

# mini MISS AMERICA

By BOB STALICK . . . During the Northwest's long winter rainy season, the old timer modelers are turning to a new expression of their favorite pastime, rubber powered scale models of the great oldies!

• When the winters sock in the Northwest, and the rains come pouring down . . . thoughts turn to building and flying indoor models, or just building and dreaming outdoor models. Since the rains do pour from early November through June, that does give quite a bit of building time, and flying time, too. Especially if the flying is done indoors.

For the Old Timer flier, there isn't much to do, except build another winter project for the coming summer . . . that is until now, there isn't much to do. The Willamette Modelers Club has sponsored for two years now, an indoor old timer's scale event, and the Miss America presented here is the first model built to these rules. With flights over a half-minute indoors, it comes close to rivaling the Peanut Scale ships in duration, and its appeal is obvious to old timer and your flier alike. Everyone likes to see the Miss America fly.

A gentle roll along the gym floor and feet later, the tail lifts . . . another foot and the model lifts from the floor and climbs in a lazy left circle, until the power runs out, then it cruises down to a 3-point landing. Sound appealing? It is. The WMC rules for Indoor Old Timer Scale are really quite simple, too:

1. The model will be built to conform to the same categories as established by S.A.M. for Old Timer and Antique events.

2. The model must be scaled down from the original, maintaining similar structural type, airfoils, moment arms, dihedral, etc.

3. The model must be rubber powered.

4. The model must have a wingspan which doesn't exceed 24 inches projected.

5. The model must be tissue covered. No condenser paper or similar covering permitted.

6. No folding propellers will be allowed.

7. The model must R.O.G. The landing gear may be modified to allow for increase in propeller diameter.

8. The model will be judged on fidelity to original plan. Proof of scale rests with the contestant. All areas except landing gear length and engine compartment will be considered in judging.

10. All flights will be judged on duration. Six attempts to make one official flight.

11. An official flight is one which is airborne for 5 or more seconds.

## CONSTRUCTION

The Miss America builds much like a

Peanut Scale ship, and if you've been reading Walt Mooney's articles, this model should prove of little difficulty. Some points are in order, however.

All of the materials used in construction can be purchased at any good hobby shop. The 1/64 sheet balsa called for is simply light-weight 1/32 sheet sanded down to 1/64 (or so). Choose light-weight wood for all parts, including longerons.

Cover the model with lightweight tissue, dyed to color. The original used superfine tissue, which is not generally available any longer. Peck-Polymers and Micro-X Indoor Supplies do carry some very good lightweight tissue, however.

The wing construction is conventional. Cut out ribs, leading edges, trailing edges, etc. and glue into place. I used Hot Stuff exclusively. You will need to sand the tip ribs to shape. Maintain the same high point on the rib and fair them down to a pleasing curve. Sand only the top camber. The leading edge sheeting covers both the top and bottom of the wing leading edge. It is glued into place using Hot-Stuff. Wash in the left wing tip when you put in the dihedral angle. It should be raised about 1/8 inch at the leading edge. Add the wing spar last.

The fin and stab construction is conventional also. The fin and stab have no airfoil, so the "ribs" are simply 1/32 x 1/16 strips glued in place. The stab sheeting on the leading edge is also on the top and bottom. Hot-Stuff in place and sand the structure to shape. The fin and stab ribs must be sanded flush, so that no bumps or humps appear when covered.

Use light-weight wet-or-dry paper (320 grit), used dry, to sand the wing, fin, and stab.

Construct the fuselage next. It is typical in construction. Build one side of the model directly over the plans. When completed, build the other side directly over the first (to minimize differences). Place Saran Wrap or equivalent over the first side before building the second. Place the two fuselage sides over the top view of the fuselage shown on the plans and glue the spacers in place. Maintain a balanced curve to the fuselage so that it will be lined up with no funny bulges or skews along the way. When the fuselage framework is finished, cut two sheets of 1/64 balsa to shape and cover the entire front of the fuselage where indicated. Glue directly over the framework using Hot-

Stuff. Wrap the 1/64 sheet over the front of the fuselage on top of bulkheads A, and over the 1/16 sheet engine compartment cheeks. Cover the bottom of the fuselage back to the rear landing gear location with 1/32 sheet. Glue a piece of hard 1/8 balsa sheet to the nose area. Install the 1/16 sheet platform between front bulkhead A and the 1/8 nose block. Sand the fuselage thoroughly.

Dying the tissue: Build a frame from 1/4 square balsa or spruce. The frame should be large enough to cover the complete piece of tissue you plan to dye. Tape the tissue to the frame, and using a "Windex" type bottle, mix up some food color and water in the color you plan to use. The original color scheme of the Miss America was followed. Mix the food color so that the color is very dark. Spray the tissue on the frame. Set aside to dry. You may need to spray it again to get a deep color. The paper will shrink on the frame and will not cause undue warpage on your model if this procedure is followed.

Cover the wing and the stab with red tissue, using the thinned-out white glue method suggested by Walt Mooney. Adhere the tissue only at the leading and trailing edges, tips and dihedral breaks. Cover the complete fin with blue tissue. Cover the complete fuselage with blue tissue. When all parts are covered, put some water in the steam iron and get it steaming. Pass the covered parts over the steam so that the tissue just begins to look slack. Set aside to dry. When dry, glue the fin in place with no offset . . . use Hot-Stuff.

Cut a slot in the fuselage tissue behind the motor pet where indicated on the plan. Slide the stab in place. Be sure that the incidence angle shown on the plan is followed when gluing the stab in place. Use Hot Stuff, again.

Install all 1/16 diameter aluminum tubing. The wing hold-downs are adhered in place using Hot Stuff. The rubber peg at the rear of the fuselage should be a snug fit, but should be removable.

Landing gear: The front landing gear is bent to shape from 1/32 music wire. It is the only piece that has a mounting leg for the wheels. The spreader bar is also bent to shape using round-nose pliers to get the neat coil. The rear gear is bent to shape next. Now, here comes the fun part:

1. Using Hot Stuff, glue the front landing gear wire in place to the bottom of the fuselage where indicated on the

plan.

2. Next, glue the rear wire in place where indicated. Be certain that the two pieces come together at the wheel leg. Hot stuff this joint.

3. Install the spreader bar, using Hot Stuff.

Although it doesn't appear necessary, if you are squeamish about the Hot Stuff joints on the wire, you may very lightly solder this joint. The wheels are held in place by punching out a 1/8 inch diameter piece of celluloid and poking a pin hole through the middle, then sliding this onto the wire leg. Hot Stuff it in place. Slide the Williams Brothers Wheel in place and put another 1/8 inch celluloid disk in place. Hot Stuff, carefully, to keep from locking the wheel to the wire leg. The tail wheel is just a piece of balsa sheet cut to a circle and glued to a piece of 1/32 wire which is Hot Stuffed to the fuselage rear.

Now, all that remains is that neat "Miss America" emblem and prop assembly.

First the emblem.

Using the finest light-weight white tissue you can find, tape it directly over the drawing of the emblem. Using colored pens, outline the entire emblem in black ink — very fine lines are needed. Follow the color scheme listed on the plans and fill in the remaining colors.

Remove the tissue from the drawing and make a second copy just as the first. Cut, very carefully, around the outline of the emblem, leaving about 1/8 inch

of white tissue around the perimeter. Place the emblem on the fuselage of the model and using thinned-down Sig Lite-Cote dope, very gently brush over the entire emblem . . . once. The emblem will adhere nicely and you won't be able to see the white border unless you look very closely.

Apply the black tissue trim strip in the same manner as you did the emblem.

Now, the prop assembly.

The original model used a carved balsa prop. The prop blank is shown. No part of the blade should be over 1/32 thick, except the hub area. You may want to use a commercial plastic prop. and if so, be sure it is at least 5 inches in diameter. Performance with a plastic prop will not be as good, but it can do the job, if you have bad feelings about carving your own.

A Peck-Polymers nose button can be used, or you may do what I did. I made a nose button from a piece of 1/8 inch balsa, using a piece of 1/64 plywood to cover the front of the "engine compartment." See sketch.

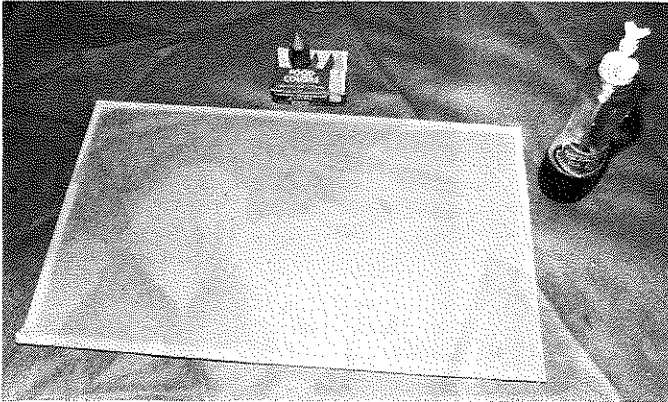
Although it isn't needed in the rules, I felt that it would add a touch of realism if I constructed a "model" engine. So, using a Williams Brothers cylinder, I made up a scale Brown Junior complete with spark plug. The whole thing is very easy, and does add to the appearance, I believe. The spark plug is made up of a short piece of 1/16 diameter aluminum tubing glued (Hot Stuff, of course) into a 1/8 long piece of 3/32 diameter aluminum tubing. The top of the plug

is a small straight pin head. The 1/16 tubing is painted white and the large tubing and the pin head are painted black. The engine compartment, engine, and nose plug are painted dull black, with silver added for effect. The windshield is glued into place using Hot Stuff. Glue the front (curved) piece in first. A pattern for this piece is provided. Individual models will differ slightly, so use the pattern provided as a starting point. The side windows are glued on in one piece.

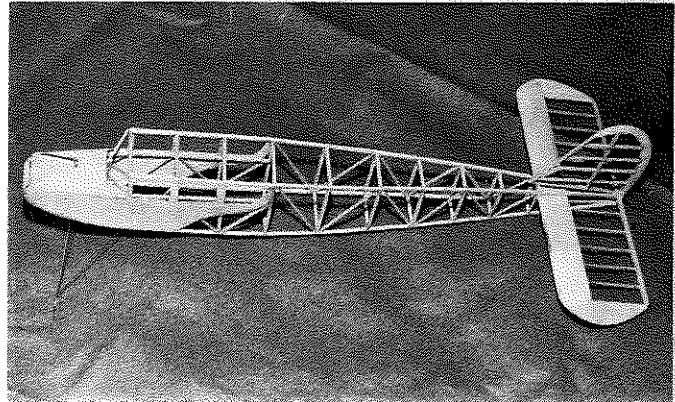
Flying: Balance the model where indicated . . . no further back! Add weight to the nose if necessary to get proper balance. Install the 3/32 rubber motor and wind in about 350 to 400 turns. Place the model on the gym floor and release. It should taxi and begin to rise off the ground. If it stalls, add left thrust (3 degrees was needed on the original). Wind again and launch again. The model should turn to the left under power and climb steadily in about 40 ft. circles. If it stalls under power, either increase the power or shim up the trailing edge of the wing to get a good pattern.

I hope you enjoy flying your Old Timer Scale Rubber Powered Miss America as well as I enjoy mine.

Now, let's see . . . there are some other neat Old Timers that would make Indoor Scale subjects . . . how about the Red Zephyr or the Flying Quaker . . . hmmm!



Tissue on frame for dying with dense, sprayed food color. A second spraying may be needed to get desired color. Spruce 1/4 sq. frame.



Basic frame structure follows construction of full size model. Fidelity to structural design affects points earned.

# MODEL BUILDER

# 9763