

# The BLUE BOOMER

By RAY HARLAN . . . Farther out than John Denver, this all-sheet balsa indoor CO<sub>2</sub> powered twin-boom pusher provides all kinds of safety for "squirt motors", while letting you enjoy flying them.

• The sudden flurry of CO<sub>2</sub> motor designs on the market is enough to stir even the most lethargic model builder. These little power plants are clean, quiet, inexpensive, and don't demand giant models to handle them.

These new motors are a far cry from the models of thirty years ago, and they seem to call for a model a little out of the ordinary to pay due respect. The Blue Boomer sports some features not found at many weekend fun-flies. The pusher design helps protect the propeller bolt (seen many BA threaded screws hereabouts lately?). The tee-tail gives it a certain modern rakishness. Best of all, construction is really simple. You may even get a chance to roll your first tube and see how we indoor builders get our kicks. Let's go!

## FLYING SURFACES

Choose light, quarter-grained sheet for the wing, stabilizer, and rudders. For the wing, cut into three pieces and build the center section first, using two ribs to provide the airfoil at the dihedral joints. Carefully trim the tips so they fit the center section when held at the proper dihedral angle. Block up and glue them in place. Glue a paper-covered Twistem, with Titebond, to the bottom trailing edge of the right tip. Do the same for the bottom of the stabilizer, and the right sides of the rudders. The Twistem idea was borrowed from Frank Zaic and his great beginners series of kits.

## FUSELAGE

Cut a blank from light, quarter-grained sheet, and soak in water for ten minutes. Wet a 9 x 9 piece of light silkspan, and lay it on the kitchen counter, smoothing out any bubbles. Start to roll the silkspan around a 7/8 inch dowel until one turn is complete. Place the blank on the silkspan, parallel to the dowel, and continue rolling. Hold the paper together with small rubber bands, away from the balsa.

Preheat the oven to 250°F, and bake for fifteen minutes. Carefully unwrap the paper and remove the tube by sliding it off the dowel. Pre-glue the edges of the seam with acetone-thinned cement and a small brush. When dry, use wood blocks to squeeze the tube and hold the edges together. Again, using the brush and cement, cover the seam and let dry thoroughly. This is the easiest way to get a strong, straight joint. Repeat this process for the two booms, this time using a 5/16 rod as a form. If a metal one can be found, it will help make straighter booms. Dope booms and

cover with tissue to add strength. Leave the ends square for now.

Make the cabin from edge-glued strips of sheet to form one long, vertical-grained strip. Cut out, using the template, and bevel the inside bottom and rear edges. Wet the front well and bend around a 9/16 dowel. Clamp and let dry. Glue it on the fuselage (tube seam on the bottom) with Titebond. Close the rear of the cabin, joining the beveled edges. Cut a hole in the tube for the tank. Construct the landing gear as shown on the plan. Front assembly is similar to rear, but has a single strut. The 1/8 sheet webs are important stiffeners; don't leave them out. Slit the seam of the tube about 1/16 wide by 1 long in front and rear to allow landing gear to be positioned, and glue with Titebond. Add the sheet fairings and cover with tissue. Build the firewall and glue in place. Wheels are built up from sheet, two paper cones, and a 1/16 aluminum tube. Alignment is a little tricky, but this design gives a strong, light wheel. If you have the facility to vacuum form wheels, do! See April, 1976 *Model Builder*. Add wheels to gear and bend wire to hold in place.

Glue wing on cabin. Make struts from firm sheet, beveling to fit fuselage bottom. Glue in place, checking that wing center section remains flat. These struts add a lot of strength to the floppy wing and give needed support to the booms. Glue the booms in place on the wing ribs. If they have acquired any warps, rotate them until the curves lie in a horizontal plane and then attach to the ribs. This prevents twisting the stabilizer; the rudders can be glued straight ahead even though they may not be aligned with the booms. Now you can chamfer the boom ends and cover with thin sheet to improve their appearance. Add the stabilizer to the rudder tops. Complete any tissue trimming you desire at this point.

If you never have cut tissue trim, or find it impossible to get crisply-cut pieces, try this. Draw the pattern on bond paper. Lay down as many sheets of tissue as you want pieces of the same trim pattern (4 or 5 is OK). Now place a piece of waxed paper over the tissue and then put down the pattern. Tape it all to the workboard (use a reasonably smooth surface here). With a sharp blade (such as Uber No. 11, wcn), cut along the pattern. The waxed paper helps keep the tissue from moving

around while cutting. That and a sharp blade are the secrets to success.

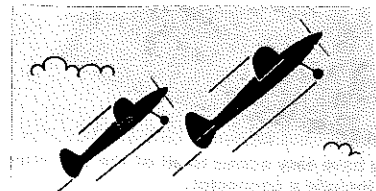
Do not dope the model, except to apply tissue.

Install the engine and tank. The filler tube is blocked in place with scrap balsa. Various motors have different filler designs, so improvise here. The important thing is to mount it firmly, with support for the fuselage. The CO<sub>2</sub> charger requires a pretty strong push to fill the tank. Finally, check the balance point, add any ballast required to holes drilled in the noseblock, and cement in place.

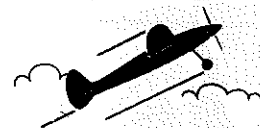
## FLYING

Bend about 1/32 inch of right turn into each rudder tab. Bend right wingtip down 1/8 inch. Test glide and adjust rudders and stabilizer until a flat circling glide of about twenty-five to thirty-five feet in diameter is obtained. Thrust line adjustments are not effective, because the motor is close to the C.G. Set the throttle to low and charge the motor inverted (gas charge). Test fly, adjusting rudders and right wingtip to counter any spin tendencies. The model can be trimmed to turn in a fairly small circle for indoor flying. After trimming, you can work up to longer, liquid charges and adjust the throttle to keep the model out of the rafters. Because the tank is partially shielded, the initial power burst actually sags until it is warmed by the airstream. This gives a little added duration. The charge never quite gives out and the model comes in for very realistic, weakly-powered landings. The Blue Boomer has given many pleasant one-and-half minute flights in a forty foot high gym with the Telco motor.

A final note . . . watch out for thermals when flying outdoors. If you insist on flying in the heat of the day, improvise some sort of dethermalizer. Spoilers might be best to protect the booms.



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