FSR .10 in my Sonerai II. The amount of side thrust required depends upon your engine choice, but



The completed model ready for flight. Note the landing gear originally used. It was not sufficiently rigid and was replaced with the conventional aluminum gear shown on plans.

Author's 6 year old daughter Maria, with Sonerai after its first flight.

an O.S. .10 FSR needs 2 degrees of right thrust.

Radio Gear:

My model was designed for use with 4 channels, but you could choose to not use the rudder control and guide it with only three channels. Although it is a small model, the radio compartment in the fuselage is not cramped. I use Futaba mini-servos, an old standard receiver, and a 500 mAh battery pack. The layout for the components as shown on the plan sheet, shows Airtronics radio components and a smaller size battery pack.

Covering:

Any film covering will do, so go with your favorite brand. I used Solartex and acrylic paint on my Sonerai. Micafilm would be considerably lighter.

Flying:

First check the C.G. and adjust with the NiCd pack if necessary. Do not use more control movements than recommended on the plan sheet. Also check your radio equipment. The engine is easily started with the model turned upside down to prevent the glow plug from getting too wet with fuel. I prefer to make take-offs from the ground, but you could of course hand launch the Sonerai if you prefer.

If you make take-offs from the ground you will have to hold in a small amount of right rudder during the take-off, but it is not excessive and take-offs are easily managed. The Sonerai will become airborne with the input of a small amount of up elevator.

Please remember that this model flies fast and is aerobatic. Big control stick movements will produce fast maneuvers. When you have gained some height and made trim changes as necessary, you can try out the model's aerobatic abilities with rolls, loops, Immelmanns, and so on. To spin, you may have to move the C.G. slightly back from the point shown on the plans.

On landings, the model will flare out nicely and slow speed three point landings are easily performed. In fact, the model is very easy to fly and quite aerobatic for the advanced pilot. Make any necessary adjustments after the first flight if needed, and then refuel and head for the open sky again.

Happy landings! □

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