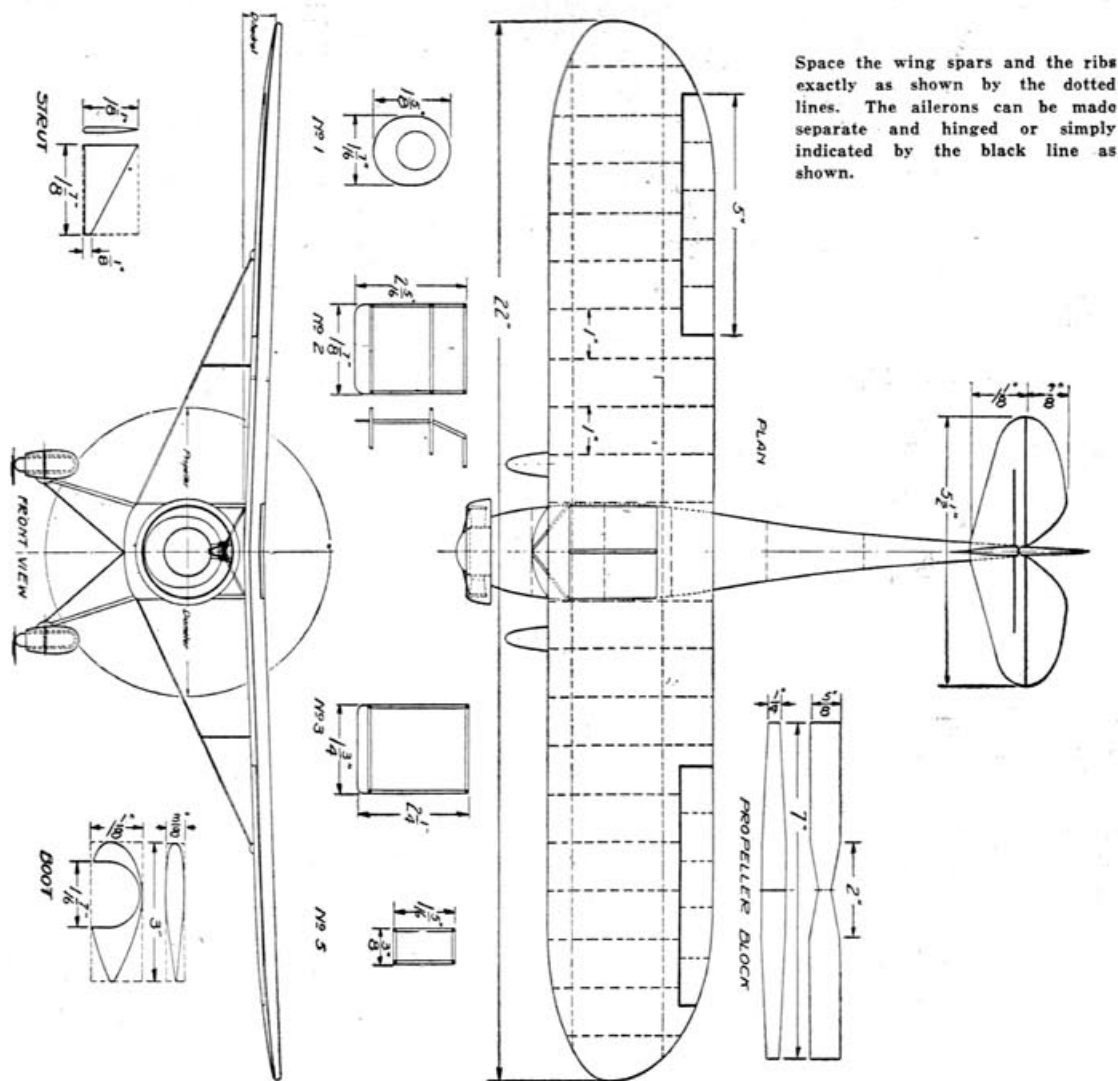


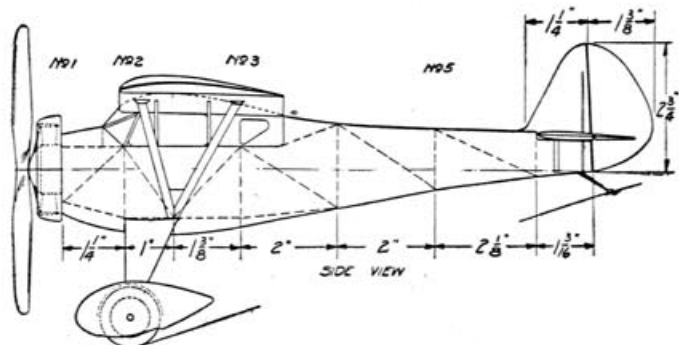
The Monocoupe, Model 110

A Flying Scale Model

The drawings below are one-quarter the size of the finished 22 inch model, and all parts can be measured off proportionately where definite dimensions are not shown.



In building the landing gear be sure to leave enough clearance for the propeller when the model is standing horizontally in landing or take-off position.



When cutting out the ribs for the wings, follow the wing section very carefully. The full size rib outline for the 22 inch model will be found on the following page from which it can be traced.

Building the Monocoupe, Model 110

by

JOSEPH S. OTT

Model Editor

This is a true flying scale model of neat appearance and good flying ability.

THE general specifications of the large machine are as follows: Warner Scarab Engine, seven cylinder, 110 horsepower; weight of large empty machine, 1,031 pounds; wing section, Clark Y; Dihedral, 1 degree; and angle of incidence 0 degree.

The propeller diameter is 84 inches. The wing span of the large machine is 32 feet; body length overall 20 feet 4 inches; chord 5 feet; stabilizer width 8 feet six inches; stabilizer depth 3 feet 3½ inches; rudder height 4 feet ½ inch; fin depth 1 foot 11 inches and rudder depth 2 feet, 4½ inches.

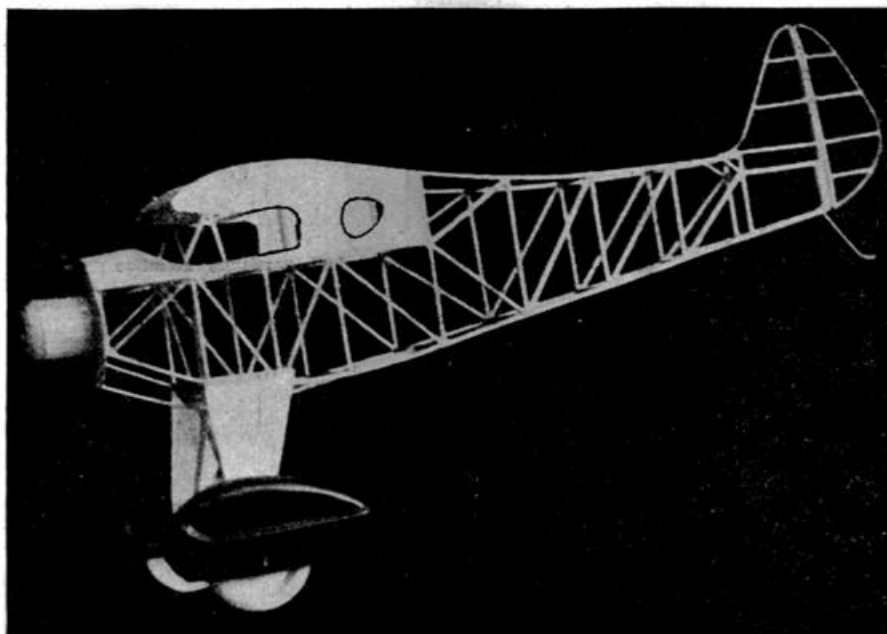
The completed 22 inch model weighs ready for flight, a trifle less than ¾ ounce.

WING CONSTRUCTION

THE entire wing is built up in one piece and is split at the middle with the dihedral added at each wing tip. The windows are put in and the entire wing is covered and cemented on top of the fuselage in the final assembly.

All the ribs are cut to conform to the Clark Y section which is flat on the bottom. Ailerons are shown as

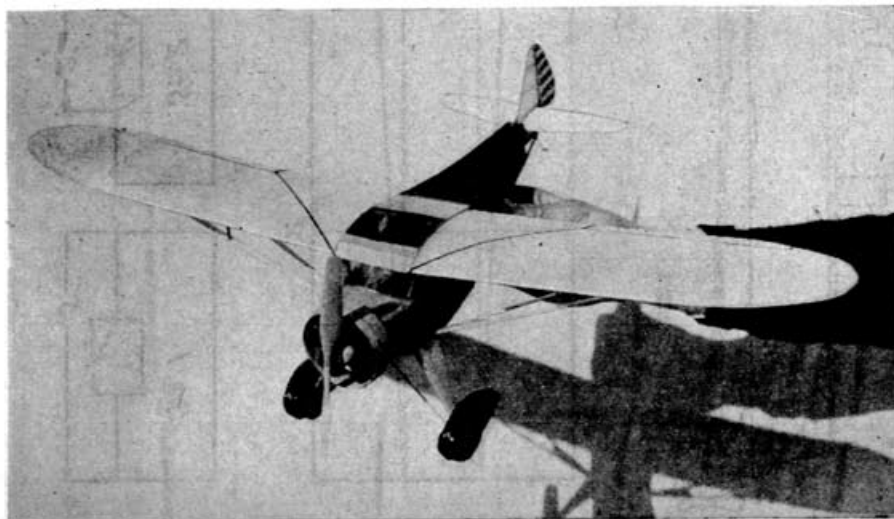
EDITOR'S NOTE: This model is a perfect scale model of the Monocoupe 110 and was built and designed from plans furnished to the Model Department by the Monocoupe Corporation.



Fuselage structure of the Monocoupe Model 110 before the covering was applied. Note the sheet balsa cabin and the curved upper longeron.

List of Materials

Spars	1/16 x ¼ x 18"	4
Leading Edge	¼ x ¼ x 18"	2
Trailing Edge	1/16 x ¼ x 18"	2
Longerons	1/16 x 1/16 x 18"	8
Rib Stock	1/32 x 2 x 18"	1
Struts	¼ x ¼ x 18"	2
Propeller	7" Diameter	1
Motor Drum	Left overs from rib stock	
Nose bearing	½" Diameter	1
Pants	¾ x 1½ x 3"	2
Gear Struts	¼ x 1 x 2"	2
Wing Tips	Bamboo	2
Tail Outline	Bamboo	1
Windshield	1 x 8"	
Motor	30 gauge rubber	
Wheels	1½" Diameter	2
Washers	¼" Diameter	3
Shaft024 Diameter	1
Tissue	2 Sheets—Blue and White	
Cement	Large Tube	1
Dope	Large Jar	1



This model of the Monocoupe, Model 110, is one of the most realistic or "natural" flying scale models that we have seen.

separate units made movable by attaching with a soft piece of wire. Attach the aileron at two points and cement the wires securely. The small pieces of wire should be attached along the side of a rib. It is not necessary that the controls in the model be made movable.

The wing tips are bent bamboo and these ends continue around and are a part of the aileron. Before putting the wing tips in place, cement the two spars for the ailerons on their position and continue the wing tip and allow to dry. Then cut the complete aileron out of the wing.

The spar in the aileron should be approximately 1/8 inch thick, and the face is rounded which allows movement of the aileron without binding. Two spars are used on the lower side of the wing and are cut to conform to the up-

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Monocoupe

(Continued from page 116)

ward curve as seen in the front view before assembling.

BODY OR FUSELAGE

WHEN building the body, two complete side sections are assembled first. Follow the layout as seen in the side view and make one unit. Put a piece of wax paper over this first section and build a second one over it. These two units are then assembled to the form illustrated on the plan view.

The body stops at section No. 1, which section receives the built dummy motor unit. This first section is a trifle elongated and is not a perfect circle. The shape of the Monocoupe body differs from most others because it curves in immediately behind the wings and then curves back. This is noticeable on both the plan and side views.

THE DUMMY ENGINE

THE dummy engine is built up on a balsa crankcase unit with separate cylinders which may be purchased at most model stores. Two small discs and a light, circular cylinder wall comprise the crankcase. The front oval section is a solid piece of balsa.

The cylinders are then added around this completed drum and the valve rods put in place. This entire unit may be added or taken off the front of the



Full size wing section for the 22 inch Monocoupe flying scale model.

machine. The nose plug which is also a bearing continues into the half-rounded section of the crankcase. When the propeller is removed, the shaft, plug and bearing come out as one unit.

LANDING GEAR

THE landing gear struts are solid balsa and are cut to conform to the shape illustrated. Sufficient height must be allowed for propeller clearance.

The center part of the wheel pants is cut to shape first. The size should fit the type of wheel at hand or obtainable. The proper size is $1\frac{1}{4}$ to $1\frac{3}{8}$ inches. The thickness at the center part of the wheel boots will depend upon the type of wheel. The outside is covered with a thin layer of balsa.

The small brace running down from the center of the fuselage is a thin piece of bamboo, approximately $\frac{1}{8}$ inch square and continues through the boots and is the axle for the wheel.

This method of construction makes it necessary to put the wheel and the boot on the strut at the same time. A good fit should be secured before fitting these units and cementing them down permanently. In order that the struts be very strong, they must be cemented to the longerons and not to the fairing strips of the body.

TAIL CONSTRUCTION

THE rudder and fin are built in two units. These parts should be made separate and are attached with a soft

wire hinge. The adjustable rudder will help considerably in balancing the model in flight. The wing section for the tail units may be followed as illustrated.

It is not of importance to have any given section for these parts but a good average one is where the thickest part is approximately one-third back from the leading edge. Note in particular that the rudder post is not straight but slants forward. This is the way that the large machine is built and this model drawing was scaled from the original plans.

The stabilizer and the elevators are built up and covered on both sides in a similar fashion to the rudder and fin. Three ribs are used on each side. The tail unit is very small when built to scale and the model will not be quite as stable unless the speed is very constant throughout the entire length of the flight.

For this reason a tail may be added with a span of $1\frac{1}{2}$ times that illustrated. The fin and rudder should also be enlarged. This is only necessary where a model is desired to fly well and not for ornamental purposes. The tail skid is built of three layers of bamboo.

MAKING THE WING STRUTS

THE wing struts are built of two thin strips each streamlined separately with an added piece at the lower

end. The correct length will depend on the size of the model. The width at the outer end must conform to the space between the spars. They are reinforced a short distance in from the point where they attach to the wing and in some cases these braces will not meet at a rib.

A small compression rib should be added so that these small braces will point straight up as illustrated on the side view. The struts should be fitted and the locations checked before the wing has been completely covered.

THE MOTOR AND PROPELLER

THE propeller should be of a high pitch type to give the model plenty of speed and keep it stable while in flight because of the small tail unit. A crossline type propeller should be used with an average width blade.

Four to five strands of $1/32 \times 1/8$ inch good grade, flat rubber is required for the motor power. The rubber is attached at the rear directly in front of the stabilizer by a small upright piece of balsa which extends through the fuselage from below. The original model balanced without adding any additional weights and the length of the fuselage was compensated for by the added pieces of the motor and cowl.

ASSEMBLY AND COVERING

THE wing is covered with white tissue on both the upper and lower sides. The body is covered in blue and

the tail units in white. The landing gear is assembled before the body is completely covered.

The stabilizer is in one piece and is attached to the body after covering. The elevators are attached after the stabilizer is securely in position. The stabilizer should be given a slight negative angle, while the main wing has no angle of incidence.

After the wing is cemented to the fuselage, the windshield is added. The wing struts are now put in position and cemented in place. The propeller and the motor may be put on at this stage.

Our next scale flying model, which will appear in the March issue, will be the Curtiss "Sparrow Hawk", also known as the "Akron Fighter".

END.