



By ROY L CLOUGH JR.

Unique gyrocopter-kite design launches itself without towing, costs less than \$1 to build

WHEN there's not enough room to run with a kite or too much wind to fly model airplanes, it's a perfect time and place to test fly this newly designed rotary-wing kite. All materials you'll need are available at your local hobby shop and in one evening's time you can have your 'copter-kite ready to fly.

First, layout the fuselage, stabilizer, rotors, and vanes (Fig. 3) on balsa stock and cut them out with a sharp hobby knife or razor blade. To shape the rotors and stabilizer, first crack them along scored lines as in Fig. 3A, then fill the crack with cement and prop up the end of the part until the cement dries. Note that the rotors are not identical, but are a pair, having opposite pitch for counter-rotation and are oppositely coned.

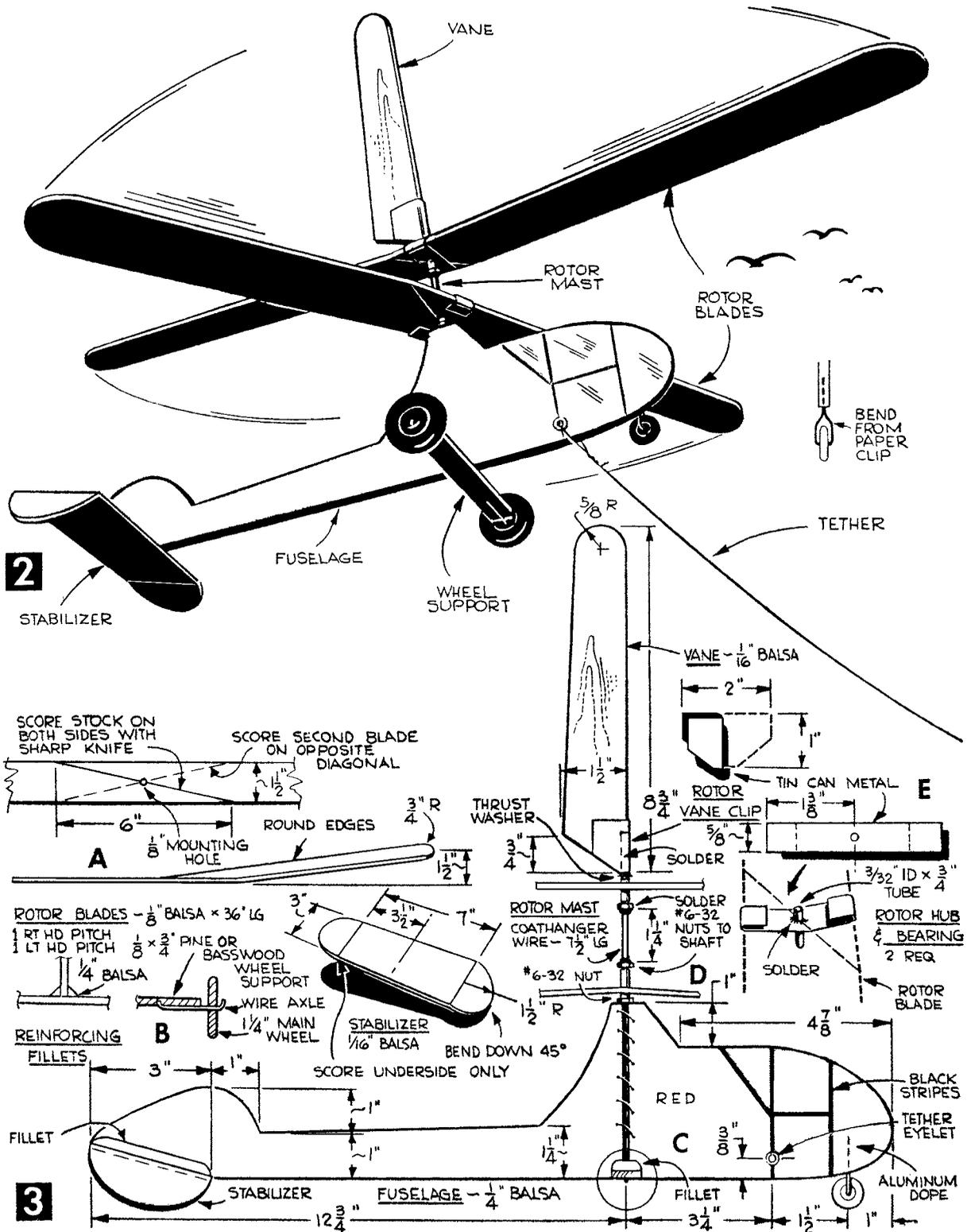
Now cement the stabilizer and landing gear support (Fig. 3B) to the fuselage, reinforcing the joints with a fillet cut from the 1/4-in. balsa stock.

Next cut the rotor mast from coat hanger wire and cement this to the right side of the fuselage, 12 3/4 in. from the aft end. Reinforce by sewing it to the balsa with a needle and heavy thread, then coat the threads with more cement. After installing the eyelet to which the tether attaches, sand the assembly with fine sandpaper and paint as in Fig. 3C, with model airplane dope. Do not apply dope to the rotors or vane.

The rotor bearings and hubs (Fig. 3D) are made of 3/4-in. lengths of tubing soldered to strips of tin can metal. Make two of these, form them over the blades, and cement them to the rotors as in Fig. 3E.

MATERIALS LIST—WHIRLYBIRD KITE

Amt. Req.	Size and Description	Use
1	1/8 x 3 x 36" sheet balsa	rotors
1	1/4 x 3 x 20" sheet balsa	fuselage
1	1/16 x 3 x 20" sheet balsa	vane, stabilizer
1	1/8 x 3/4 x 5" pine or basswood	landing gear support
2	1 1/4" Dia wooden wheels	main wheels
1	3/4" Dia wooden wheel	nose wheel
1	10" x .030 wire	axles
1	9" length coat hanger wire	rotor mast
3	#6-32 brass hex nuts	rotor spacers
1	3/32" id brass washer	thread washer
2	3/32" id x 3/4" brass tube	rotor bearings
1	2 x 4" tin can stock	rotor hubs
2	3/16" id brass eyelets	tether eye
Misc.	model airplane cement, red, black, and silver dope; and kite string	



Install the rotor blades on the mast next and solder hex nuts to the shaft to hold them in position. Slip pieces of brown paper over the shaft between each nut and the bearings to keep solder off of the bearings. Tear out the paper after soldering and lubricate with a drop of household oil.

When you have installed the vane (Fig. 2), and have made sure it is vertical, you are ready to flight test your model. Choose a spot

where you have a steady, moderately strong breeze, then tie the kite-string tether through the eyelet and pay off 30-40 ft. While an assistant holds the end of the line, hold the 'copter-kite at a steep angle into the wind and release it when the rotor blades are turning rapidly and you feel it lift. If it veers to either side, bend the rotor mast just below the vane in the opposite direction to offset the sidewise motion.