

Build the OPËL

SPARS: 1/8" x 3/16" SPRUCE
TAPERED TO 1/8" x 1/8" AT TIPS

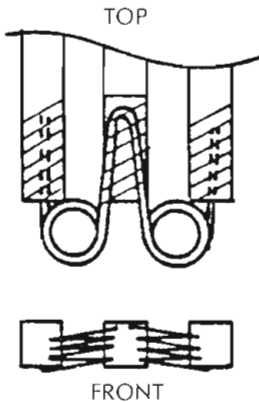
Build the Opël

adapted from the NOVAAR Free Press

The Opël (Russian for "eagle," pronounced *ohr-yole*) is a flex-wing B/G of the style that Russian and Bulgarian competitors at the last World Championships used to maintain formidable competitive pressure on the US Team. These plans were taken right from one of the Russian models brought back to the US by members of the US Team. Since the original publication of this plan, modelers all over the East Coast have been using similar designs and turning in incredible times. The advantage this model has is its low center of gravity and its unique dethermalizer system, perfect for smooth, diveless glides and easy recovery. In addition, it's different—perfect for all you modelers who get tired at times of airfoiling balsa—and incidentally, it's not hard to scale up or down for use with engines of different sizes.

Start with three two-foot lengths of 1/8" by 3/16" spruce spars. Drill a nose block down the center and glue the center spar into it, to the dimensions given. (Note: the diameter of the nose block and nose cone should fit whatever tube you will be using to boost the model. The original model's nose block dimensions are shown for accuracy, but the tube it fits was hand-wound.) Trim the other two spars to 22", and taper one side of each to 1/8" square with a spokeshave or plane. Pick a convenient gauge music wire (hint: the wire that seems so weak off the rack gets a lot stronger when shaped into short coils!) and form the two nose coils as shown. The center spar on the original model was carved out slightly (see Detail B)

DETAIL B.

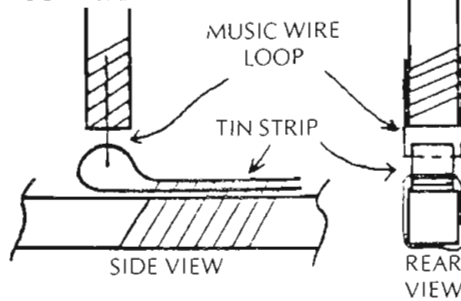


DETAIL C. CENTER SPAR ONLY

to accommodate the center of the coils. I would also suggest gouging out a small channel in the side spars to hold the coil ends. The wire is fastened to each spar by wrapping strong thread around the spar and wire, or by then coating the thread and spar with glue. The original modeler seems to have used something like Ambroid. When this is done, attach the stabilizing threads 4.5" back from the nose so that the tip of the spar is 13" from the center of the rear of the nose block.

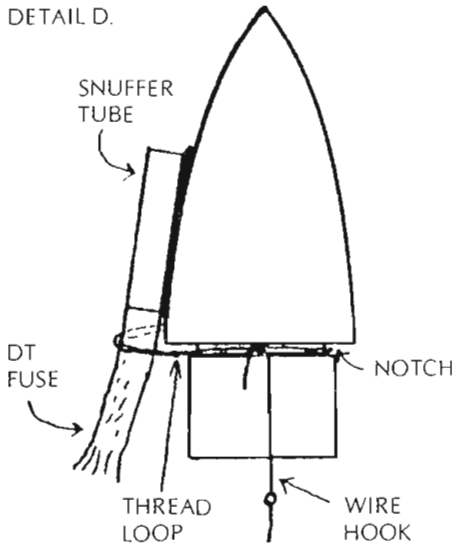
Take another 13" spar and make a U-shaped piece of music wire to fit it, across the 1/8" side of the spar. Use the same thread and glue technique to glue it to the spar, making sure it extends past the end of the spar about 1/8". (See Detail A.)

DETAIL A.



Now find a convenient piece of soft sheet metal (flashing is good) and cut a strip about 2" by 1/8". Wrap it around something small (like a round toothpick) and flatten it as shown in Detail A. Slip the music-wire loop into the center of it and fasten it to the center spar with thread and glue.

DETAIL D.



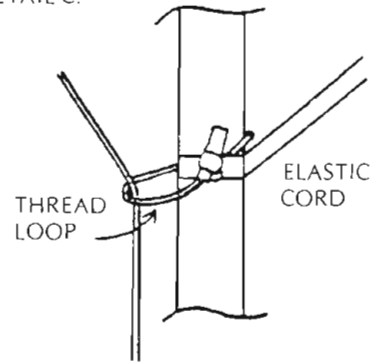
While this is drying, drill out the nose cone to receive the hanging spar. Trim the spar and fit it to the nose cone so that the spar's effective length is 11.75" to the bottom of the nose cone. Carve a small channel all around the nose cone, just under the shoulder. Carve a notch in the side of the nose cone and glue in a brass or aluminum snuffer tube, as shown in Detail D.

When all this has dried, attach the elastic cord at the points given in the plan. It should be taut enough to hold the nose cone boom hanging no more than thirty degrees out from the rear of the model—and if less, so much the better. However, you should be able to swing the nose cone all the way out to the front of the model without really straining the cord. Fasten a thread loop around the nose boom and run it under the elastic cord knot. Closed, it should extend about 1" away from the boom.

Tie a small loop of thread loosely around the channel in the nose cone. You should be able to slip a DT fuse under the thread without too much difficulty. Now attach a long string from the center spar (as shown), through the first loop of thread and run it by the nose cone. Make a hook out of music wire and hook it to the thread loop on the nose cone. Now tie the hook to the long thread so that when you take your hand off the nose cone, the thread will hold the boom at a ninety-degree angle with the center spar.

Now cut the wing out of 1/2-mil mylar, using the pattern shown. Fastening it to the spars will be tricky. The original modeler seems to have used his Ambroid-like glue here, but whatever glue you intended to use, try it out first on a scrap piece of mylar to make sure it doesn't melt the plastic! Glue one side spar first, the other next, and the center last. Our Russian modeler did a very good job of matching the edge of the mylar with the edge of the spar. If this sounds touchy to you, you might find it easier to draw the pattern on the mylar without cutting; glue the end spars as close as possible to your marks; and cut the mylar after the glue has dried. Make sure you run the glue ALL THE WAY down the spar—don't leave any gaps. When everything has dried, take a chunk of sticky mylar and slap it across the boom at the rear on the underside of the wing.

DETAIL C.



What you make for a booster I leave to your design—it's not very difficult or important. To prep for flight, insert the DT fuse as shown. Fold the nose boom forward, collapse the wing, and insert into the booster. Ignite the DT fuse and launch your model. At ejection, the nose boom will swing down at ninety-degrees and your model will glide. When the DT burns down, the hook will release and the elastic will pull the boom backwards, destabilizing the model and making it flutter to earth. A certain amount of trimming can be performed simply by adjusting the length of the hook line, making the nose cone hang slightly forward or back.

With a little practice, you will be getting your own "maxes" with this model!

Bcero xopowero! (Good luck!)