

# The Whisp

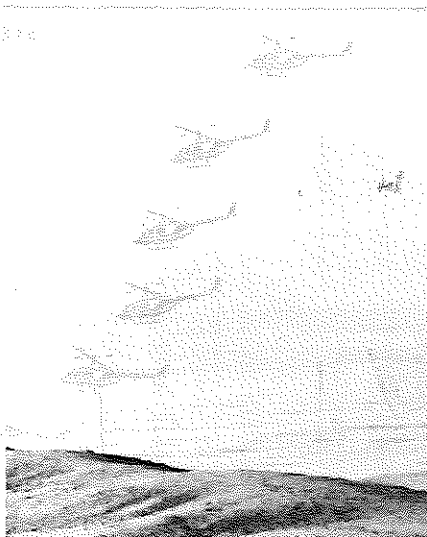
By JAMES TANK. . . Here's a simple, straight-line R/C glider with a 49-inch wingspan that'll go together in a short time and provide you with an exquisite flyer at a minimum cost.

- The Whisp is a 49-inch span R/C hand-launch glider you can fly almost anywhere. You do not need anything but your arm to get it to a launch height of 40 or 50 feet. With its flat-bottomed airfoil and light weight, it will sustain in the lightest of lift.

You won't need a lot of real estate to fly; just great for lunch hour or after work. The local park or schoolyard provides plenty of room. You might even try ridge-soaring off the local gym building when the wind is blowing. Any lift at all will keep this little guy up.

Well, let's see what we can do about getting one built for you. Before you run to your local hobby store, check your scrap file. Most of the parts are pretty small, so you can utilize a lot of those odd pieces that you've been saving. Make up a list of all of the rest of the material and hit the local hobby store.

Now that you're back with your little stack of goodies, let's get to work. The fuselage gets built first because we use the leftover 1/16-inch balsa to make the ribs for the wing later. First, cut out both fuselage sides, pin them together, and sand the



The author taking the Whisp for a ride above the Pacific at scenic Torrey Pines glider park in La Jolla, California. The Whisp is responsive, light, and a fine performer in the wind.

edges so that they are exactly the same. Glue the 1/8-inch square balsa longerons to the sides, being sure to make a left and a right side. Before you glue in the bulkheads (F-1, F-2, F-3), check to make sure your servos will fit. The receiver and 255 mA battery should be no problem. I used a standard four-channel Futaba receiver and had plenty of room. If your servos are too wide, just make the bulkheads a little wider.

Glue bulkheads F-1, F-2, and F-3, and the 1/16-inch balsa finger box to the right fuselage half, making sure they are nice and square. Take care to notch F-3 for your control cables. Taper the rear end of the longerons so the fuselage sides just meet. Drill the sides for your control cables, and, if everything looks nice and straight, glue the fuselage sides together. Then, sheet the top and bottom of the fuselage with 1/16-inch balsa cross-grain, making sure to leave a big enough hatch to get your battery and receiver in. Finally, glue on the nose block and sand the fuselage.

Now, let's get to the wings. First, cut the ribs out of the 1/16-inch balsa. Pin them together and sand them to exactly the same shape. Then take your razor saw and cut the notches for the spars. While you have the saw out, cut the two polyhedral braces and dihedral brace out of 1/16-inch plywood.

To build the center section, pin the 3/16 x 1/4-inch balsa leading edge, the 1/2 x 1/8-inch balsa trailing edge, and the 3/32 x 1/4-inch spruce spar over the wingplan. Fit in the bottom 1/16-inch balsa sheeting and glue it in place. Trim the second rib to allow for the 1/16-inch sheeting (top and bottom) and glue ribs two through seven in place. Now, carefully fit the 1/16-inch balsa shear webs in between ribs two through seven. Glue the 3/32 x 1/4-inch balsa turbulator spar in place and set the center section aside so we can start on the tip.

Pin the 3/16 x 1/4-inch leading edge, the 3/32 x 1/4-inch balsa spar, and the 1/2 x 1/8-inch balsa trailing edge over the plans. Starting with the second rib from the polyhedral joint, glue all the ribs in place. Add the 1/16-inch balsa shear web between the second and third ribs from the polyhedral only. Now, add the 3/32 x 1/4-inch balsa top spar and the turbulator spar.

Join the center panel and tip. To do this, you must block up the tip three inches at the end rib and carefully fit the 1/16-inch ply polyhedral brace between the top and bottom spar. Use your sanding block to ensure that all the spars and polyhedral brace fit perfectly. Glue the center section and the tip together. Fit the two ribs at the polyhedral joint and glue them in place. (You will have to cut them in half.) Don't try to save weight here by using only one rib; it weakens the joint considerably. Build the other wing the same way.

Now, carefully fit the two wings together. Block one panel up 2-1/2 inches at the polyhedral joint and join them in the same manner as the polyhedral joint. Carefully sheet the top of the wing with 1/16-inch balsa one rib out from the center in both directions. Glue a soft balsa block to each wing tip and sand the wing to the profile shown on the plans. Hang in there! We're almost through.

Cut the two elevator halves, the stabilizer,

the fin, and the rudder out of 3/32-inch balsa. The lightening holes are optional but they are recommended, especially if you use a mini-receiver and/or a 100 mA battery pack, or you may have to weight the nose considerably. Glue the elevator halves together with a 1/8-inch hardwood dowel, as shown on the plans. Make sure that the forward edge is straight and that both halves are on the same plane.

Now, MonoKote the fuselage, the stab, elevator, and the fin/rudder combinations. Use MonoKote for the hinges. Make sure to leave bare spots for gluing the stab to the fuselage and the fin to the stab. Glue the tail feathers in place.

Carefully drill a 1/8-inch hole in the middle of the leading edge right at the dihedral joint (see plans). Glue in a piece of 1/8-inch hardwood dowel in the hole with the end sticking out about 3/8 inch. Now carefully fit the wing in place and drill a matching hole in F-2. Drill another 1/8-inch hole in a small scrap of 1/16-inch ply to reinforce F-2. Fit and glue it into place.

Fit a small plywood shelf between the fuselage sides just forward of F-3. With the wing in place, drill a 3/32-inch hole through the wing and the plywood shelf. Fit a 4-40 nylon bolt and a blind nut to hold down the trailing edge of the wing to the shelf. All that is left is to cover the wing and to install the radio. Shoot for about a 7/8-inch throw in the elevator and a 1-5/8-inch throw in the rudder.

#### FLYING THE WHISP

After making sure that the center of gravity is where the plans show, gently test glide and trim as you would with any glider. Once you are satisfied that everything is trimmed, try some high-performance launches. Place your finger in the hole at the bottom of the fuselage and launch straight forward and up about 30 degrees. Launch it hard and into the wind. Keep your arm as straight as possible to avoid any injury to your shoulder. The Whisp should curve until it is almost vertical. Just before it stalls, level out and go off in search of lift.

I hope you'll enjoy your Whisp as much as I enjoy mine. •