

The full-scale Twister, designed by Vernon Payne in 1932, has always been of interest to builders because of its small 15-foot span and beautiful lines.

The Knight Twister

By Walter Schroder

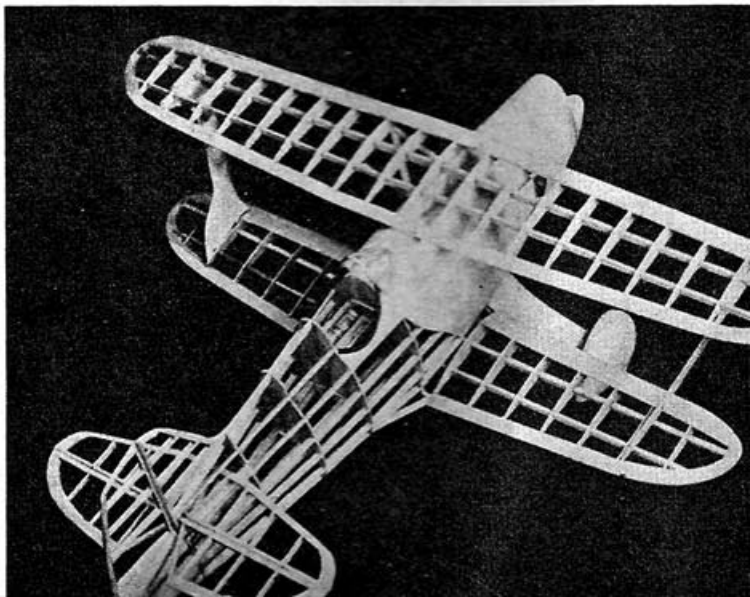
THIS control-line Knight Twister is a compromise between speed models and the so-aptly named "Goats." The prototype's well known lightplane history and the opportunity to combine exciting scale-model possibilities with a reasonable rate of speed, make her an ideal project for scale control-line fans. Simplicity is the keynote of the entire construction. The sturdiness and flyability of the plane will permit the use of a Forster "29" or "305," or even any other small, class "C" motor. The use of a biplane with its increased wing area permits the average control-line flyer to land this model without incorporating all sorts of complicated gadgets to blip the motor, throttle control, or spark control. Its ability to glide the model after the motor cuts offers all sorts of possibilities for stunting and regular flight maneuvers.

Fuselage: A conventional crutch of $\frac{1}{4}$ " x $\frac{1}{2}$ " is used. Glue all upper formers in place while the crutch is drying, then install the control system. Make a platform of $\frac{3}{32}$ " sheet and glue it on top of the crutch at the center of station #3. The control fulcrum of $\frac{3}{32}$ " plywood is mounted on the platform, with an ordinary #9 wood screw acting as the anchor and bearing point of the fulcrum. Be sure to use a small copper burr between the head of the wood screw and the control plate, plus two copper burrs between the bottom of the control plate and the plate platform. The anchor screw for the control plate enters and fastens in the fuselage crutch cross member at station #3. Bend the control rod of light aluminum rod or .031 drill rod and place in the plate.

Glue all stringers and the front nose block in place before planking the model with $\frac{1}{8}$ " x $\frac{1}{4}$ " soft balsa planking. Draw the planking outline on the stringers and then recess them to a depth of $\frac{1}{8}$ " at the point where the planking ends. The landing gear fairings are made independently of the fuselage and are slotted

HERE'S WHAT COUNTLESS BUILDERS HAVE BEEN REQUESTING—A CONTROL-LINE KNIGHT TWISTER. DESIGNED FOR EASY BUILDING, FLYING

Give a look at the construction; this model was built for wear and tear. Finished, she weighs but 24½ oz. Wheels, pants, and struts are removable.



Knight Twister

to receive the $\frac{1}{8}$ " landing gear wire. The pants and fairing are made independently so that they may be removed when flying. The lower wing is mounted by inserting the main spar into a box made of $\frac{3}{12}$ " sheet glued to former at station #4. (The planking on the ship is the bottom of the spar box.) Piano wire is used to brace the lower wing after it is glued in place. (.040 dia.) Drill the wing fillet block at the base of station #3 and insert the piano wire through the fuselage. Bend both ends of the wire at right angles; groove the leading edge of the wing and insert the right angle bends into the grooves.

Wings: The upper wing is constructed in one piece as no dihedral is used. Do not cover between ribs #1 and 2 until the wing is glued in permanently. Make $\frac{1}{16}$ " sheet gussets and glue against spar and rib #2 to prevent the rib from warping when doped. Gussets are also used on the lower wing at rib #1; glue them against the main and auxiliary spars. The lower wings are also covered before glueing in place.

The main wing struts are made of $\frac{1}{4}$ " sheet, shaped to the outline on the plans, sanded to a streamlined shape, and then glued as shown on the plans. The auxiliary "N" struts are made of $\frac{1}{8}$ " x $\frac{1}{4}$ " soft balsa.

Both the stabilizer and rudder are of conventional design and require no special instructions. The stabilizer hinge rod is made of an ordinary straight pin bent to right angles at both ends. The hinge is made of sheet aluminum drilled at one end and inserted over the pin. The front spar of the stab is notched to receive the head of the hinge and also the hinge rods, which are pushed through the spar at the ends and inserted into the notch on the spar. The long end of the hinge is glued against the stab rib. The rudder hinge is made of thin-gauge sheet aluminum and pressed through the two rudder spars, where both ends are bent at right angles to the spar and glued in place.

The landing gear is fastened to the $\frac{1}{8}$ " plywood former at station #3 in the conventional manner, using light gauge sheet aluminum strips over the wire. It is then bolted in lace with $\frac{3}{48}$ rd. head brass or iron machine screws. Cooling louvers are made of tin rescued from the salvage heap and bent to the outline shown on the plans. The wing mount for the upper wing is made of medium soft balsa to the outline shown on the plans and glued on top of the fuselage planking. The top of the mount is recessed to receive the center wing rib and the main and auxiliary spars.

The engine cowling hatch is cut after the planking has been finished, sanded, and covered. The cowling hatch is split through the center of the fuselage for the main opening and is cut from the side of the fuselage at the position indicated on the plans. Crinoline hinges are used. Rubber-band hatch springs are fastened to hooks on the inner side of the hatch and to hooks fastened to the firewall.