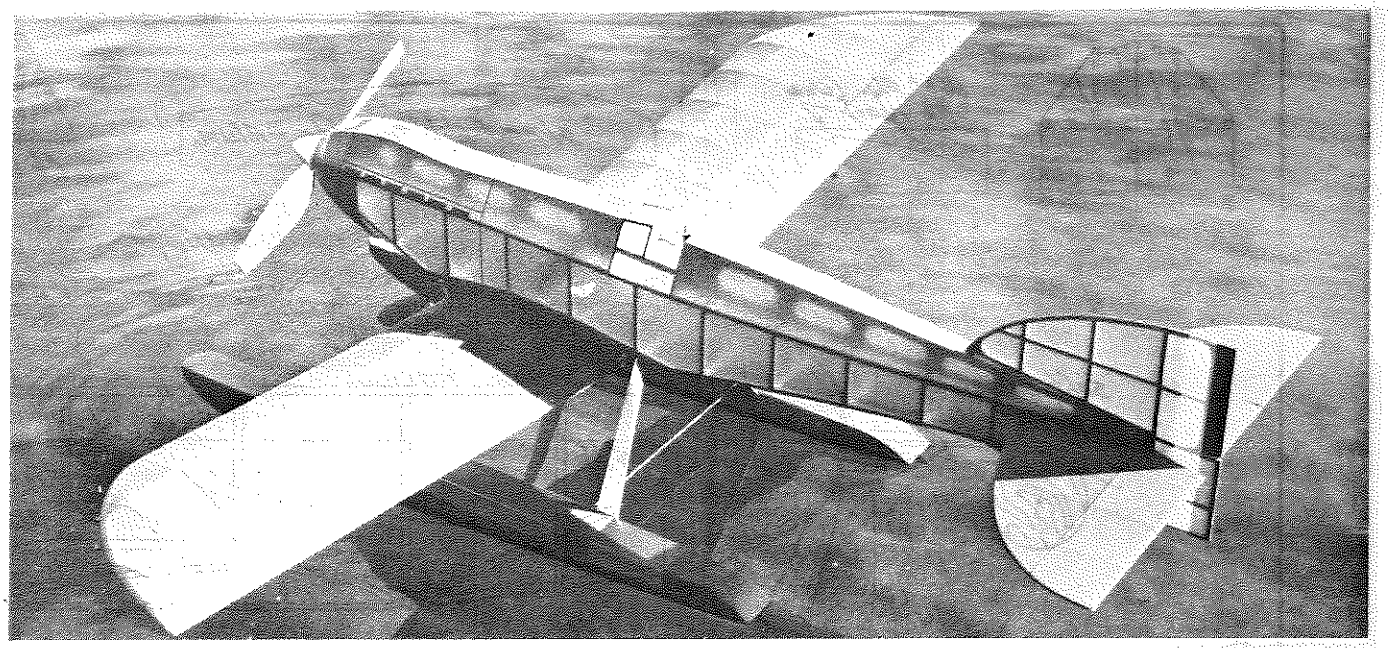

"SCHNIEDAIR"

The designer has combined the best features of various Schneider Cup racers to create this attractive lightweight. Designed for CO_2, the model also adapts well to rubber power.

By WALT WINBERG . . .

• Searching for a design that would suit the MODELA CO2, I decided to utilize a recent small compressed air model that I had designed along the lines of the beautiful Schnieder racers.

With the exception of a slimming of the width of fuselage (the original was of course designed around a beer can tank) all the outlines were retained. The hump on the forward fuselage, for example, was a fairing for the pump valve, serving now as a dummy air intake.

Keel stringers replace numerous formers and stringers, and with careful selection of balsa, are actually lighter. The laminated curves on the wing tips and tail surfaces are all achieved on one simple form.

With removable wings and floats, Schniedair will fit into a compact box to take along on vacation by the sea or lake. Having tried many forms of modelling over the years, I still find the sight of a free flight on floats, whirring quietly off a glassy lake, a stirring sight.

FUSELAGE

Except where noted on the plan a light, firm grade of balsa was used throughout.

The fuselage is built around a basic 3/32 square box.

Start with the 3/32 sheet wing saddles first. Cut and sand to exact shape, then build up both fuselage sides; use your favorite glue but don't use white glues on a seaplane!

'Thick' cyanocrylates are ideal for this. After placing a drop on a joint, let it set a few seconds to soak in then blot up any excess with a bit of kleenex rolled to a point. After removing from plan, glue opposite side in a similar fashion. This method makes for easier sanding and excellent glue joints.

Note the built-up slot for the stabilizer, a piece of 3/32 sq. temporarily placed in the slot during construction will assure a close fit later.

The 'firewall' is laminated cross grain, from 1/32 hard balsa. Glue it up first as a sheet slightly larger than firewall, then cut to shape and notch for longerons. Glue the 1/64 ply backplate in place and mark off and drill the two mounting holes for the MODELA. Glue the two fuselage sides into the firewall notches; note that a couple degrees of downthrust is built in.

With the fuselage upright on the bench, install the crosspieces from the cockpit forward, which are all the same length. Use a slower drying glue here, such as Ambroid. This gives you a chance to get everything square and true. Once the glue is dry, the tailpost can be pulled together, glued, and remaining crosspieces installed.

Select light quarter grain balsa for the keel stringers, cut and sand the upper stringers in pairs, lightly tack glued together. Mark off the crosspiece positions and sand in the notches with a 1/16 sq. sanding tool made by contact cementing sandpaper to a piece of 1/16 sq.

The rear stringers are best installed by gluing F 3 in place first. Fit the two stringers against the bulkhead and glue at the tail. The 1/16 sq. crosspieces can now be installed.

Glue windshield frame and lower stringer in place. The front gear strut can now be bent to shape. Sew it to the 3/32 gear mount with nylon thread, rub in a couple of coats of glue and glue in place. The two lower nose stringers can now be installed; these should be fairly firm balsa. Crosspieces of 3/32 sq. form a bulkhead between gear and firewall, but leave the lower crosspiece off for now for later installation of the CO2 tank.

The cowl is made up of two soft blocks of balsa. Tack glue at separation line, tack glue 1/32 ply spinner backplated to block centerline. Tack this to fuselage and carve to shape, blending the angular lines to spinner backplate. Split apart and hollow out both blocks to about 1/8 wall thickness.

Glue the two cowl clips to the lower cowl, leaving the upright free to flex. Slide the cowls together and press the V-shaped ends of clips into upper cowl

to mark their position, then glue the two small 1/16 ply plates to upper cowl, aligning the holes with indents. When glue is dry, give it a trial fit; any minor adjustments can be made by bending the wire clips.

Give firewall and cowl interior several coats of dope. Install the MODELA at this time, bend tube to profile shown on plan and juggle tank through the lower nose stringers. The bend towards the filler may have to be straightened initially to accomplish this. I used the nut plate provided the MODELA, but found that the mounting bolts were not threaded far enough to tighten up, so 2-56 by 1/2-inch bolts were substituted. As downthrust is built in, the downthrust shim provided is not required. A good idea at this point is to wrap a bit of Saran Wrap around the engine before any further sanding or finishing, to protect it from paint and grit. The upper cowl can now be glued in place.

The tank should be anchored to prevent it from drifting around. Glue a strip of 1/2-inch wide 1/16 sheet balsa between fuselage sides. Wrap this to tank with nylon thread, gluing to tank with Ambroid, which can always be removed with dope thinner.

WING

The wing is a straightforward sliced rib structure. Note that the wing tips are laminated 1/8 x 1/8, and must be built flat on the plan. Cut all sliced ribs to length from the trailing edge.

Cut the spars to depth from side view and assemble the center section first. Bevel outer panel spars to dihedral angle and bevel ends to meet the tip.

Sand leading edges to near triangular section, note that the leading edges are kept low and with a very small radius. The wing tips should be shaped in a similar fashion.

TAIL SURFACES

Juggle the laminated leading edges to position on the plan and cut to length. The rest of the tail is built up from 3/32 sq. balsa. The curve on the lower fin can be bent to shape by steaming over a tea kettle. The 3/32 sheet trim tabs can be tack glued with Ambroid to stab and rudder and faired to shape when sanding tail surfaces.

FLOATS

Select light quarter grain balsa for the sides and top of floats. Two costs of nitrate dope thinned 50% should be applied to both sides of all sheet balsa used on the floats, lightly sanded between coats. This of course helps waterproof the floats, but most important, it prevents 'dipping' between the formers than can result from the later tissue covered and doped surface.

The float formers can be quickly cut to shape with the use of a 1/32 ply template. Mark off former depths on the template from side view of floats. Lay the template on sheet balsa edge, sliding the template up until depth of each former is reached, then cut to shape. This method is faster and more accurate than attempts to trace out each former separately.

Mark off former positions on the float top, and, pinned down to insure alignment, glue formers in position. The sides can now be added, and when glue is dry, install the rear top from crossgrain balsa. Sand and fair float formers to bottom outline.

The aluminum tube gear and spreader bar mounts should now be glued in place. Use hard crossgrain balsa from bow to step, medium quarter grain is adequate aft of the step with grain running lengthwise. Top of floats can be radiused slightly, but keep all bottom edges sharp.

Bend rear struts and spreader bars to shape. Make a trial fit of floats. The spreader wires should snap in place, just snug enough so they can't pop off in flight; tiny kinks bent into ends will ensure this.

COVERING AND FINISHING

Carefully sand and fair all surfaces. Apply three thinned coats to entire airframe wherever tissue touches the surface, lightly sand between coats.

The original Schniedair was covered completely with red tissue, except for the rudder and strut fairings, which were covered with white tissue. Lightly water spray all surfaces with an airbrush. Pin down all wing and tail surfaces with scraps of 1/8 x 1/4 balsa until dry. We finished our Schniedair with about four coats of thinned nitrate drop lightly plasticised with castor oil. Pin down between each coat.

There is no rush to pin doped surfaces down; wait until they are almost dry to touch then clamp down to a Saran Wrap surface. This will eliminate shiny spots that occur where wet dope touches the Saran. Since Schniedair has obvious Italian influence, we applied a strip of red and green tissue to rudder. Control surfaces, cowling outlines, exhaust ports, etc., were done with strips of black tissue. Spinner and float struts were finished with nitrate aluminum.

PROPELLER

Athough plans and photos show the MODELA plastic propeller installed, numerous test flights proved this to be quite inadequate for R.O.W. work.

A Top Flite 8 x 6 wooden prop was finally fitted with excellent results. The prop was modified as follows: First remove the lacquer finish; acetone works well. Wipe down to bare wood, cut 1/4 inch off each tip, fill prop shaft hole with a snug-fitting hardwood dowel, Hot Stuff in place. Drill 5/64 for prop screw. Reduce hub diameter to 1/2 inch and carve as much wood as possible away from hub area. Thoroughly sand underside of blades. Try for a slight undercamber here, then sand top of blade until thickness is reduced to about 1/16 at mid-point of blade to about 1/32 at tip. Keep trailing edges quite sharp. Balance prop and finish with four or five coats of nitrate. The resulting propeller is actually lighter than original plastic prop.

The dummy radiators can now be masked off and painted. We used HUMBROL brass enamel. Pour oil off from the top of tin, then dump contents into a small jar, add an ounce or so of nitrate thinners and shake well. Allow to stand until pigment settles, then pour thinners off from the top. This eliminates most of the oil base. The resulting pure pigment can be added to thinned nitrate and has great coverage.

Since we fly off salt water, all radiator areas were sprayed with a thin coat of nitrate to prevent oxidizing of finish.

Cut out tailpost and slice tissue out of stab opening. With tail surfaces glued in place, your Schniedair is just about complete.

The spinner is simply tack glued to backplate with AMBROID. We have not encountered any problems with the MODELA kicking the prop loose. One way to insure against this is to coat the center of the spinner backplate, about 1/2 inch diameter, on both sides with contact cement and allow to dry thoroughly. This rubber-like coating will provide an excellent grip on drive washer and prop.

FLYING

Before installing the MODELA, some bench runs were made to get aquainted with this neat little engine. Testing was done with an ANSUL extinguisher fitted with a BROWN CO2 adaptor, which will not fit the MODELA filler. We replaced ours with a BROWN filler which will just fit inside the MODELA fuel line. Don't forget to dismantle filler to remove gasket and check valve before soldering. Adjustments should be made in very small increments. At first it seemed difficult to obtain more than 30 seconds duration on the engine. But after a dozen or so runs, well lubricated between, we were able to obtain runs of 45 secs. Later tests with the wooden prop increased this to one minute; obviously duration improves with the break in time. Shim in about three degrees right thrust. Check that balance point is on location shown on plan. The original model required a few grams of ballast in the nose to achieve this, and weighed 3.15 oz. all up. Steam in slight washout in both wing tips.

Make first test glides over that proverbial tall grass. Trim with rudder for a slight right turn in glide. Test flights are best made R.O.W. in calm conditions. Schniedair seemed happiest flying left under power and right in the glide. With the MODELA adjusted for about a 45 sec. run, the original would get off in about 25 ft., making delightful power on landings just before the engine stopped. Increasing the power resulted in take offs as short as 5 ft. This is safer in a slight wind as float planes often exhibit a tendency to turn out of wind. If one float gets off before take off speed is reached, it will almost certainly cartwheel and attempt to make like a submarine!

If you elect to try the rubber-powered version, us an 8-1/4 plastic prop with a standard square plug fitting in the nose. Due to long moment arms, the rear peg should not be any farther aft than shown.

Happy landings. •

4823 2 of 2