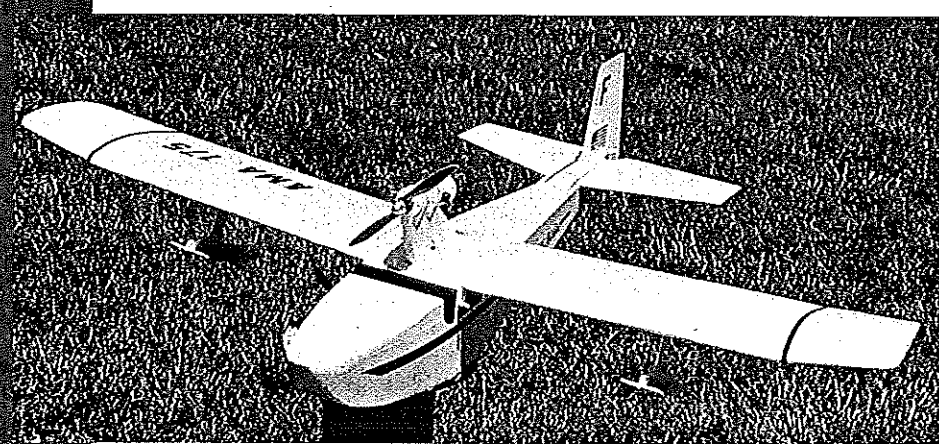# MASTER PUDDLE

■ Joe Beshar

W e don't lack flying fields: three-fourths of the earth's surface is an RC flying field. With Electric power, you can fly anywhere there is water, as it is quiet. You could conceivably fly from any local golf course pond.

Since I had never flown seaplanes, I acquired an ARF (almost-ready-to-fly) Lanier Sea Bird—the quickest way to get involved. I flew it powered with a Fox .40 glow engine and was immediately hooked on seaplanes.

Shortly thereafter, at the KRC Electric Fly, I learned of the Ace R/C Electric-powered Puddle Master—a very fine model kit that is well designed, and very complete. Further interest in Electric models resulted in the inspiration for the Master Puddle: a Besharized creation.

It has less wing span and area than the Puddle Master, and uses polyhedral and a pylon wing mount with a rubber-band motor mounting. The fuselage shape was altered, with a full open front hatch. I also changed to a rounded nose contour and skid-type wing floats.

Flight characteristics have been excellent; unlike the average seaplane, the Master Puddle can't wait to rise off water.

The Master Puddle is primarily constructed from 3/32 balsa sheet. After the structure is complete, it is coated with Balsarite for water protection. Covering material is Micafilm, due to its light weight and strength.

Weight of materials is an essential concern throughout construction. All glue joints referred to are cyanoacrylate (CyA), except where noted.

CONSTRUCTION

Fuselage: Cut two sides from $3/32$ hard balsa. Do not cut the incidence spacer at this time; it is installed after assembly.

Cut out formers one through five, with the tapered tail block $3/16 \times 1/2 \times 3/4$. Place the plans on a tabletop covered with polyethylene plastic sheet. Assemble and glue the formers, holding in position with clamps, etc.

I use steel die blocks, available at any die shop, which are usually scrap steel; they are accurately machined, and serve to hold and position all the members squarely while gluing.

Cross-sheet the bottom with $3/32$ balsa, glue the $1/8 \times 3/8$ cross brace and the $1/2 \times 2\frac{1}{2} \times 5$ balsa shear block as shown. Install the $3/32$ doubler at the wing platform, the $3/16$ triangular stock at the bottom corners of the fuselage, and the $1/4$-inch-square across the leading edge platform of the wing.

Drill and install $3/16$ diameter dowels for two wing hold-downs. Cut and glue in place the $3/16$-thick wing incidence spacer. Position and install the $3/16$-square receiver/controller tray supports as shown; cut and size the receiver/controller tray from 3mm Mighty-Mite plywood as shown, and assemble.

The receiver is held with Velcro on the tray; the Jomar SM-4 and Airtronics Microlite Servos are screwed in position. Assemble the Nyrod pushrods, allowing extra length for later trim to elevator and rudder horns. Cross-sheet the fuselage rear top with $3/32$ sheet balsa, then trim and sand to shape.

Hatch: Cut formers 1A, 2A, and 3A as shown from $3/32$ sheet. Assemble and glue the $3/32$ sides and top cross sheet. Install $2\frac{1}{4}$-square filler blocks and side keyways at the location shown on the plans.

Assemble $1 \times 1\frac{3}{8} \times 1/4$ hatch hold-down platforms in the hatch
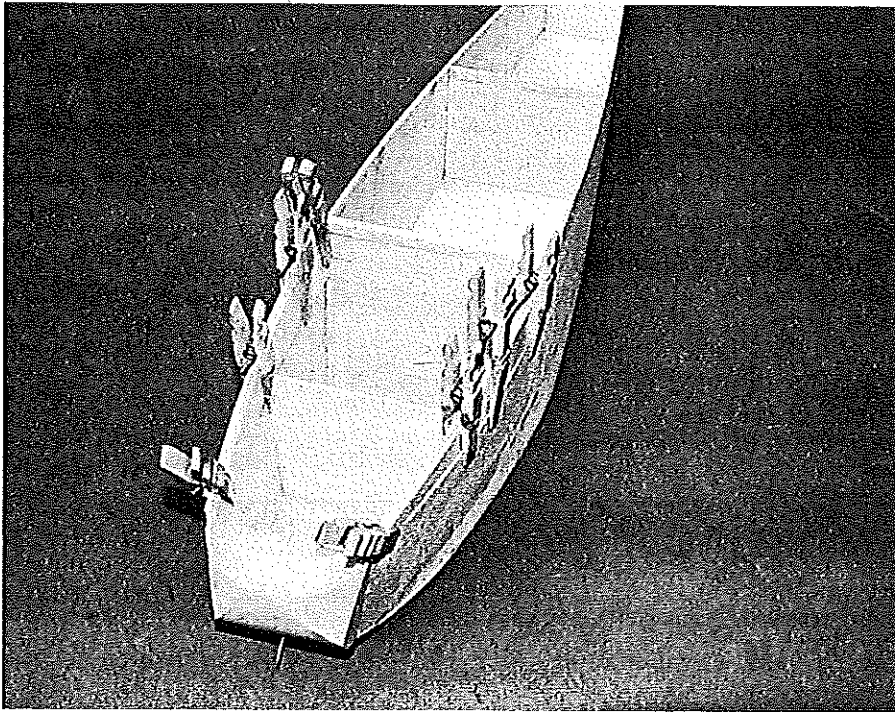
and fuselage formers, and apply Velcro as shown. Assemble the hatch to the fuselage. Glue the nose block, carve in contours, and sand as shown on the plans; round the hatch corners to the proper contour.

Elevator and rudder: The elevator and rudder are cut from 1/8 sheet balsa as shown. The elevator is joined with 1/8 square hardwood. Sand and round off the edges, cut hinge slots and install Easy Hinges (do not glue at this time; glue after covering). Fit the control horns and clamp the elevator and rudder temporarily to the fuselage. Position and trim the pushrods and control clevises to the horns.

Wing: The wing is constructed from 5/16 x 7/16 balsa leading edges and 1/4 x 1 balsa trailing edges, slotted for the 3/32 ribs. All ribs are 3/32 balsa except the two center ribs, which are 1/8. Pin the slotted leading and trailing edges to the plastic-covered plan and position the two 1/4 x 1/2 spars. Assemble and glue all ribs in place with the exception of the R-1 and R-2 polyhedral ribs.

Taper and fit the leading edge, trailing edge and spars, and glue in the 5/8 tip polyhedral. Place and glue the R-2 ribs at each side of the wing. Taper and fit the leading edge, trailing edge and spars as necessary at the center section to accommodate one-inch dihedral, and glue two R-1 ribs evenly angled to the wing panels.

Install the 3/16 top spars, fitting as necessary. Sheet the center section with 1/16 balsa across ribs R-1A. Add the 1/2 x 7/8 x 7 balsa tip blocks, plane, trim and sand the trailing edge, leading edge, tip blocks, spars and sheeting in accordance with the illustrated airfoil section.

Motor pylon: Laminate the side pieces from 1/8 sheet balsa, with 1/4-inch-square at the leading and trailing edge locations. Cut out
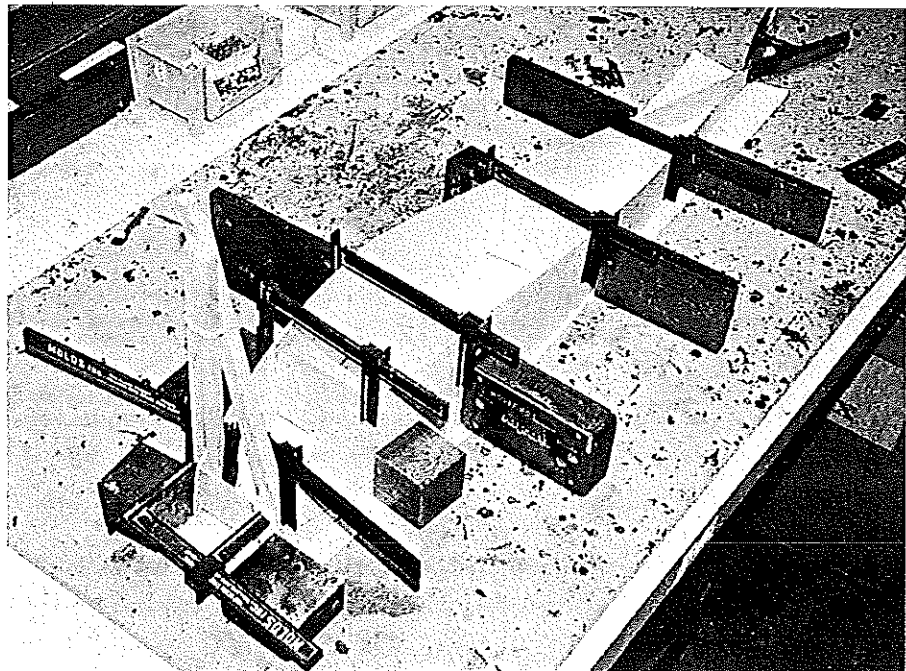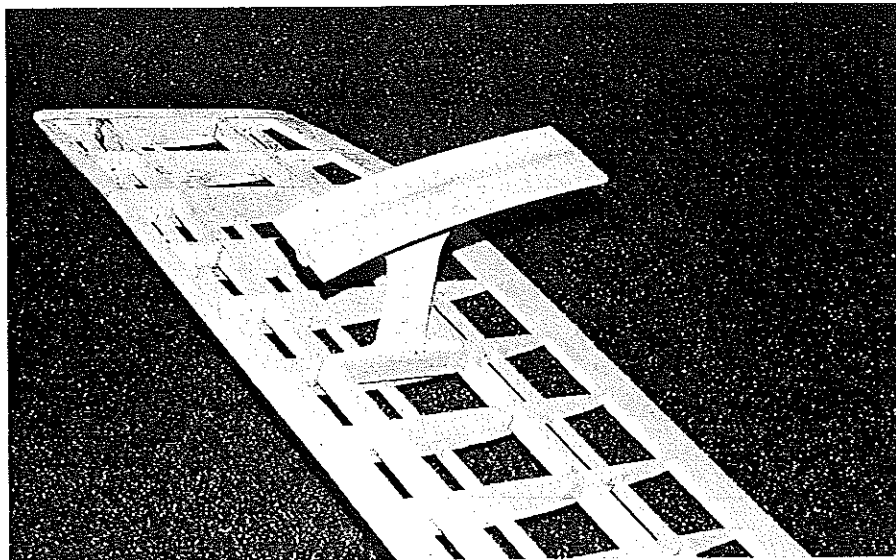
Bottom view of wing framework shows skid-type wing floats—author has found them to be very effective.

and epoxy the ⅛ plywood motor face in place, and install the four ⅛ hold-down dowels.

Assemble the wing center section by cutting the sheeting so the ⅛ pylon sides nest laminated to the sides of the center ribs. Adjust for alignment and glue in place. Drill a ¼-inch hole through the pylon and center ribs for the motor wiring.

Wing Floats: Cut from Mighty Mite 3mm plywood as shown on the plans; epoxy ³⁄₃₂ sheet to the bottom skid curvature and assemble the ³⁄₃₂ square center keel. Fit to wing rib locations as shown, sand and coat with epoxy paint. Size the motor cover from .030 ABS plastic sheet. Mount by overlapping ⅜ at the bottom, and hold in place with rubber bands over the motor housing.

Wiring: Wire the system as shown in wiring diagram, using super flex wiring. Apply Velcro to the seven-cell Sanyo Pak and receiver battery, and place in position. A fuse is used for the arming switch.

Covering: Sand all surfaces to the shapes shown on the plans. Remove sandpaper dust with a tack cloth. Coat the entire fuselage and tail section with Balsarite for waterproofing, and apply Micafilm with a standard heat-seal iron. The cabin areas are outlined with black pressure-sensitive trim.
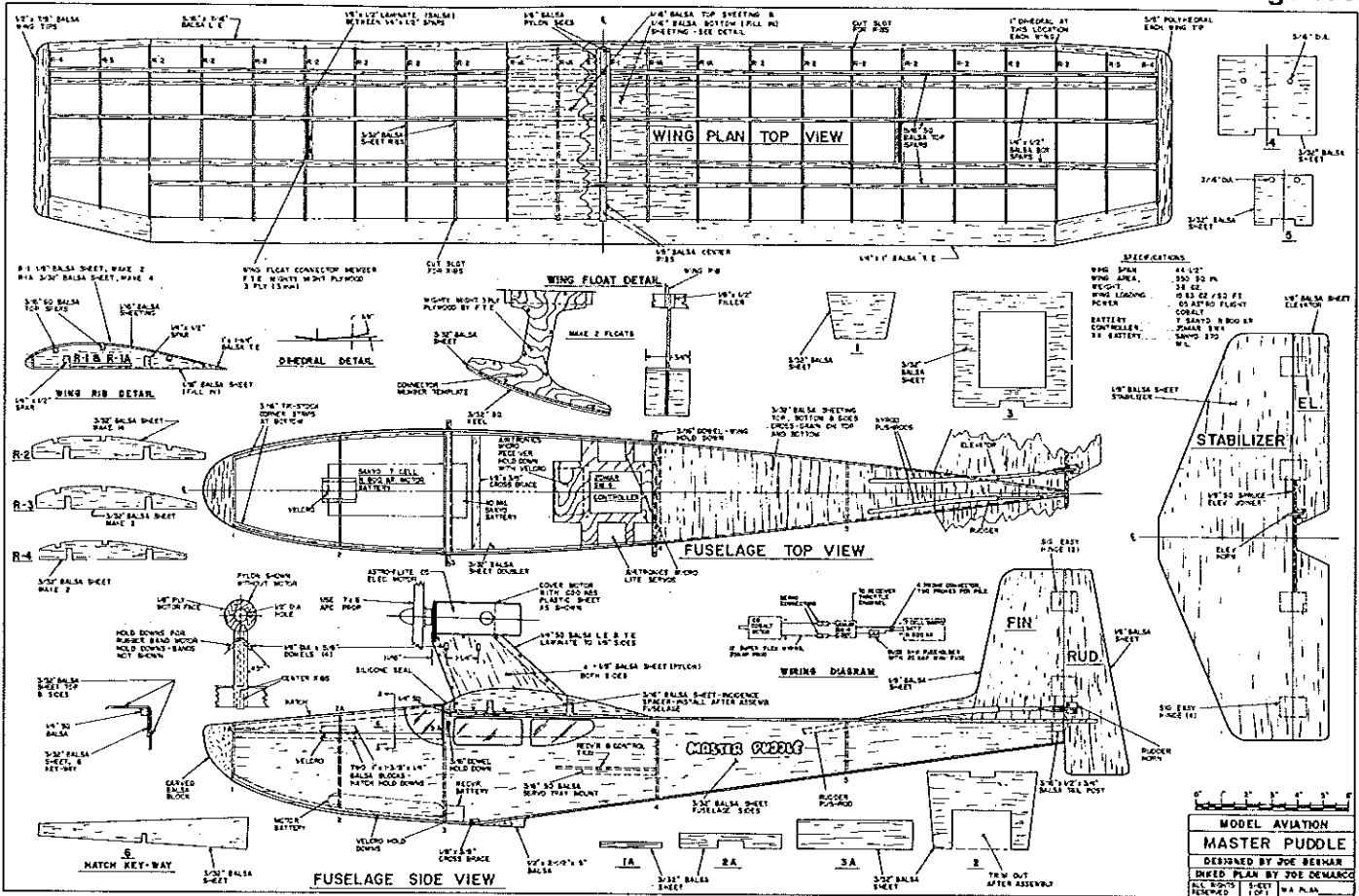
Cover the rudder and elevator, assemble the tail section hinges, and apply CyA to the hinges. The entire tail assembly may now be positioned,
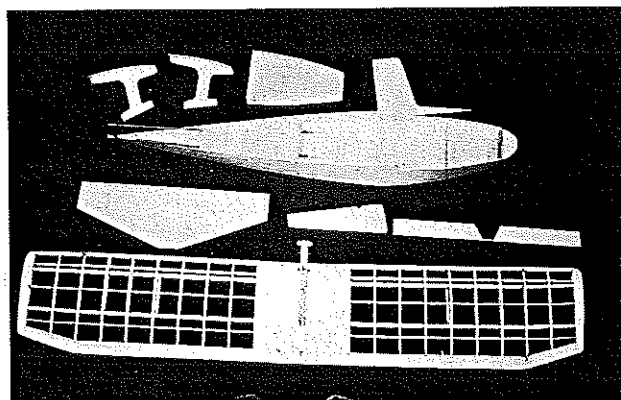
The completed Master Puddle skeleton. Fuselage and tail section are coated with Balsarite for waterproofing.
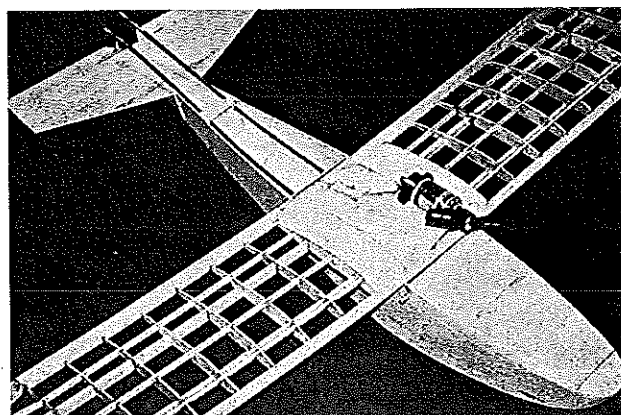
Fuselage is ready for addition of cross-grained ³⁄₃₂ top sheeting. Wing center section sheeting is ¹⁄₁₆ balsa.

squared, fitted, and glued to fuselage.

Apply Balsarite to the areas where adhesive is required on wing, and heat-seal the Micafilm to the frame in accordance with normal procedures.

Tape a plastic sheet (for separation) to the bottom of the wing, and apply silicone seal at the wing mount location and leading edge. Place the wing on the mount with rubber bands and allow to set. Remove the plastic sheet from the wing and trim the excess silicone with a razor blade.

Preflight: Assemble the model and check out all alignment requirements. Before flying, apply Scotch tape at the hatch parting locations for water sealing. Now you're ready for float flying.

I trust that you will find the Master Puddle to be as enjoyable as I have. Thank you to Ace R/C's Puddle Master for the inspiration. ✈
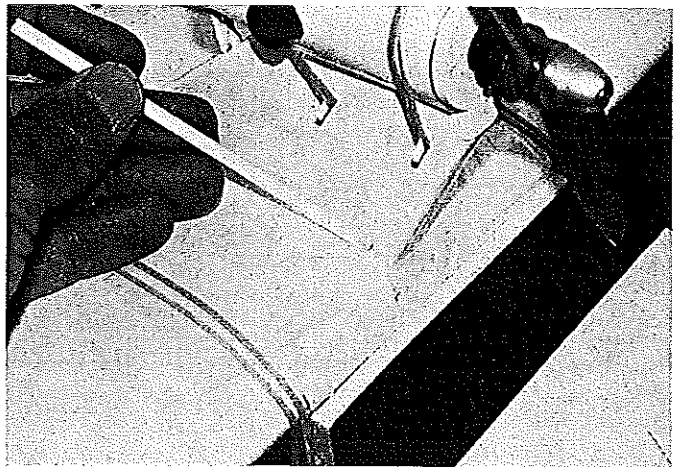
Above: Silicone seal is applied to the pylon/wing joint. Pylon sides are 1/8 balsa. Below: Excess silicone seal is trimmed from wing mount area with scissors. Text details application procedure.

Master Puddle

Type: RC Electric seaplane

Wingspan: 44½ Inches

Motor size and type: Astro 05 cobal

Number of channels: Three

Flying weight: 38 ounces

Construction: Built-up

Covering/Finish recommended: Micafilm