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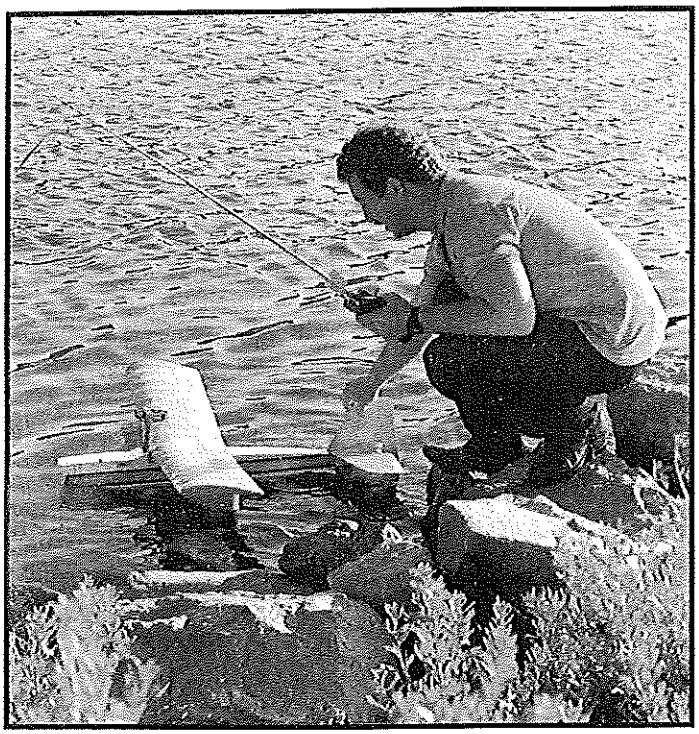
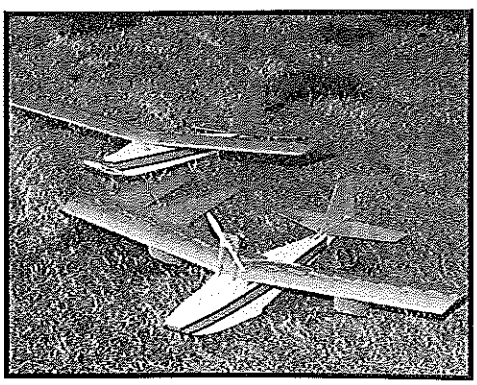
# THE PONDSIDE RC ELECTRIC SEAPLANE

BY SCOTT HARTMAN





(Above)The author about to put up a flight with his four-foot flying boat. Quiet electric power opens up a number of potential flying sites that would otherwise be off limits to gas models. (Right) Two of the author's earlier electric seaplanes are the Seagull (a Mitch Poling design) and his original, Lakeside. Pondside is similar to the latter, but has thinner wing floats, lower thrust line, and a wider hull.

You say you've learned to fly electric trainer and sport pattern models and now you're ready for a change of pace—an electric seaplane? The Pondside is just that model. The Pondside is a simple electric flying boat designed for 05-size electric motors, such as Great Planes' Gold Fire or Astro Flight's Cobalt 05. It's a 48-inch wing span model intended to be flown on small lakes and ponds. Its performance is impressive. It goes up on the step almost instantly after the power is applied and comes off the water very easily. The version shown is the largest of the prototypes and is a relatively slow flying model.

The design is based upon two model seaplanes, the Seagull and the Laker. The wing and hull are borrowed from Mitch Poling's Seagull. The wing is a very simple design that builds very light and works well. The hull has a wide base which provides for good flotation and comes off the water very easily. The traditional tail design and wing floats were influenced by Laddie Mikulasko's Laker. The traditional tail works well without adding the complexity or weight associated with the T-tail as seen on most seaplanes. The wing floats build very light and install very easily to the wing with silicone glue.

Pondside can be powered with either six or seven cells, but if your flying site is more than 3000 feet above sea level, or if your model is a little heavy, seven cells is the better choice. Prototypes have been powered with Gold Fire and Astro Cobalt 05 motors. Both motors work well. The Astro Cobalt 05 is more powerful, lighter and will take more abuse than the Gold Fire, but the Gold Fire offers very good performance and is much less expensive. Several good propellers are now on the market for electric models, but the one that I prefer is the APC 7x5. It gives good thrust and the blade design reduces the propeller noise.

Electric power for model seaplanes has many advantages over gas. The lack of noise associated with electric power allows the modeler the opportunity to fly in areas not welcome to the noisier gas powered models. Areas such as large ponds and small lakes now become a flying reality. Several times during my flying, others have commented on how quiet the model is and how well it performs. My favorite place to fly is on a large pond. A large gas powered model would not be welcome there!

## CONSTRUCTION

Proceed by first cutting out the sheet balsa pieces to make a kit. Use either light or contest 3/32-inch sheet balsa unless noted. Pay particular attention to the grain when cutting out the balsa parts, especially the wing floats. If the grain is going the wrong way the sides won't bend to form the leading and trailing edges. All glue joints should be made with medium viscocity CA glue and accelerator.

## FUSELAGE

Lay one of the fuselage sides over the plans and mark the location of the formers. Mark the location of the formers on the other fuselage side, making sure you have both a left and a right. Mark the location of the 1/4x1/2-inch spruce motor mounts on former F3. Tack glue the formers on one of the fuselage sides. The angle that the formers join the fuselage side should be estimated based on the angle shown on the plans. Tack glue the rear of the fuselage together. Tack glue the former F3 to the unglued fuselage side, then do the same with former F1. At this point, lay the fuselage over the top view on the plans and adjust the formers until the fuselage is straight. Glue the formers to the fuselage. Add the 3/16-inch square sticks to the battery area on the bottom of the fuselage. Sheet the area below the motor battery with medium 3/32-inch balsa sheet. Add the remaining 3/16-inch square sticks to the fuselage. Sheet the bottom rear of the fuselage with light 3/32-inch balsa.

Install the flexible pushrods

(Sullivan #503) and servos at this time. Sheet the bottom area forward of F3 with medium 3/32-inch balsa. Sheet the top rear half of the fuselage with light 1/16-inch balsa. Glue the two 1/4x1/2-inch spruce sticks to the 3/32-inch plywood motor mount, then glue this assembly to the front of former F3. Tack glue a 3/32-inch balsa hatch on the front of the fuselage. Glue on the remaining 3/32-inch sheet balsa. Sand the fuselage joints to sharp edges. The model will not plane on the water properly if the edges are not sharp!

## TAIL SECTION

The horizontal and vertical tail pieces are be built out of light 3/32-inch sheet balsa. Join the two halves of the elevator with a 1/8x1/4-inch spruce stick. Sand the tail pieces to prepare for covering with MonoKote.

## WING

Cover the plans with waxed paper. Join the two halves of the spruce wing spar with the plywood dihedral braces. Slightly feather one side of the 1/16-inch balsa trailing edge to allow for a good fit. Pin the trailing edge sheeting to the plans. Use a rib to spot the spar over the plans, then pin the spar in place. Use 1/16-inch thick balsa spacers at the location of the R3 and R2 ribs. Install all of the ribs but the center ones and glue them in their respective locations. Fit the center rib, angle it for the proper dihedral, and glue it in place. Glue on the 1/4-inch square balsa leading edge. Glue on the top 1/16-inch trailing edge sheeting. Glue on the wing tip.

Remove the left wing panel and slide it over to make the right hand side. When finished, glue on the 1/16-inch thick balsa sheeting at the center of the wing and at the locations of the wing floats. Contour the leading edge and sand the remainder of the wing in preparation for covering.

## WING FLOATS

Lay two sides of the floats over the plans and mark the location of the formers. On one of the sides glue parts P1 through P5 in place as shown. Glue the opposite side onto the float. Glue the leading and trailing edges together to form the curved sections, the install the 1/16-inch thick balsa sheeting on the bottom and final sand both assemblies.

## COVERING

MonoKote has worked well on the Pondside. Make sure all seams overlap about 1/4-inch to be sure that they will be waterproof. Cover the tail pieces with MonoKote, making sure that no wood will be exposed to water after they are glued to the fuselage. Cover the fuselage with MonoKote. Glue the tail surfaces onto the fuselage with CA glue. Apply a layer of waterproof tape in front of the step on the fuselage and to any seams on the bottom of the fuselage that have not been sealed. MonoKote the wing. Be sure to remove any warps prior to installing the floats. Cover the wing floats. Locate the proper spot to glue the floats on the wing, glue the floats to the wing using silicone glue, and allow to dry overnight.

## MOTOR INSTALLATION

Make a wiring harness as per the plansh heavy duty 14-guage wire and a 15 amp micro switch are recommended for best performance. Sermos connectors are the best that I have used and they do offer a power advantage when compared to other connectors. I normally use two capacitors on the motor for noise suppression. Solder one capacitor to the positive motor lug and to the motor case; install the second capacitor to the negative motor lug and to the motor case. Most range problems are avoided by using this installation.

I break in the Gold Fire motor by running it without a propeller for about two hours at about one to two amps from my Astro Flight 112 charger. The motor won't be totally broken in, but it will have plenty of power to fly the model. With this motor, I have found that the more it is run, the faster it gets. If you choose to use an Astro Cobalt 05, motor break-in is not required. Both motors work well in this model.

A flying boat requires that the thrust line be correct. The motor must be installed without any side thrust; minor adjustments in up thrust may be required for best performance. If it stalls under power, decrease up thrust. If the model dives when power is applied, increase up thrust. To adjust the thrust line, install thin plywood shims between the motor and the 3/32-inch plywood motor mount.

## RADIO INSTALLATION

Only lightweight airborne systems of less than six ounces should be used in this airplane. Larger radios are not recommended. They will fit, but the extra weight will increase the wing loading and reduce flight times. The majority of the radio is mounted forward of the wing in a watertight compartment similar to what is done with model boats. After the radio is installed, the front hatch is sealed with clear waterproof tape. With this installation the model has successfully floated inverted on the wing and nose for over 1/2 hour with no water reaching the radio. The battery area under the wing can collect some water, but this can be minimized by using sealing tape between the fuselage and wing to reduce the potential for water leakage into the body. Also, coat the battery compartment with polyurethane varnish to keep the water that does leak from soaking in.

## CHARGING

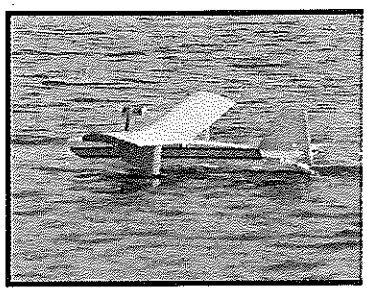
The motor battery is held in place with Velcro for easy removal. I charge up to four packs of cells in series outside the fuselage on an Astro Flight 112 charger. This is done very easily when using Sermos connectors, as these connectors come apart and will connect to each other. Charging in series allows up to four flights with only twenty minutes of charging. Please note that charging this way requires that all cells be of the same capacity and that all packs be dead before you begin charging.

## CHECKOUT

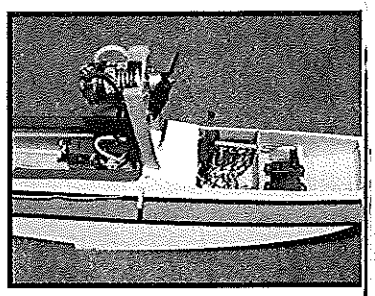
Verify that the control surface throws are as specified on the plan and in the correct direction. Check the balance and double check the wing for warps. If there are any warps in the wing, remove them by having a helper twist the warp out while using a heat gun to reshrink the covering.

## FLYING

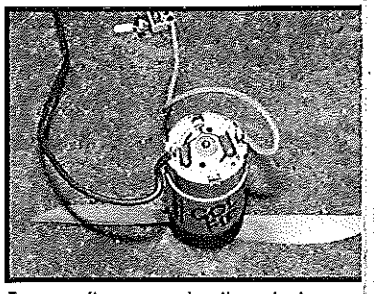
Pick a calm day for the test flights. Charge the motor battery, install the battery in the fuselage, and attach the wing with rubber bands. Place the model on the water, turn the motor on, and steer into the wind. Adjust the direction of takeoff so that the wing floats don't touch the water. After the model gets up to speed, apply a small amount of up elevator and she'll lift right off. Climb slowly until the model is up to altitude. Mild aerobatics can be done by first diving the model to increase speed and then looping or rolling. When the battery starts to run down, turn off the motor and glide back to the water. Before touching down, apply just enough up elevator to skim across the top of the water. After landing, turn the motor back on and steer the model back to shore. I hope you enjoy the Pondside as much as I have. ***MB***



**Pondside on step and ready to lift off. It's important that the lower edges of the hull be left sharp for good planing characteristics. Don't round 'em off!**



**Even though there's plenty of room inside the hull, the author strongly advises using a lightweight micro radio system to keep the flying weight to a minimum. He recommends going to a seven-cell pack if the model weighs over 40 ounces.**



**Two capacitors are used on the motor to prevent radio interference. Gold Fire motor offers a good compromise between cost and performance.**