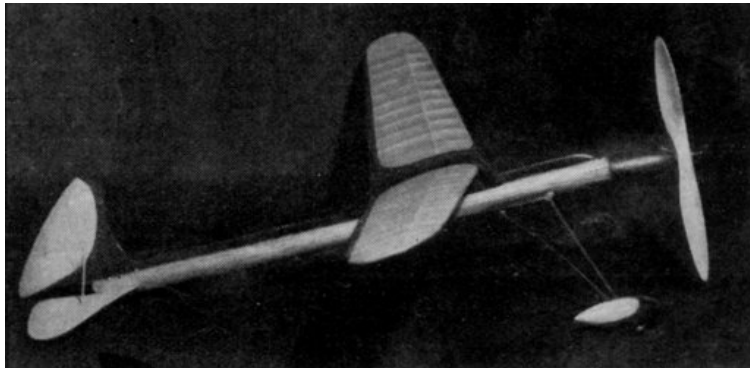


A Tube Tractor for the Experimenter

Here Is One of the Finest Little Stick Type Duration Planes That Will Ever Emerge From Your Workshop to Give You Hours of Pleasure

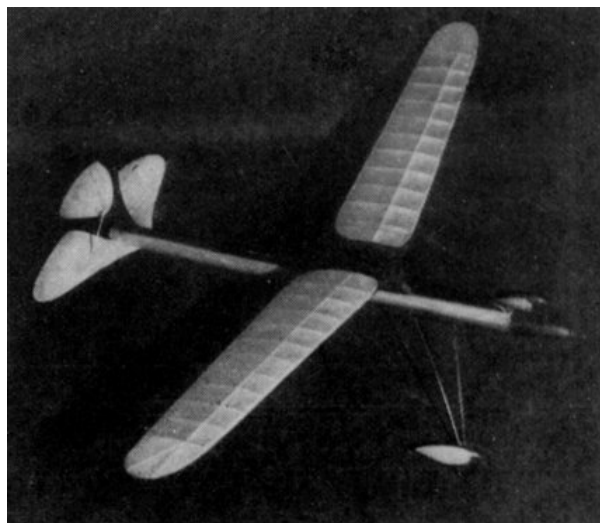
By WALTER FARYNK



With parasol wing and pants it is very stable

HERE is a model designed from the drawing board, retaining its sleek lines and possessing fine flying qualities. The photographs clearly show the simplicity of the model. With reasonable care, anyone can turn out a model that will give many hours of enjoyment both in the flying and building.

This model features a tubular fuselage that is sturdy, weighs little and is easily built. The wing alone requires detailed construction; the tail is made of sheet balsa. The scientific builder and experimenter may see greater possibilities in this design than here shown, and with a few minor changes, he can build an exceptionally fine contest stick model.



Note the trim lines giving efficiency and beauty

Fuselage

The general rule in building a streamlined fuselage is usually by means of a jig; a tedious and painstaking job. Our fuselage is built in a simple and novel manner. The fuselage itself is made of one piece of medium soft sheet

balsa measuring 1/16" x 3" x 18". This is sanded lightly to remove the roughness. Now soak the sheet balsa in hot water until soft and pliable. When sufficiently pliable, bend it around a one inch diameter dowel (a broomstick will do). Wrap gauze around the whole (in order to keep its round shape), and place in an oven until dry. When it is dry,

remove the gauze and shell from the dowel. Now slip shell on dowel, first having placed a strip of wax paper, measuring 1/2" in width and 18" in length, on the dowel so that the unjointed seam of the shell will fall over the wax paper. Now cement the seam carefully. Wrap the whole tightly with gauze and set aside until completely dry.

Now form nose and tail pieces to shape as shown in drawing. Notice that they are both hollowed out. The nose piece must not be hollowed out too thin, because the model needs weight and strength in the nose. Upon completing this task, a bushing is cemented in the nose piece so as to give the prop hook plenty of play. By this time the fuselage should be dry. Remove the gauze and slip the shell from the dowel. Now take a balsa strip measuring 1/8" x 3/8" x 17-1/2", and cement it over the seam of the fuselage. Sand the strip to shape as shown in the drawing. Now see that the nose and tail pieces fit snug in the fuselage. To help make a tight fit, strips of adhesive tape may be placed on both ends of the fuselage. The tape also keeps the edges of the fuselage from splitting. As a finishing touch, make two balsa fillets measuring 1/4" x 1/4" x 2-1/2", sanded to shape shown in drawing. These fillets support the landing gear. To help cut down "old man resistance" the fuselage is finely sanded and polished with thin dope.

Wing

The first step is to draw the wing up to full size. All ribs are cut from 1/32" sheet balsa stock to correct sizes. (The correct taper of ribs may be easily obtained by consulting the August 1932 issue of MODEL AIRPLANE NEWS; in which Mr. Grant explains a simple method for obtaining the correct taper of a wing). The wing is made in two sections. Each section consists of 13 ribs, one leading edge measuring 1/8" x 1/8" x 14" and one trailing edge measuring 1/8" x 1/2" x 13".

In laying out your wing, the lower spar is pinned to the drawing and the ribs cemented in position. The first rib is slanted to allow for a two inch dihedral. The top spar is then cemented in place. The leading and trailing edges, sanded to shape, are then cemented in position. One must not overlook the fact that both leading and trailing edges taper in thickness. The wing tips are made of bamboo and may be shaped by bending over a hot steam pipe or over the flame of a candle. The center portion of the wing is covered with 1/32" sheet balsa; which gives much strength to the wing.

In covering the wing, dope is used as an adhesive. In order to make a covering with the least possible wrinkles, if any, one must remember that the grain of the paper must run parallel to the chord of the wing and the paper should be stretched quite tightly over the framework of the wing.

The wing should then be sprayed with water. When dry, two coats of thin dope should be brushed on.

The Tail

The tail is made of 1/32" medium soft sheet balsa. The rudder and elevators are shaped to conform with drawings. After cutting the parts out, they are sanded to a thickness of approximately 1/32". As the fuselage, the rudder and elevator are polished with thin dope.

Landing Gear and Propeller

The landing gear mainstays are made from bamboo. (Length of pieces may be obtained from drawing.) These mainstays are imbedded into the balsa fillets attached to fuselage. The streamlined pants which house the wheels are made from medium hard balsa. Four pieces measuring 1/4" x 1" x 3" are required. These are shaped and hollowed out in order to house a one inch diameter wheel. Music wire is used as an axle.

The propeller is carved from a block measuring 3/4" x 1-1/2" x 9". The prop is carved in the usual manner. Other details can be found in the drawing. Do not make the tips of the prop too thin. After the prop has been sanded and balanced, a hole, approximately 3/32" in diameter, is drilled in the center of the propeller to accommodate a 3/32" outside diameter brass tubing, used for free wheeling. If one chooses, other types of free wheeling may be used.

Assembly and Flying

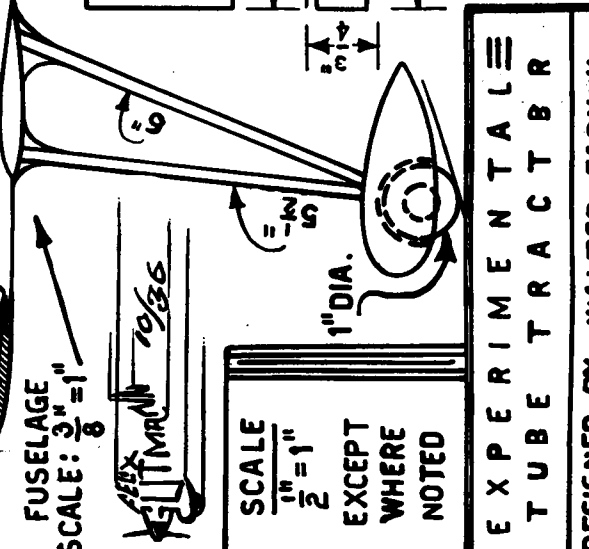
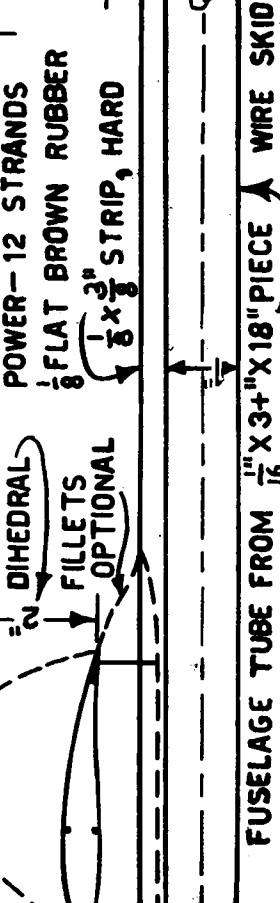
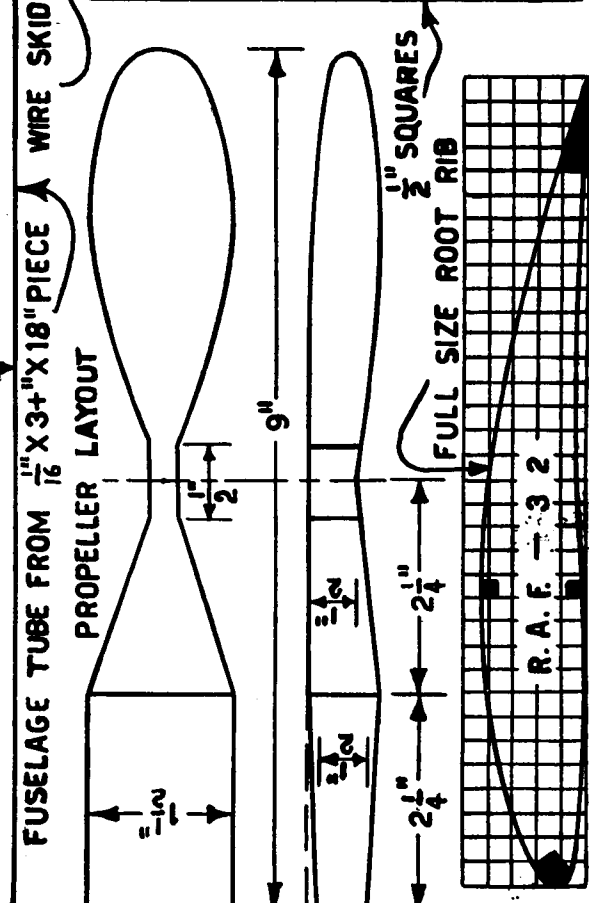
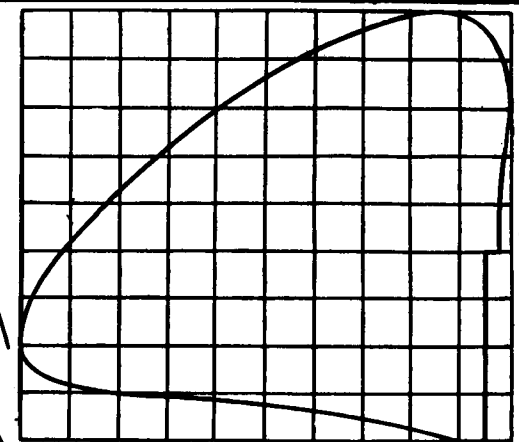
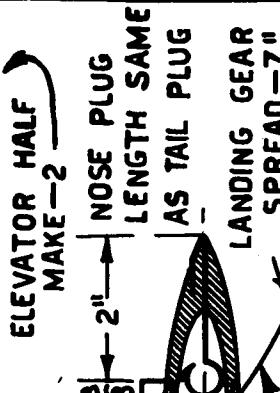
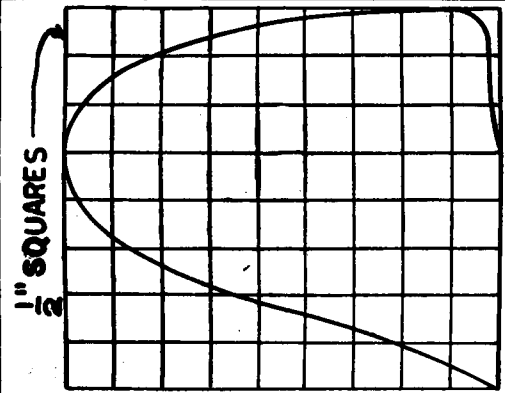
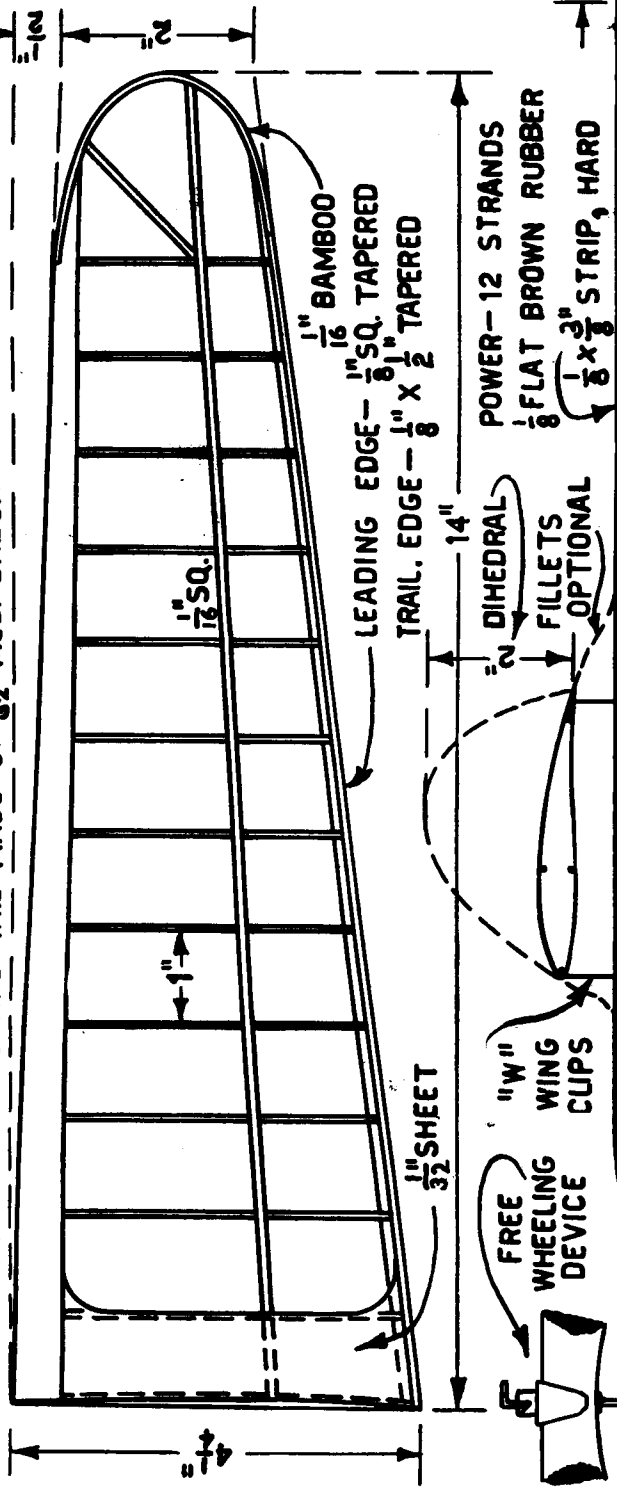
The elevators are cemented on the fuselage in position shown in drawing. Be careful that they do not droop while drying. Attach the rudder to the fuselage and see that all parts are in alignment. Now attach the wing to the fuselage with a piece of rubber strand. The ship is powered with twelve strands of 1/8" flat brown rubber. Place motor in fuselage and attach to motor hooks. The model is trimmed in red as shown in photographs.

The model is first balanced by placing the index fingers of both hands about 1/3 of the way back of the leading edge on the underside of the wing. Move the wing forward or backward until the model is on an even keel. The model should have a long, level glide. Now wind the prop about 200 turns by hand. When launching, raise the nose of the ship slightly. If the ship stalls, the trailing edge of the elevators are lowered slightly. If the ship dives, the trailing edge of the elevators are raised slightly. After the model has been adjusted, the motor should be lubricated, the tail plug removed and the "S" hook attached to a winder. Stretch the motor about five times its original length and give a maximum number of turns.

Look ahead to a stiff neck, but shining eyes.

**Scanned From June, 1937
Model Airplane News**

ALL WING RIBS AND TAIL MADE OF $\frac{3}{32}$ " MED. Balsa



EXPT. MODEL 10/36



R.A.F. - 32