INTRODUCTION.

This model incorporates very simple constructional methods, so that anyone can make it. This kit follows the usual Frog procedure of laying out the parts on the plan and numbered to correspond with the drawing, leaving very little shaping to be done. The greatest part has to be cut out of the panels with a hacksaw, or a razor-blade broken in two to obtain a point.

Pin the drawings to a flat board to work on, and cover it with a sheet of greaseproof paper to protect it from the camera. Dope and cement are not included in this kit, but can be obtained at any model shop.

CONSTRUCTION.

FUSELAGE. This is a simple box-type structure, which can be built mainly over the plan. First build the two sides from 1/16 in. square strip 1 and 2; and parts from sheet 1, as shown in Fig. 4. Depress the strips, and build the second side over the first, with a piece of tracing-paper between them. Note the joints in the lower horizontal. While these are setting, make up the bulkheads 5, 6 and 8 over the plan as shown in Fig. 4 and remove part 7 from the panel, keeping the centre part 18 for the nose-block.

Remove the side frames from the plan, and cement bulkheads 5 and 6 in place, checking over the plan view for squareness. Next cement the bulkheads 7 and 8 in place, then cement the rear end of the fuselage together using thin elastic bands to hold them in place until they are set. Add the cross-straps 9 to 12, halves of bulkhead 10, and strainers 13 of 1/16 in. square. Figs. 1 and 2. Bend the U/C from the UG, to shape, to the shape given on the drawing, the top being bent forward as shown in Fig. 2. Bend it with cotton and cement it well to the longitudinal and cross-straps. The strengthening gusset is cut from scrap tubing. Cement the whole-halves together and fit them to the U/C, using washers fitted to the axle to hold them in the cement part 19 level with the lower horizontal, and 14 level with the upper ones. Cut strips 15, and cement them in place for the window frame support, followed by the front rowing parts 16.

Cut the dowel 17 to length, and cement them against bulkheads 5 and 6. Cement the paper tube 18 against bulkhead 9 and reinforce it with gussets made from strip balsa. Build up the under-fin from strip and cement it in place on the fuselage.

Cement the piece 19 to the back of the nose-block and check the position by filing to the fuselage. Mark the outline of the front bulkhead, and curve the block to the shape shown in the plan and side-view. Fit it to the fuselage for final shaping, then apply a coat of dope, and fit the metal bush 21.

CAIN. It will be easier to fit this after the covering the bottom, but that may not be ideal, so it should be fitted in a different way. First bend the collar to shape, and cement it in place. Then cement the sides. Cut a hole in the side windows for the lowest 17 and cement these in place.

AIRSCREW. Two blades and a plotted hub are supplied, which should be assembled as shown in Fig. 6, after checking which is the L.E. against the dotted outline on the plan. When they are set, stand them in the position shown, and mark off the hub. Apply a coat of dope to seal the gaps and cement the plastic bush 22 in the centre hole. Balance the aircrew on the shaft, and if necessary, sand the heavier blade until the aircrew will stop in any position. It can be covered with tissue to obtain a good finish and strengthen it.

Assemble the aircrew to the nose-block with the shaft 23. This should have a hole at the rear for the plastic cone, and after assembling the noseblock and aircrew, make a loop at the front end for the take-off device. This is merely a length of wire screwed loosely to the propeller so that it engages with the loop on the shafts.

WING. Build the two halves over the plan separately. First lay the leading and trailing edge 61 and 62 over the drawing, with pin placed either side where necessary. Then cement the ribs W3 to W9 in place, and tip pieces W9 cut from 3/16 in. strip, together with gussets W10 and W11 from sheet 1. Taper the spar at the tip, and cement it in place in the rib slots. When both sides are built, and the cement has set, remove them from the plan and trim the parts to length, making a trapezium of the main spar as shown. Lay the wing-tubes over the lower covering, raise the tips 2, and streighten the centre section, using the strips W12 and W13 as shown, and shape them after. Sandpaper the leading edges and tips to shape, and smooth down the whole structure.

TAILPLANE. Pin down the leading edge strips 71 and jointing strip 72, cut from 3/16 in. x 1/46. Then pin down 73 and 74, followed by the 15 x 6 and tips 79, cut from 3/16 in. strip. 106 and 107 are ready-cut parts on sheet 1. Cement the spar 110 in the rib slots, and shape the ends. Fit the centre gussets, and sandpaper the trailing edge and tips to shape.
WINGS. Build the two halves over the plan separately. First lay the leading and trailing edge W1 and W2 over the drawing, with pin placed either side where necessary. Then cement ribs R5 and R6 in place and tip plates V7 cut out from 3/8" balsa, strip together with gussets W18 and W11 from sheet 1. Taper the spar at the tip, and cement it in place in the rib slots. When both sides are built, and the control has set, remove them from the plan and run the spar to length, making a lap joint of the main spar as shown. Lay the wings between the lower drawing, raise the tip 2-3", and assemble the control-section, using the strips W12 and W13 as shown, and shape them after. Sandpaper the leading edge and tips to shape, and smooth down the whole structure.

TAILPLANE. Pin down the leading edge strips T1 and joining strips T2, cut from 3/8", x 1/8". Then pin down T3 and T4, followed by ribs T5 and T6, and tips T7, cut from 3/8", x 1/8". Strip T10 and T11 are readiest parts on sheet 1. Cement the spar T12 on the rib slots, and taper the ends. Fix the centre gussets, and sandpaper the leading edge and tips to shape.

FIN. This is built over the drawing, using parts F1-F4, and strips where shown. Raise the machine with this card, to centre it against the 1/16", square strips. Fix the nose-cone with aluminium strips, and sandpaper the edges of the fin to a streamlined section.

COVERING. Cover the model with the paper supplied, in the following order —fuselage top and bottom, then rudder. Wing and tailplane undercarriage, then rudder. Fin, each side separately. Useoffice paste or dopes for bonding. Cut the paper to the approximate shape first, leaving a 1/2", margin all round. Apply paste to the edges of the frame, then lay the tissue over it, and pull gently all round. Do not attempt to get it drum tight, but aim at getting an even surface, with no deep wrinkles. The water-spraying and doping will tighten the surface.

Before doping, light brush or spray each part with water and leave to dry. Spray half a wing at a time, and pin it down to a flat board to prevent warping whilst it is drying. On the same with the tailplane. When they are completely dry, give each part a coat of dope, then pin down the wing and tailplane again, when the dope begins to dry. A coat of clear cellulose varnish over the whole of the model is beneficial.

Painting should be restricted to the fuselage to save weight.

RUBBER MOTOR. Make up a skein of 6 strands of 1/16", x 1/20", unto 26", long. This is longer than the fuselage to enable more turns to be obtained. A shorter one can be used if desired, the same being progressively reduced. Lubricate it with vaseline oil or lubricant before fitting. Loop one end on to the screw and shaft, securing it with thread and drop the other end and the fuselage and secure it with the dowel pin.

ASSEMBLY. Fitting the motor and screws, the rest of the model can be assembled. Use two 2/16", x 1/4", elastic bands to hold the wing in place. They should be stretched diagonally over the center-section and back over the dowel 17. For the tailplane, loop two 2/16", x 1/4", elastic bands together to make one double length. Insert it through the tube 10 with a piece of wire, stretch both ends over the coil and on to the pin at the rear of the fuselage. Check the rig of the complete model; the tailplane should be in line with the wing, and the fin mounted. There should be no warps in the flying surfaces. If the balance is too far from the position shown on the drawings, add ballast weight to the nose to correct it.

FLYING. Choose a calm day for the first tests. It is an advantage to have a helper to hold the model whilst winding. If not, take up the slack on the motor by allowing the model to be suspended by it when winding up. Start with 100 turns on the aircrew and launch the model on an even level. It should fly straight and level with a slight left turn. If it meets a wall or tips, raise the tail only of the tailplane by putting away the fin-plate 4", and raise the nose 3-4".