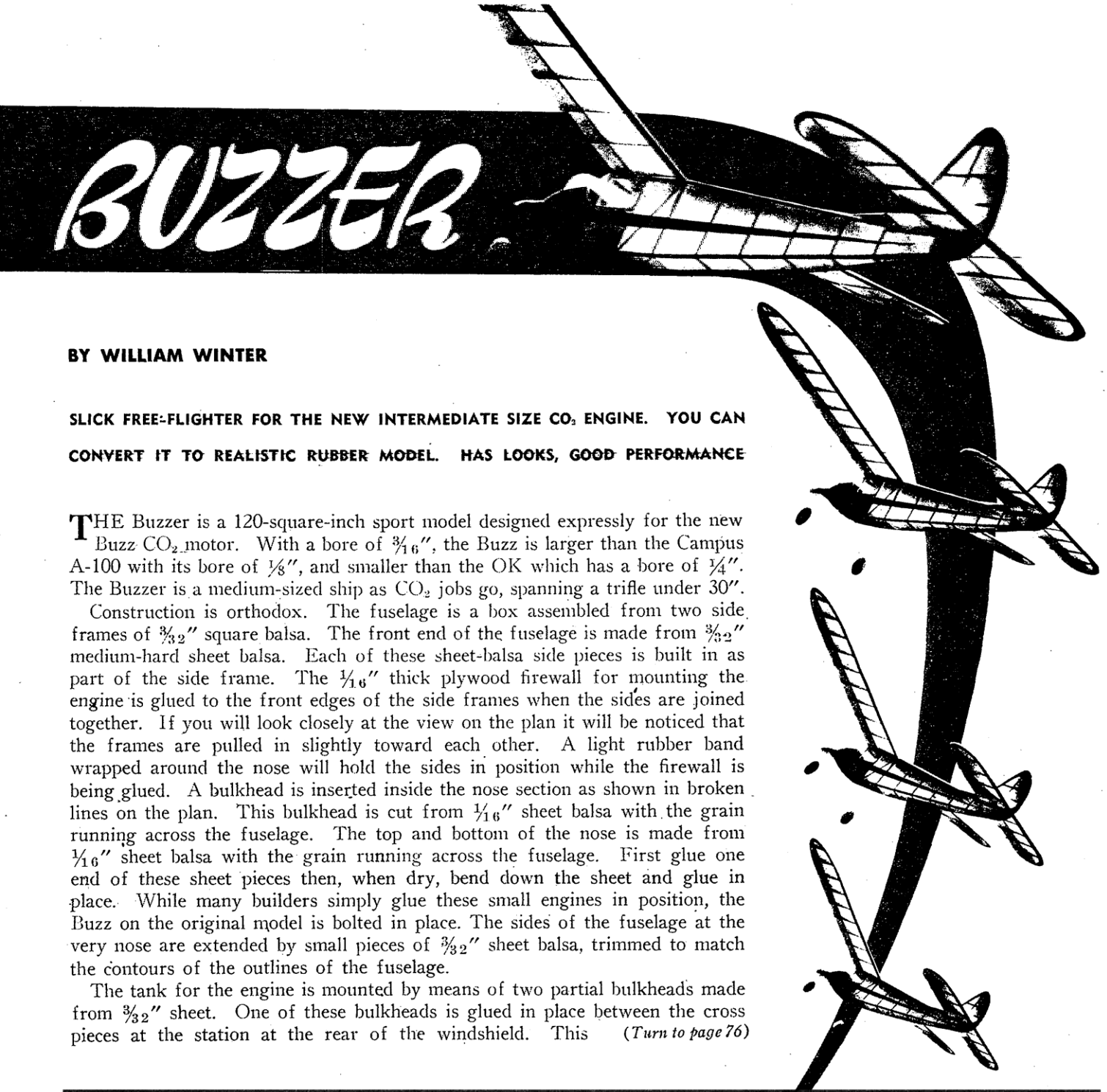
BUZZER



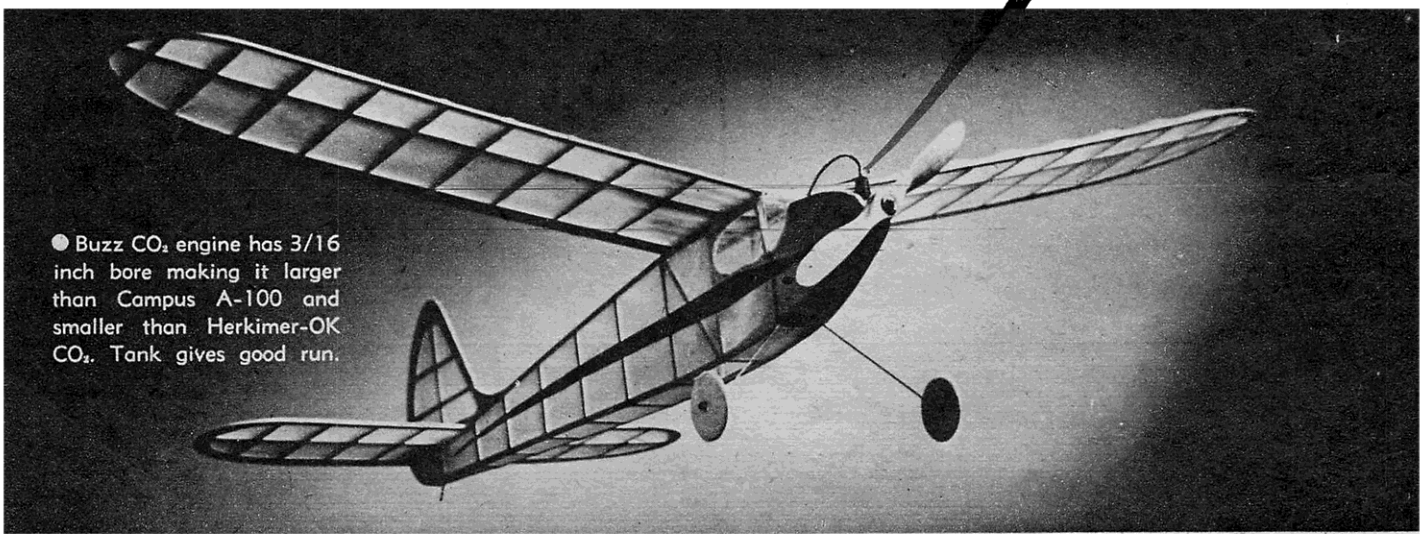
BY WILLIAM WINTER

SLICK FREE-FLIGHTER FOR THE NEW INTERMEDIATE SIZE CO_2 ENGINE. YOU CAN CONVERT IT TO REALISTIC RUBBER MODEL. HAS LOOKS, GOOD PERFORMANCE

THE Buzzer is a 120-square-inch sport model designed expressly for the new Buzz CO_2 motor. With a bore of $\frac{3}{16}$", the Buzz is larger than the Campus A-100 with its bore of $\frac{1}{8}$", and smaller than the OK which has a bore of $\frac{1}{4}$". The Buzzer is a medium-sized ship as CO_2 jobs go, spanning a trifle under 30".

Construction is orthodox. The fuselage is a box assembled from two side frames of $\frac{3}{32}$" square balsa. The front end of the fuselage is made from $\frac{3}{32}$" medium-hard sheet balsa. Each of these sheet-balsa side pieces is built in as part of the side frame. The $\frac{1}{16}$" thick plywood firewall for mounting the engine is glued to the front edges of the side frames when the sides are joined together. If you will look closely at the view on the plan it will be noticed that the frames are pulled in slightly toward each other. A light rubber band wrapped around the nose will hold the sides in position while the firewall is being glued. A bulkhead is inserted inside the nose section as shown in broken lines on the plan. This bulkhead is cut from $\frac{1}{16}$" sheet balsa with the grain running across the fuselage. The top and bottom of the nose is made from $\frac{1}{16}$" sheet balsa with the grain running across the fuselage. First glue one end of these sheet pieces then, when dry, bend down the sheet and glue in place. While many builders simply glue these small engines in position, the Buzz on the original model is bolted in place. The sides of the fuselage at the very nose are extended by small pieces of $\frac{3}{32}$" sheet balsa, trimmed to match the contours of the outlines of the fuselage.

The tank for the engine is mounted by means of two partial bulkheads made from $\frac{3}{32}$" sheet. One of these bulkheads is glued in place between the cross pieces at the station at the rear of the windshield. This *(Turn to page 76)*



● Buzz CO_2 engine has 3/16 inch bore making it larger than Campus A-100 and smaller than Herkimer-OK CO_2. Tank gives good run.

bulkhead also is glued to the bottom cross piece of the fuselage and serves as the mount for the landing gear. The other small bulkhead is mounted between the cross pieces directly under the wing; its location is visible on the plan. The tank is glued in place. Properly installed, these bulkheads place the tank at an angle convenient to refilling with the CO_2 cartridge holder through a hole in the bottom of the fuselage. The rearmost tip of the fuselage consists of two 3/32" sheet pieces built into the side frames. While these pieces appear to carry out the outlines of the rudder, the rudder later will be glued to the top of the stabilizer. The tail skid is made from light wire imbedded in a piece of 1/8" x 1/4" balsa. This piece is inserted between the sheet balsa portions of the side frames at the rear of the fuselage and glued on.

The landing gear is bent to shape from one piece of .034 music wire. The U-shaped section of the wire gear fits snugly against the sides of the fuselage when pushed up through the bottom. A copious coat of cement is used to hold the gear in position. Wheels are 1 3/8" in diameter and should be of light weight and low drag. Heavy, scale-type wheels should be avoided. When completed the fuselage should be gone over with fine sandpaper to remove all burrs and rough edges, to prevent wrinkles in covering.

The stabilizer is a lifting type with an airfoil cross section. It is assembled as you would assemble a wing. First cut out the ribs from soft 1/16" sheet balsa, pin them together as a bundle and sand smooth with sandpaper. Cut the tip sections from 1/16" sheet balsa and assemble these pieces over the plan with cement, then glue the leading and trailing edges in place. The leading edge is 1/8" square soft balsa and the trailing edge is shaped from 1/8" x 1/2" medium grade balsa. Due to the width of this trailing edge—used to insure proper shape without warps—heavyweight balsa wood should be avoided. Note that notches are cut in the trailing edge to take the rear tips of the ribs. To put the ribs in place, fasten down the bottom 3/32" square balsa spar, then glue in the ribs and, when dry, add the top 3/32" spar. When dry take up the stabilizer and round and shape the edges as required, using both your knife blade and sandpaper. The rudder is made from very soft 3/32" sheet and soft 3/32" square strips. The 3/32" dorsal fin is not added until the model has been completely assembled. In sanding the rudder, round the leading edge but bring the wide trailing edge to a fine edge.

Wing construction resembles the stabilizer construction in that two 3/32" square spars are placed directly over each other. All wood sizes are the same, with 1/16" sheet tips, 1/8" square leading edge and a notched 1/8" x 1/2" trailing edge. In assembling it is important that you prop up the leading edge on 1/16" sheet balsa scraps due to the airfoil contour of the wing. Otherwise, the edges and tips are tacked down and glued together as on the stabilizer. The bottom spar is put in place, then the ribs, and finally the top spar. Note that small pieces of 3/32" square extend from the last ribs of both stab and wing out to the tip to resist warping.

Dihedral is easy to install with this wing. Remove the section of the top spar between the two centermost ribs, then notch the top of the trailing edge, the bottom spar, and the leading edge at the point where the dihedral break occurs. The tips of the panels are then blocked up so that each tip is 2 3/4" above the surface of the bench. Now glue a piece of 3/32" sheet balsa on top of the bottom spar between the two center ribs and, as shown on the plans, glue in place the 3/32" spar joiner as a re-inforcement. Put a dab of cement over each of the notches.

In covering, cut four pieces of tissue for the fuselage with the grain running lengthwise. Dope down the front edge of the paper; then, when dry, pull lightly and dope down at the rear edge. Finally dope down the top and bottom edges. Be sure to dope down the paper along the edges of the window cut-outs. The stabilizer is covered with two pieces, one top and one bottom. If you have difficulty with the tips on the tail or on the wing cut separate small pieces for the tips. On the wing, cover the center section first, top and bottom. Then cover the wing panels top and bottom with four large pieces of tissue with the grain running spanwise. (Many builders run the grain of the paper chordwise because it will pull more tightly when water-shrunk. However, this distorts the airfoil section badly because of sag between the ribs.) When all surfaces have been covered, spray with water or wipe with wet cotton. If the tail or wing begins to show a slight warp hold the surface true while it dries. One coat of clear dope was used throughout; if your dope appears unduly heavy cut it with thinner before doping the wing and tail. Watch for warps while the dope is drying and hold the surfaces true if necessary during the final stages of drying.

Inasmuch as this ship uses a lifting tail it should balance from 50% to 60% of the wing chord. During testing it is a good idea to hold the tail in place with rubber bands; when the adjustments have been found, the tail can be glued permanently in position. When hand gliding, block up the leading edge with slivers of sheet balsa if the ship is nose-heavy, or under the trailing edge if tail-heavy.

Perhaps a word should be said tbout props for this new engine. Manufacturer's experiments at the time of writing indicate that a six-inch diameter gives best performance. While the model can be equipped with a cut-down seven-inch prop, a blank expressly worked out for the Buzz is included with the drawings.