SEAWIND

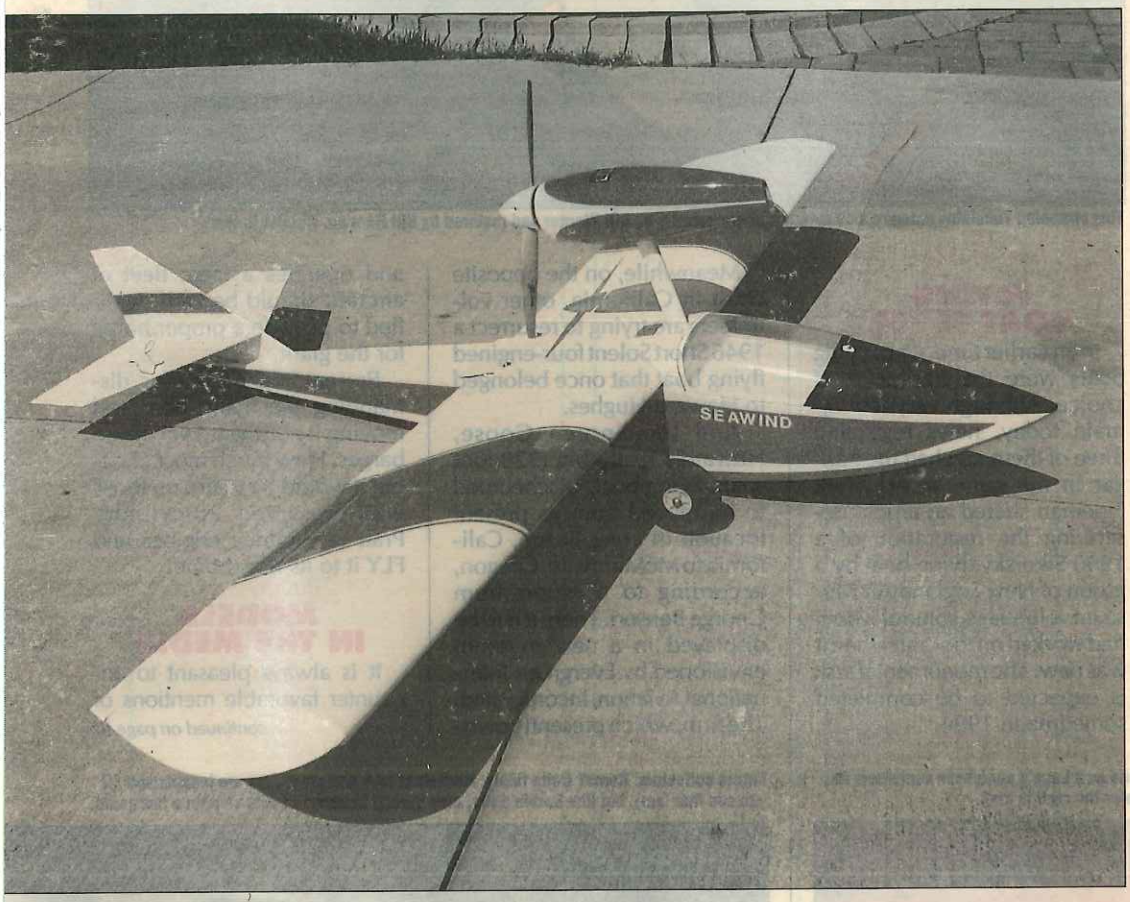
Get your feet wet in electric seaplanes with this homebuilt-like pusher, designed for 12-cell power systems.

BY LADDIE MIKULASKO

Each summer, a number of modelers have the opportunity to spend some of their vacation time near water. In many instances, they wish they had brought along a seaplane to fly. The electric-powered Seawind is well-suited to take along on such trips, or just for relaxed weekend flying at the local lake. The model is simple to build and can also be flown from land by using the simple two-wheel main landing gear.

The Seawind has good handling characteristics both on the water and in the air. It is mildly aerobatic, and being electric powered, can be flown practically anywhere without concern of annoying anyone with the racket from an internal combustion engine. The motor in my prototype is a geared Astro 15 running backwards and turning a 12x6 tractor prop, powered by twelve 1400 mAH Sanyo SCR cells. Motor control is via a Horak electronic throttle.

As with any electric, a lightweight structure is a must for good performance. Use only the lightest balsa you can find, and do not omit the weight-saving cutouts in the various parts as indicated on the plan.



Above: The Seawind seen here with the optional two-wheel landing gear detailed on the plan. Note also that while the author's model sports a clear canopy, the plans show a fully-sheeted, built-up balsa structure.

WING

The wing is built in two halves, which are joined later. Pin the bottom main spar and trailing edge to the building board, directly over the plan. Insert all the ribs and glue them in place. Insert and glue the top spar and the leading edge. Sand the leading and trailing edges to the contour of the ribs. Glue on the top leading edge and trailing edge sheeting. Glue cap strips to the ribs as indicated.

When dry, remove the wing panel from the building board and flip it over. Block up the trailing edge and secure the wing to the building board with pins. Sand a gentle curve into the bottom wing spar and trailing edge between ribs W1 and W2, as shown on the plan, so that both pieces are flush with the bottom of W1. This done, glue on the bottom trailing and leading edge sheeting and cap strips, and sheet the area where the sponsons are located. Set aside this half of the wing and build the other half to the same stage.

Sand the butt ends of both wing panels so that they mate

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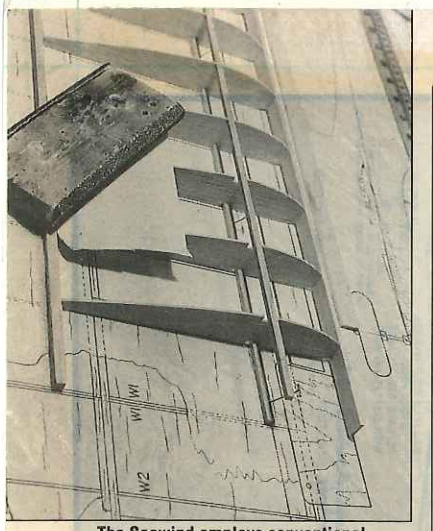
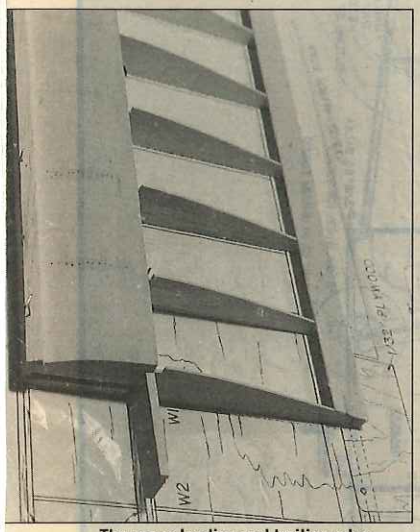


The Seawind employs conventional built-up balsa/ply construction throughout. Here the top of the wing trailing edge is being sanded to match the upper curve of the ribs, using a thin cardboard "shield" to keep from sanding into the ribs themselves. Note the extra-wide notches in the ribs for the sub-spars, yet to be added. Shear webs, while not called for either on the plans or in the text, would be a worthwhile addition.



The upper leading and trailing edge sheeting being added to the wing. Here you can see the row of pinholes in the sheeting over each rib, to allow thin CA glue to wick through and adhere the sheet to the ribs.

properly, then glue them together with the balsa dihedral brace between the main spars and another at the trailing edge. Let this assembly dry thoroughly.

Glue in the top sub-spar; notice that this spar is one piece and curves in the middle between the W2 ribs. Glue on the top center wing sheeting. Flip the wing over and glue in the bottom sub-spar and center sheeting. Glue on the leading edge strip and the wing tips. Sand the wing and glue in the leading edge dowel. At the trailing edge in the center, glue on the plywood plate that supports the wing bolts. Put the wing aside for now.

TAIL SURFACES

Cut all tail surfaces out of light balsa (use medium hard for the fin), round the edges and put them aside as well.

SPONSONS

Build the sponsons upside down. Pin the base to the building board and glue the former to it. First glue on the bottom, then the sides. Sand them and put them aside.

FUSELAGE

Cut out the fuselage sides and glue the top and bottom longerons to them. Glue the balsa nose doublers in place; notice that the grain of the balsa doublers runs vertically. Mark the location of the formers.

The fuselage is built upside down. Stand the sides upright and pin them to the building board. Glue in formers F5, F6, F7, F8 and F9, then glue on the rear bottom sheeting. Glue in the remaining formers F1, F2, F3 and F4. Make certain that former F4 is glued accurately, as it determines the thrust angle of the motor.

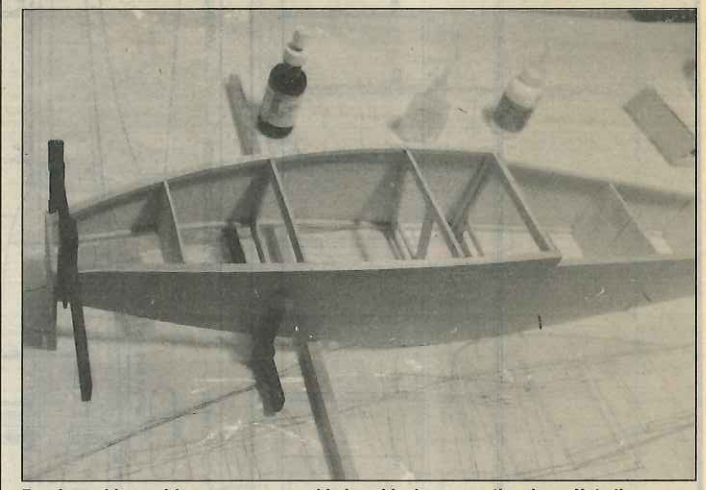
To give formers F4 and F5 more support, glue 1/4-inch triangular stock in the corners front and back. Glue on the bottom front sheeting. Flip the fuselage right side up and glue in the pushrod cable housings (I used Sullivan #507, which are the smallest diameter available). Glue in the 1/16 plywood doublers and hardwood blocks that hold the wing bolts. Glue on the top sheeting from F4 back. In the front, glue on former F3A, then add the side and top sheeting and the nose block.

At the back of the fuselage, cut a 1/8-inch wide slot in the top sheeting. Insert the fin and check the alignment, then glue it in place. At the base of the fin on both sides, glue on a gusset of 3/16-inch triangular stock. Also add 3/16-inch triangular stock at the bottom of the stab cutout to make the saddle for the stabilizer. Glue on the stabilizer and check the alignment.

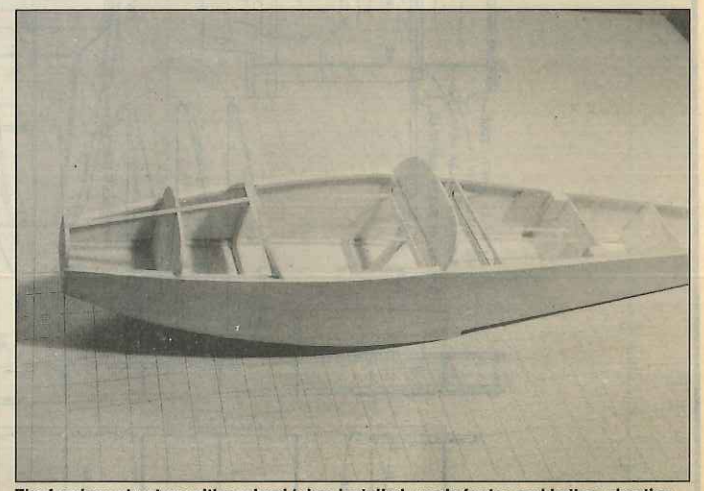
Glue the carbon fiber nacelle post to former F4. Don't forget to run two wires up the post for the motor. Glue on formers F4A and F4B. Former F4A has a hole in it to accept the wing dowel. At the top of the post, glue on the motor firewall. I made the streamlined cowl by building a balsa mold, then vacuum forming the parts. To make this easier for you, the Easy Built Model Company, Box 1059, Beamsville, Ontario, Canada L0R 1B0, can provide these vacuum-formed parts to you for a nominal charge.

Now build the canopy, which acts as an equipment access hatch as well. Make a frame that is a close fit between the fuselage longerons and glue the 1/16 balsa sheet on top, which forms the floor of the canopy. Glue on the formers, the sides and finally the top sheeting. Sand everything in preparation for covering.

Fit the wing to the fuselage. Place the wing in position with the front wing dowel in the hole in former F4A. Line up the wing carefully, then drill the two holes for the wing bolts. Drill through the plywood on the trailing edge of the wing and into the hardwood blocks in the fuselage. The holes should go only 3/4 of the way into the blocks, to prevent water from entering the fuselage.



Fuselage sides and formers are assembled upside down over the plans. Note the weight-saving cutouts in the three plywood formers.



The fuselage structure with pushrod tubes installed, ready for top and bottom sheeting.

Cover the model with your favorite material (I used MonoKote). When covering the fuselage, do the bottom last. Apply heat and pull the covering around the bottom corners

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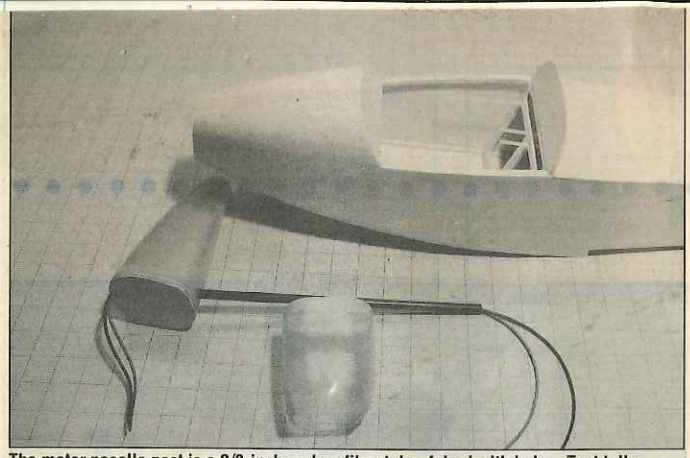
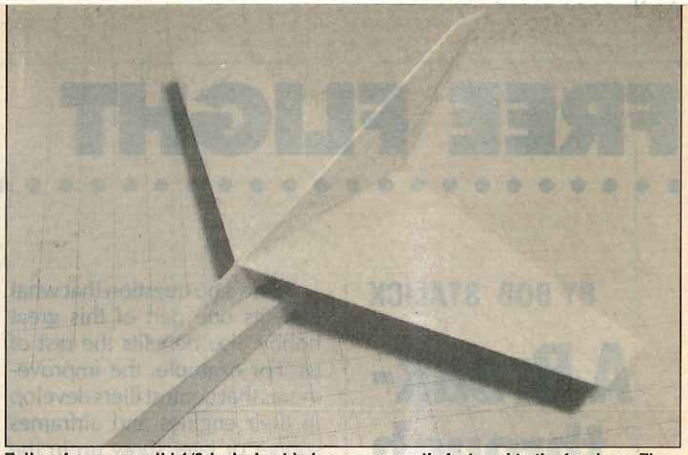


The motor nacelle post is a 3/8-inch carbon fiber tube, faired with balsa. Text tells where to get vacuum-formed plastic cowl parts.



Tail surfaces are solid 1/8-inch sheet balsa, permanently fastened to the fuselage. The base of the fin has been lengthened on the plan, which explains the discrepancy between the plan and this photo.

so it comes up the sides approximately 1/8-inch. This way, the force of the water can't lift the covering material when taking off or landing.

Once the model is covered, you can install the hinges. I used Sig's Easy Hinges, which I cut in half. With a sharp knife, make the necessary slots and insert them. Secure the hinges with thin CA glue. Install the control horns, and glue the sponsons in place.

When connecting the servos to the control surfaces, I replaced the multi-strand cable which came with the Sullivan pushrods with a length of solid 1/32-inch music wire. It is necessary to use two aileron servos mounted close to the fuselage sides. A "Y" harness connects them to the receiver. To get the CG in the correct place, the motor batteries are located between formers F4 and F5. The batteries are inserted and removed through the openings in former F4.

The receiver antenna exits the top of the fuselage behind the trailing edge of the wing. The other end is tied to the top of the fin. Because of the length of the antenna, the unsupported end will be in contact with the water when taxiing, but to date this has posed no problems for me. The radio has worked fine.

Place the model on the water and taxi into the wind. Give the motor full power. The model should get up on the step immediately. Let it gain flying speed, then apply a bit of up elevator to break the surface. Flying is straightforward. The location of the motor has an almost negligible effect on horizontal flight when changing power.

When flying an electric-powered seaplane, you very seldom have to retrieve it because the motor quits. The only time this happens is when you are not watching the length of time that you are airborne. For this reason, always land the plane with enough charge left in the batteries to be able to taxi back to the shore. I hope you will enjoy this model. Good Luck! ***MB***

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