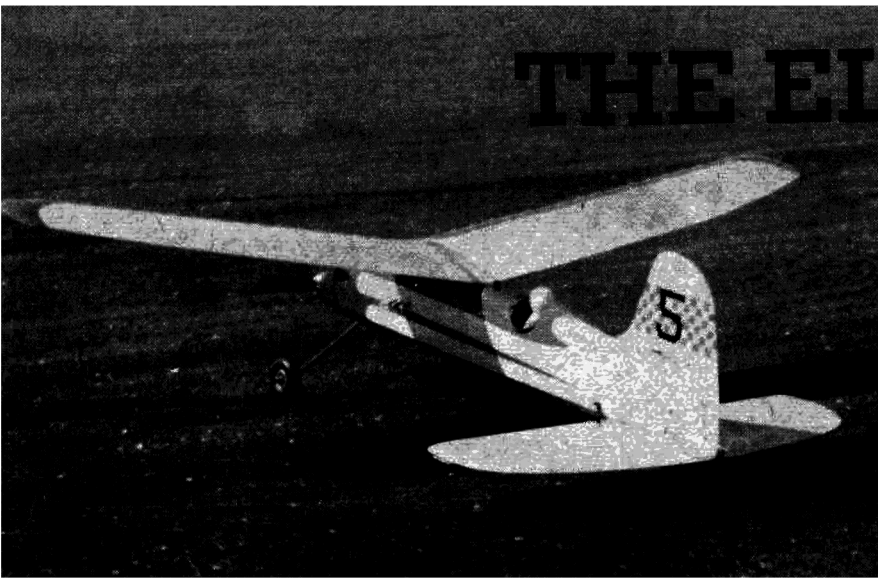


THE ELECTRON



Join the ranks of the ever-growing army of radio-control model fans by building this simple super-streamlined ship!

by Norman Rosenstock

● In designing the Electron, our basic idea was to develop a radio-control model that would be of rugged construction, give good performance and be realistic in appearance. The ship was to be built around the radio-control equipment, keeping the location of the components ideal as to weight (batteries forward, receiver behind), with a minimum of long wires.

Another important factor was that the innards must be easily accessible. In a converted free-flight model, you must either remove the wing each time the receiver needs any adjustment or cut a hole in the side of the body for a door, weakening the framework.

Our present Electron is the fifth model of this design. The original was a high-wing cabin job. This was discarded because of the structural weakness of cabins—they can't be braced as well as the rest of the airplane.

For comparison, here are some figures between an ideal radio-control model and a typical free flight ship:

Power loading: Free-Flight, 100 ounces per cubic inch—Radio-Control, 300 to 400 ounces per cubic inch.

Wing loading: Free-Flight, 4 to 12 ounces per square foot—Radio-Control, 12 to 24 ounces per square foot.

Rate of climb: Free-Flight, approx. 800 to 1,200 ft. per minute—Radio-Control, approx. 100 to 500 ft. per minute.

General specifications of the Electron are as follows: Wing span: 60 inches; Wing chord: 10 inches; Wing area: approx. 600 square inches or 4 square feet; Weight: 5 to 5½ lbs. (original was 5½); Wing loading: 22 ounces per square foot (at 5½ lbs.); Power loading: 440 ounces per cubic inch displacement (at 5½ lbs.); Power plant: O & R "23" or equivalent engine.

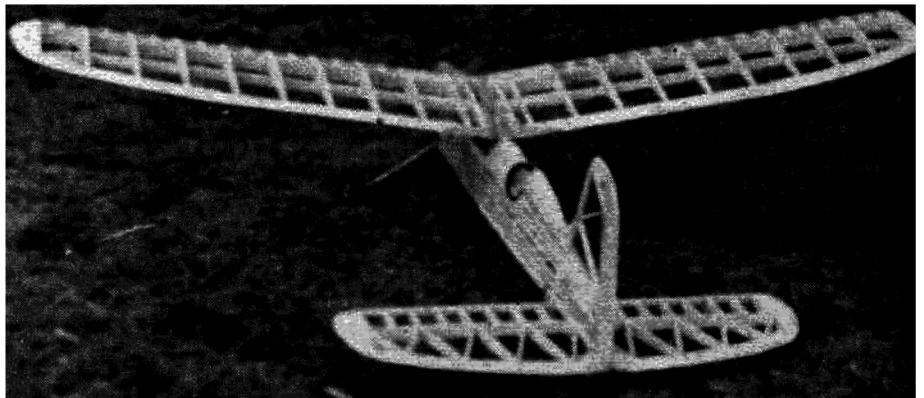
WING: Before you start actual construction, scale the plans up four times the size shown. Choose two pieces of ¼ by 1" for the main spar. Cut and splice the main spar to give the desired dihedral of 5". Cut two gussets from ¼" hard balsa sheet, cement to spar splice, and put aside to dry.

Then cut the trailing edges and splice tip taper as shown on plans (The usual procedure is to make one left and one right).

Now cut out the ribs from medium-hard ⅛" wood, being careful to keep the spar notches perpendicular to the bottom camber to prevent warps. Tack the spar and trailing edge to the plans. Then, starting at the tip end of the wing, cement the ribs in place up to the gusset plate. Allow time for the cement to set so that the structure can be removed from the plans (Don't worry about the leading edge and spar, we'll come back to that later.)

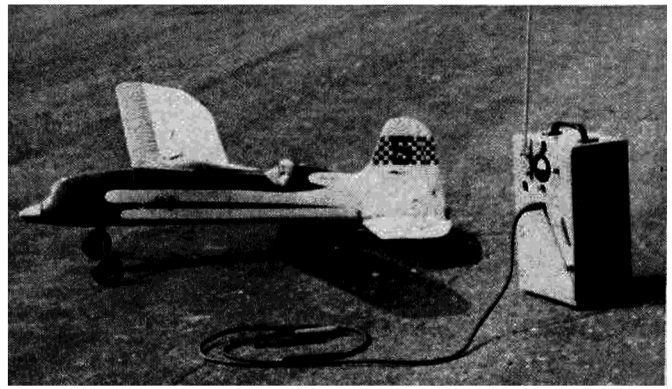
Pin the other side of the main spar and trailing edge to the plan and follow the same procedure to construct the other half of the wing. Laminate two pieces of ¼" x ⅝" x 29" medium hard balsa for the leading edge. Remove the wing structure from the plans, stand it up on its trailing edge, and pin the leading edge in place. It is necessary to put the edge on

Weight is relatively unimportant on a radio-control job, so the Electron has been "beefed-up" for strength. Note the generous use of false ribs and stringers and the rugged construction.





Accessibility is the keynote here. Both sides of the fuselage feature removable hatches for quick inspection and adjustment of the radio unit.



The Electron closely resembles a Goodyear racer. In spite of the high wing loading, the clean lines give the model a very fast and flat glide.

in this manner because of the curvature of the leading edge of the rib.

Now saw two pieces of $\frac{1}{4}$ " x $\frac{5}{8}$ " rock-hard wood 29" long for the rear spar, and cement well in place, butt-joining the spar in the center. Before inserting in place, taper the rear spar to $\frac{3}{8}$ " from rib R2 to the tip. Cut gusset plates for the rear spar and leading edge out of $\frac{1}{4}$ " sheet balsa. Cement these gussets in their respective positions.

Take the remaining ribs, enlarge the spar opening to fit over the gusset plates, and cement the rest of the ribs in place. By now, unless you've been sleeping, you should have the false ribs cut out (this was done with your third hand, of course). That's right, cement them in place and also cement the tip blocks in place.

Carve the tips and leading edge to shape when dry. Then shape

plywood reinforcement pieces as shown on the plan and cement them in place with C-clamps, being careful not to crack the plywood at the dihedral joint. Sand the entire wing and cover with silk.

STAB: Select a piece of $\frac{1}{8}$ " x $\frac{3}{4}$ " rock-hard balsa for the spar and cut it to the length shown on the plans. Cut and splice trailing edge pieces and allow to dry. Pin the spar to the plans and cement the tip ribs in place (All stab ribs are made from $\frac{1}{8}$ " x $\frac{3}{4}$ " medium soft balsa).

Make the leading edge from $\frac{1}{4}$ " x $\frac{3}{8}$ " hard balsa and block it up with $\frac{1}{4}$ " sheet so as to raise it off the plans to the exact middle of the airfoil. Then, pin and cement it to the tip ribs and fit the remaining ribs in between the spar and leading edge.

Follow the same procedure with the trailing edge. Cut the tip

blocks to shape and cement in position. When dry, use a block plane or a knife to shape the airfoil and tips to a symmetrical cross-section. Cement the plywood reinforcement in place, sandpaper the entire tail, and cover with silk.

FUSELAGE: Select two pieces of $\frac{1}{4}$ " x $\frac{1}{2}$ " rock hard balsa and cut them 42" long. It will be necessary to make a diagonal splice in most cases to obtain this length. Start at the tail end of the fuselage, cementing the crutch together and binding it with rubber bands. Cut the crutch cross pieces from $\frac{1}{4}$ " x $\frac{1}{2}$ " medium hard balsa and, working your way forward from the tail end, insert cross pieces up to station 3.

Cut the motor mounts using the pattern on the plan (Plan shows only the left half, so double it up for the whole pattern). Pre-cement the (Turn to Page 52)

Make sure you check the operation of the radio and controls before each flight—a cracked-up radio-control ship is mighty expensive junk! A D-E

Aerotrol unit was used in the original Electron, but one of the Citizenship Band units (requiring no operator's license) may be substituted.

