



By BRAD SHEPHERD . . . This two-for-one Half-A R/C model "doubles" as a speedy pylon racer or as a snappy sport flier. It's all in the choice of wing, and both types are included on the plans.

• The lil' DUBLR was designed for maximum enjoyment of RC flying with a minimum of investment in money and building time. My goal was to have a versatile model that would fill the bill for those who like small models, have a limited budget, and enjoy different phases of flying RC. It can be built as a combination sport/aerobatic and racing model with just a little pre-planning, or, it can be built either way for fun flying or strictly racing. Study the plans and go over the building sequence before starting, and decide which type model you would like from your efforts.

A combination model can be built by switching a few plywood parts and building another wing and fuselage top to go over the second wing. The rudder push rod is locked in the equipment compartment when going to ailerons, and the correct propeller must be installed.

If there are no races to go to, bolt on the sport wing and enjoy the 'wild blue yonder'. If you are at a race and things are not going your way, bolt on the sport wing and forget about the races. If you would like to go 'full house' with the big wing, I suggest the dihedral be reduced to 1/4 inch under each tip. Cut 1-1/4 inch off the lower part of D3 and it can be used as a tip jig if you build it this way.

The model is not a six-hour project where you build a box and bolt the wing on, but the little extra time and effort produces a fairly realistic model that you will enjoy.

SPORT WING

When constructing the sport version of the lil' DUBLR, the two panels of the dihedral wing are built upside down over the plans. Pin top spars for each panel to plans, butting against each other at the centerline. Pin 3/16 x 3/4 T.E. in place for

use as a 'jig'. Glue ribs in place, pinning to spar and the TE 'jig'. DO NOT GLUE CENTER TWO RIBS IN PLACE AT THIS TIME. Glue bottom spars in place to ribs, butting together at centerline. DO NOT GLUE BUTT JOINT. Glue 1/16 x 1/8 x 16 inch strips on edge of two of the 1/16 x 1 x 16 inch TE sheets. Note side-view on plans of wing section. When dry, glue these sheets to ribs, butting against the rear of ribs and butting the ends of each sheet over the centerline. DO NOT GLUE THE ENDS TOGETHER. Pin sheets until dry..

Glue 1/4 sq. leading edge pieces to each rib on the panels, butting together at center. DO NOT GLUE BUTTED ENDS. Lay 1/16 x 2 x 16 inch leading edge sheeting in place over the ribs and check for fit. When fitted, glue these sheets to the 1/4 sq. ribs, and bottom spar. DO NOT GLUE BUTTED ENDS AT CENTER. Glue the 1/16 x 3/16 cap strips in place. Remove panels from plans and unpin the TE 'jig'.

Cut out the D3 fuselage doublers, which are used for dihedral 'jigs', and pin directly over rib No. 7, matching up the spar marks with the plans. Pin a scrap piece of TE stock to plans over center section as shown on the UPRIGHT 'jig' position.

Using a long flat sanding block, carefully sand spar ends, LE sheet, and TE sheet, to proper angles for good fit over centerline. Pin panels in place directly over plans to the D3 'jig', at the bottom spar ends, and to the scrap TE 'jig'. Glue 1/8 Lite ply dihedral braces to spars; glue the LE and TE also. Trim 1/8 inch from the front edge of spar cutouts on the two remaining ribs, glue ribs in place in center section.

Remove wing from 'jigs', and 'jigs' from plans. Pin the long TE 'jig' back in place. Pin one panel at a time over

plans, resting and pinned down to the 'jig' and bottom spar. Glue the 3 inch wide LE sheeting to the 1/4 sq. ribs and top spar. Glue 1/16 x 1 x 16 inch TE sheet in place, glue cap strips and center section sheeting. When this is dry, unpin and repeat the procedure on the other panel. When dry, unpin wing from plans and glue bottom center section sheeting in place.

Cut 3/4 inch TE stock into two 16 inch pieces, sand bevel into ends that meet at center section, pin one panel down at trailing edge and glue the stock to panel. When dry, pin other panel down and glue stock to it. Trim some sheet away from center section at the leading edge, trim center ribs down until WP1 fits good, glue 1/8 spruce to ribs, then glue WP1 to spruce; LE and the ribs. Glue WP2 in place. Glue 1/8 sheet tips in place and let dry thoroughly.

BUILDING THE FLAT WING

Pin the bottom 1/8 x 1/4 spar in place over plans. Pin the TE stock 'jig' in place on line as shown. Glue ribs in place, pinning to spar and TE stock 'jig'. Glue top spar to ribs.

Glue 1/16 x 1/8 x 29 inch strip to edge of 1/16 x 1 x 29 inch TE sheet, as shown on side-view of plans. Glue this TE sheet to top of ribs, butting the strip to back end of ribs, and pin in place. Glue 1/4 sq. LE stock to cutouts in ribs. Pin in place. Trim the top 3 inch wide LE sheet for a good fit at the 1/4 sq., then glue in place, pinning until dry. Glue center section sheet in place and the 1/16 x 3/16 cap strips. When dry, remove from plans, turn over, and pin in place to the 'jig' and top spar.

Fit and glue bottom sheeting and cap strips, using the same procedure as the top. Fabricate the aileron fittings while this is drying. Cut and install the TE stock pieces at the

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center section and the tips. When dry, gouge the TE out at the aileron fitting locations so the linkage works freely. Epoxy the 3/32 tubing in the cutouts, being careful not to get glue on the wire. When dry, fill in the voids with balsa putty or filler. Glue the 1/8 sheet tips in place, sand entire wing smooth with fine paper. Cut and fit ailerons at this time, but do not install until after wing is covered.

FUSELAGE

Lay fuselage sides out on a 3/32 x 3 inch sheet, using the thrust line as a reference point to locate wing and stab. Use a piece of 1/8 x 1/4 strip to get the gentle curve at aft end of side. Carefully cut side out, and using a ballpoint, lay out another side from matching wood. Lay out doublers with a ballpoint, using one of the sides as a pattern outline. Lay parts out on bench to assemble sides, one right and one left. Check fit of doublers, using scrap piece of 1/8 between D2 and D3.

Start side assembly by gluing D1's to respective sides squarely and accurately. Glue D2 butting against D1; use a piece of 1/8 scrap between D2 and D3 to align D3; glue D4 in place. Glue 1/4 triangle strips to each side as shown on isometric view. While this is drying, cut out formers from 1/8 lite ply and 1/8 balsa.

Remove sides from bench and sand taper into rear of triangle strips as shown on iso view and top view. Place plastic film over top view of fuselage and pin F3 and F4 formers accurately over their positions on the plans. Place each side against three formers and check for fit and alignment. If square, pin each side to bench at the former locations, using Kwik-set epoxy, or (Zap, Hot Stuff, etc.) glue, and pin sides to formers F3 and F4, making sure F4 is butted against back side of D3. Use 90° triangle against sides to keep things square while gluing these formers.

Draw sides together at rear and temporarily hold with a clothespin. Slip stabilizer into slot and check to see if it is level; adjust sides until stab is level with bench and sides meet over centerline on top view, then glue sides together. Lay out centerline and thrust line on F2 firewall. Lay out holes for Golden Bee or beam mount, drill holes, and install blind nuts, using a dab of epoxy to hold in place. Glue firewall F2 in place, squaring over plans and hold in place with rubber bands or tape. The 'hot' glues work good here as a quick 'fix', but be sure to use epoxy for added strength along joints on sides after getting firewall

in place.

Remove assembly from plans; glue 1/8 tank floor in place if using a beam mount. Glue 1/8 tripler in place inside D1. Glue triangle strips in place between F2 and F3, and also in engine compartment. Trim right side to clear engine. Bolt mount and engine or Golden Bee in place. Slip F1 over shaft; mount prop and spinner; center F1 behind spinner, and glue in place. Glue 1/8 ply LP in place with epoxy.

Check fit of F5 and F6 formers, trim if necessary, pin each in place against F3 and F4, glue ONLY the inside joint of these formers. The fuselage top will be cut away later. Start sheeting bottom with 1/8 balsa from LP to F4, 3/32 from F4 to rear, using glue generously on the 1/4 inch strips where sheet goes. Start sheeting top directly over joint at F6 and F4. DO NOT GLUE SHEET TOGETHER AT THIS JOINT. Glue the TH1 and TH2 pieces of 1/8 ply to F2 and F3 as shown on top view, also to one piece of the 1/8 balsa TH pieces. Glue the two TH pieces together. While drying, glue the bottom 1/4 inch sheet in place between F1-F2 and F2-F3.

Place top hatch TH piece in place and drill holes for SM screws. Screw hatch in place, glue 1/4 inch sheet to top of engine compartment, DO NOT GLUE sheet to front edge of TH.

Rotate spinner and scribe a pencil line around circumference of spinner on F1. Remove spinner, prop and engine. Sand fuselage to a smooth, rounded-corner box. Use a Zona saw and carefully saw between F3 and F5, also between F4 and F6, remove fuselage top, and lay aside temporarily.

If only the racing wing is to be used, glue three each WP3 and WP4 into slot provided on D3, using epoxy glue and making sure they are glued well to F3 and F4. If the model is to be flown as a sport or combination model, glue only two each of WP3 and WP4 into slots, the other WP3 and WP4 are glued to the bottom leading and trailing edge of racing wing as the plans show. Mark centerlines on formers F3 and F4, place wing in fuselage saddle centering on marks, and pin to sides. Measure from the tips to the rear of the fuselage to get the wing square. Shift if necessary.

Drill holes down through the wing plates and remove wing, tap holes in the ply plates in fuselage, ream holes in wing plates a little so bolt will slide in hole, and bolt wing to fuselage. If tapped holes are a little 'sloppy', smear some epoxy in holes. When dry, re-tap the holes. Locate

screw holes in top sheet of fuselage top that goes over wing, and drill holes for screw access. Place a piece of saran wrap or waxed paper against formers F3 and F4 at leading and trailing edge of wing, glue fuselage top to top of wing, centering it at F3 and F4. Pin until dry. Slide stabilizer into slot, squaring it up with the wing and fuselage, and glue in place. Slip front of fin into slot on F7 and check to see that it is straight and true. Use 90° triangles from stab to fin and glue in place.

Unscrew wing, finish inside of canopy on fuselage top to suit your taste, and glue canopy in place.

Bend landing gear and drill mounting holes, place LG on LP, squaring with the fuselage and leading edge of wing, mark holes on LP, drill and install blind nuts to LP with a dab of epoxy. Install 1/16 MW tail skid to ply sub fin using small wire and solder, overlaid with a coat of epoxy, and glue fin to fuselage. Glue two E1's to 1/8 sq. spruce.

Paint a layer of epoxy in the engine and fuel tank compartments, also the underside of TH. Sand the entire model with fine sandpaper to a smooth finish, and apply your favorite finish. The control surfaces can be attached with Monokote hinges, sewn on, or use mini-mechanical hinges. When bolting on the engine and landing gear, smear a little GE silicone on the screws before putting them in the blind nuts, this keeps oil out of the inside of model. Use the forward CG shown for racing, shifting the CG until it suits your preference for sport and aerobatic flying.

The lil' DUBLR has proven to be the versatile combination model that I had hoped for. I am sure that you will enjoy it as much as I have.

