



CHUCK CUNNINGHAM

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QUARTER MIDGET RIVETS

In the June issue RCM presented the new Quarter Midget racing class and the proposed rules by Chuck Cunningham. This month we are presenting the Rivets Quarter Midget designed around these new rules. We chose the Rivets because of its unusual design and appearance. In addition, the Rivets has been very successful in the racing circuit in the last few years with Joe Foster and his Rivets walking away with a truckload of hardware in the

450 class. Several advantages of the Quarter Midget are apparent from its small size: it can be built rather easily and quickly and can be transported without taking the wings off the airplane every time you want to move it. In fact, it will almost fit in the glove compartment of your car! The Quarter Midgets can be flown from a much smaller field and, in fact, if there is a lack of a good smooth runway, it may be hand launched and then landed in

the grass at the end of the race.

CONSTRUCTION

Start construction with the wing, using 16" x 12" x 36" sheet for the bottom panel. Lay out the two bottom wing panels using the outline from the plans. The wings are built up directly on the bottom panels, so be sure to pin them down securely on a flat surface. Cut out the landing gear block and epoxy three 4-40 blind nuts in each to



One of the photographs you usually never see in magazine construction articles! Photographed at L.A. Model Airport after Dick Sonheim decided to see what would happen if the C.G. was moved further aft.

match the holes drilled in the landing gear block. Glue the leading edge, spars, ribs, landing gear block and tip block on the bottom panels. Cut out the aileron section and glue in a piece of soft balsa to simplify mounting the hinges. Cut the opening for the aileron to fit standard $\frac{3}{4}$ " trailing edge stock. After this has dried, install the bellcrank and aileron pushrods. Before glueing on the top sheeting, drill small location holes through the center of the landing gear blind nuts and through the bottom panel, so that you can locate the nuts from the outside of the panel later on. After the top sheeting has been added, add a strip of $\frac{1}{8}$ " x $\frac{1}{8}$ " hard balsa trailing edge and sand it down. When joining the wing panels add $\frac{1}{4}$ " dihedral under each wing. This will eliminate the "drooping" appearance if built flat.

Cut out the lower side panels of the fuselage making sure to cut out the wing opening at the same time as shown on the plans. Glue the longerons to the side panels. When assembling the fuselage, start with the former behind the cockpit and work your way up to the firewall and then back to the tail section. Use temporary $\frac{1}{8}$ " square balsa strips above the wing area (cut to size from the plans) to give the fuselage its proper shape. These will

be removed after the wing is glued in place.

Complete the turtle deck as shown on the plans. Build the hatch and canopy section right over the fuselage using a piece of wax paper to keep the hatch from sticking to the fuselage. The rudder is built up and sheeted with $\frac{1}{32}$ " sheet. Be sure to cut a slot in the rudder framework for the elevator Nyrod. Glue the rudder between the lower side panels so they taper in tight against the rudder. At this point you can prepare the fuselage for mounting the wing. With a sharp razor, cut the lower panels under the wing opening and at the leading and trailing edge. The $\frac{1}{8}$ " square cross pieces you put in earlier will hold both sides together. Fit the wing into the opening, checking to be sure the bottom of the fuselage will fit back properly. Before glueing the wing into position, draw a line along the top of the wing along the inside of the fuselage. Now, with your Dremel jig saw, cut out the leading edge back to the spar. The latter will be the opening for the fuel tank. Now glue the wing and bottom fuselage section into place and after it has dried, give it another good coat of glue or epoxy. The stabilizer can be glued on top of the rudder, being very sure that it is straight.

Mount the motor on the firewall and build up the cowling and nose section with balsa blocks. The cheek cowls are cut from balsa blocks using the outline on the drawings. Round off the corners for proper appearance and shape and hollow out with your Dremel grinder. When the cheek cowls are glued in place they will greatly strengthen the wing. Use Epoxybond putty for all fillets around the cheek cowls, wing and tail sections. For added strength, run a piece of fiberglass under the wing, around the landing gear and into the side of the fuselage. Before putting the bottom sheeting on the fuselage, run a length of Nyrod up the center of the rudder and out the side for your elevator Control. Also, run a control wire or Nyrod along the inside of the fuselage and out one side in the rear for the rudder.

The canopy is made from a 14" Sig canopy cut to fit the opening on the canopy section. Use your favorite covering material and paint. Keep the plane as light as possible. With a .15 engine the Rivets will move right along so it is best to keep your control movements to a minimum for test flying. The CG must not be further back than shown on the plans.