A Fairchild 22 That Flies!

Here we present the directions and complete plans for building a flying scale model of the Fairchild 22, an open plane that has proved to be one of the best flyers as a model. Get to work on these plans prepared especially for FLYING ACES

By AVRUM ZIER

Three interesting views of the Fairchild 22 model built by the author. This particular ship has climbed to an altitude of fifty feet and has made flights of over 300 feet. There's a flyer for you!

THIS month's plane for you to construct is the Fairchild 22. The plane is powered with a Rover four-in-line inverted 80-horsepower engine. It can attain a speed of 107 miles per hour and climb at the rate of 650 feet per minute to a service ceiling of 9600 feet. The fuselage is constructed of tubular steel and the wing is constructed of wood. The following are the specifications:

Span .... 32' 10"
Length overall ...... 22'
Wing area .... 170 square feet
Wing loading ..... 8.2 pounds per square foot

Here are the figures on this ship's performance:

High speed .... 107 miles per hour
Landing speed ..... 45 miles per hour
Rate of climb ...... 650 feet per minute
Service ceiling .... 9600 feet

FUSELAGE

THE first step in the construction of the fuselage is the cutting out of formers 1 to 7. The general scheme of enlarging the formers to twice the size is to reproduce the 1/16" boxes to ⅛" and lay off formers 1 to 7 in accordance with the plan. Formers 1, 2, 3, 4 have their grain running horizontally, while formers 5, 6, 7 have it running vertically.

The next step is the construction of the sides of the body. The sides of the body are constructed of 1/16" square balsa. It will be noticed that the wood included in the framework of the sides is shaded in. Caution should be taken not to place the side stringers on until the body frame is completed.

After the two sides are completed, the two ends of the sides of the body are glued together. The bottom braces are then cut to size and placed in their respective positions. The formers serve as the top brace, as shown on plan.

COCKPITS

THE cockpits are constructed of 1/32" balsa grain running lengthwise. The patterns of cockpit 1 and 2 are obtained by enlarging the 1/16" boxes in the same manner as the formers. The stringers are then glued in place. The top stringer is 1/16" square, the others of 1/32" square bamboo.

After the bamboo stringers have been glued in place, the cockpit sides are put on. To obtain a realistic effect that is characteristic of the large plane, the two balsa 1/16" square side stringers are glued in place, as shown on the side view.

The support for the landing-gear strut is then glued in place. The rear hook, which is bent from No. 6 music wire, as shown on sheet 2, is glued against the last body brace. The rear hook extension also serves as a tailskid. It is advisable to reinforce the rear brace if soft balsa is used.

NOSE PIECE

THE complete nose is cut from a block 2⅝" x 2¼" x 1⅝". It is carved to the shape shown on the plan. Section A, which is the front piece shown on sheet 2, is then cut away from Section B. Section B is then carved out to about a 3/16" wall. Section B should not be carved out entirely until plane is completed.

A piece of ⅛" balsa is then cut to the front interior shape of Section B. The ⅛" sheet is then glued to Section A. This enables Section A to slide on to Section B. To provide a smooth turning shaft, an eyelet is inserted in Section A. The nose is then glued on to the body and should remain there for at least a half hour. Constant applying of ambroid is advisable to get a strong joint.

LANDING GEAR

THE landing gear of the Fairchild 22 is constructed of a V strut connected to the landing gear supports on the body, as shown on sheet 2. The wheel strut is shaped to a streamline form from ⅛" sheet. The axle is then glued to the wheel strut and the 1⅝" wheel is slipped on. The landing gear is assembled as shown on sheet 1.

TAIL SURFACES

THE framework of the tail surfaces is 1 1/16" square. Bamboo is used for the leading and trailing edge. Care should be taken in the construction of the stabilizer, as shown on sheet 3. Note that the brace inserted between the two parts of the stabilizer is glued snugly against former 7. One complete strip of 1/16" square balsa is used as the main spar.

WING

THE ribs of the wing are enlarged in the same manner as the formers. For the leading edge, ¼" square is used. For the spars use 3/16" x 1/16", and 1/16" x 1/8" for the trailing edge. Twelve full-size ribs are made. The first and second ribs away from the center of the wing are shortened to their proper size. For the wing tip and the trailing of the two shortened ribs use 1/32" reed. Note, when scaling up the wing that the tip has a radius of 2 1/16". After two of the halves of the wings are constructed, they are glued at the center with a 4-degree dihedral, if a flying model is desired.

STRUTS

THE struts which are shown on sheet 2 are constructed of 1/16" sheet balsa. The Y strut is made as shown on plan, forming an angle at the intersection point of 27 degrees. The two extensions have 1/16" notches cut to fit into the two bottom wing spars of the wing. The cabane strut is constructed in the same manner as the Y strut, forming an angle of 30 degrees. All struts are perfectly streamlined.

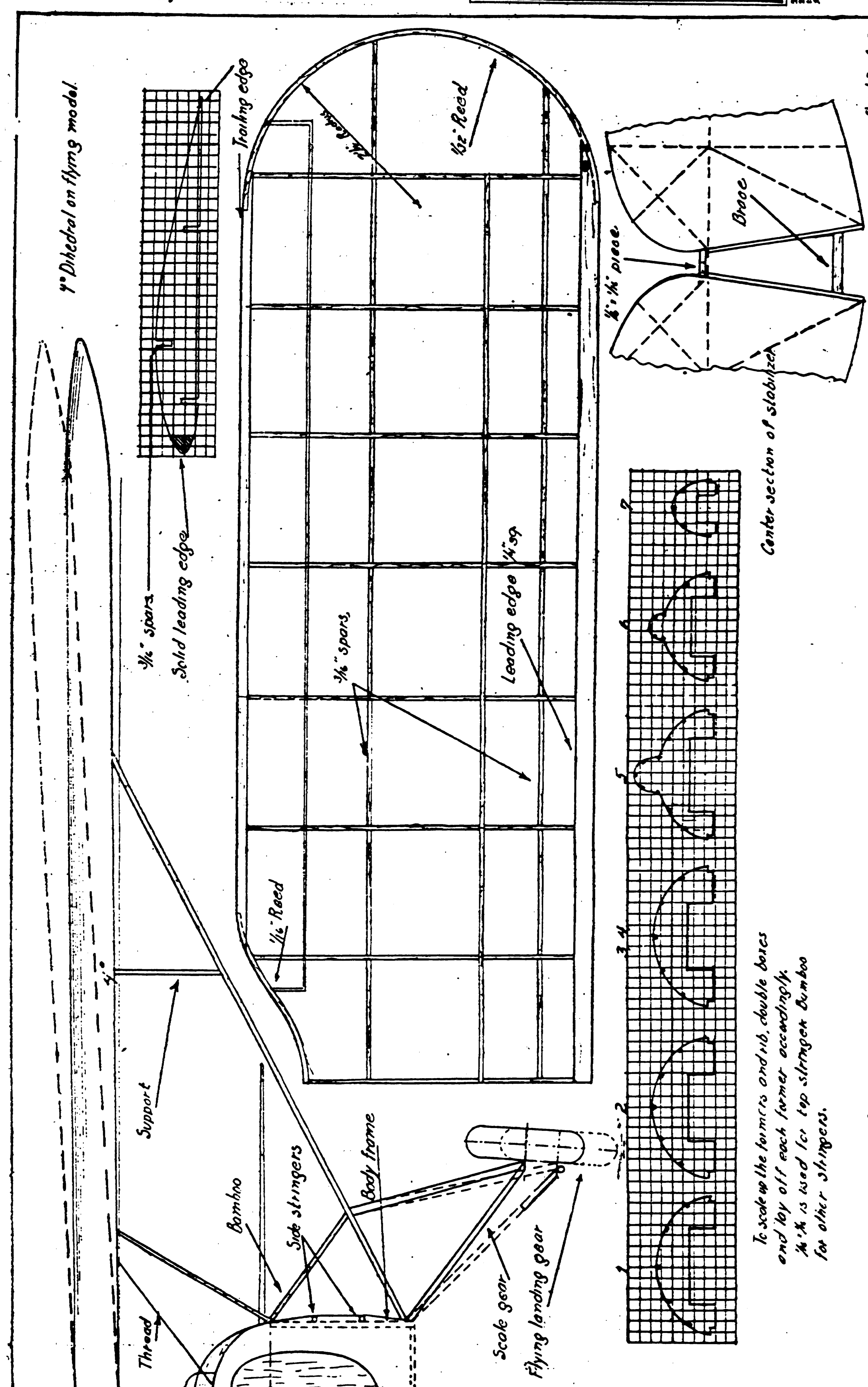
ASSEMBLING

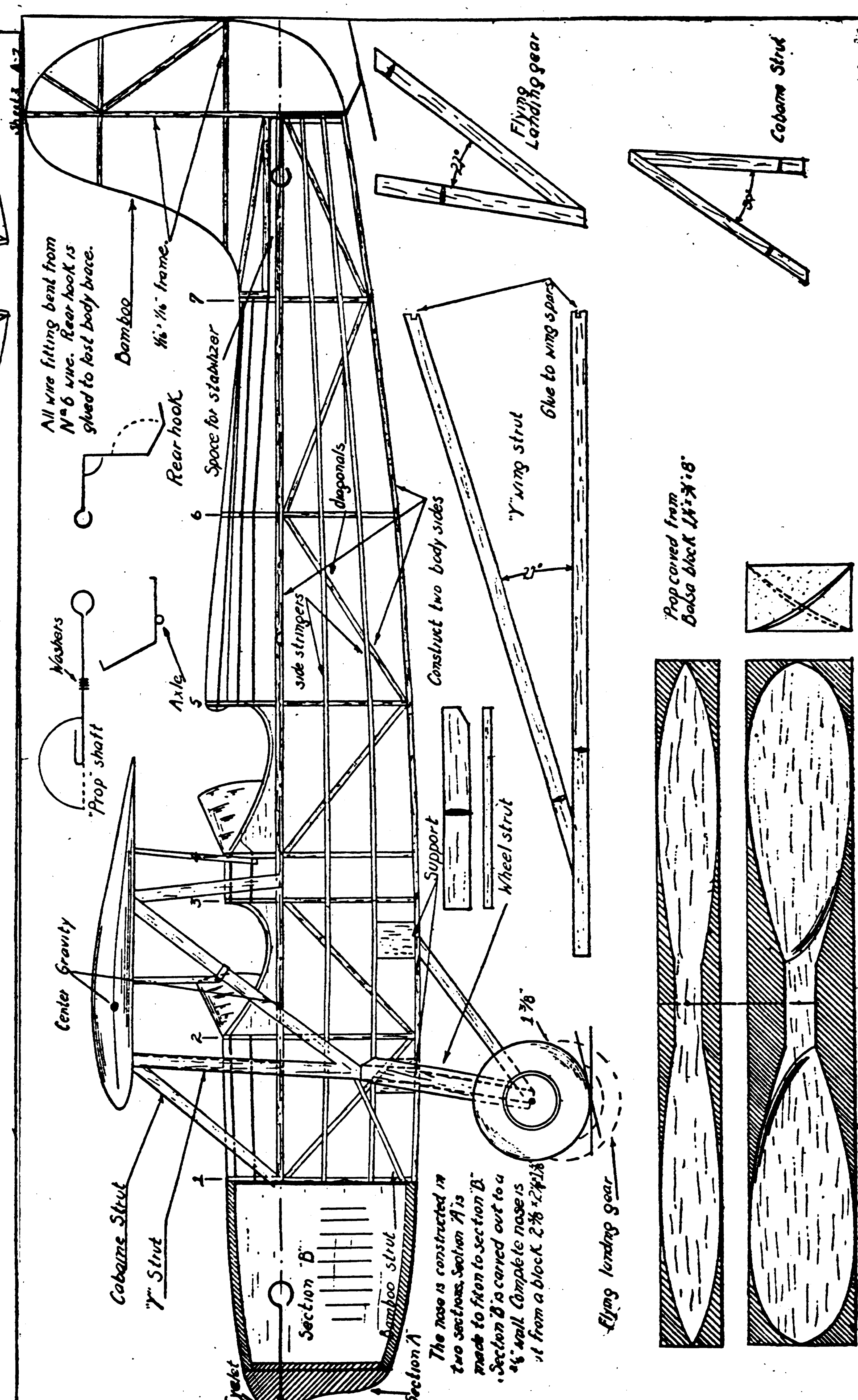
ALL parts of the plan are covered before assembling. It is not necessary to cover the stabilizer on both sides. The cabane strut is first glued in its proper place, as shown on sheet 3. After it has been securely attached, the rear strut is then placed between formers 3 and 4, as shown on sheet 2, and glued in place. The wing is then attached, having the cabane strut glued to the leading spar and the rear strut glued to the rear spar.

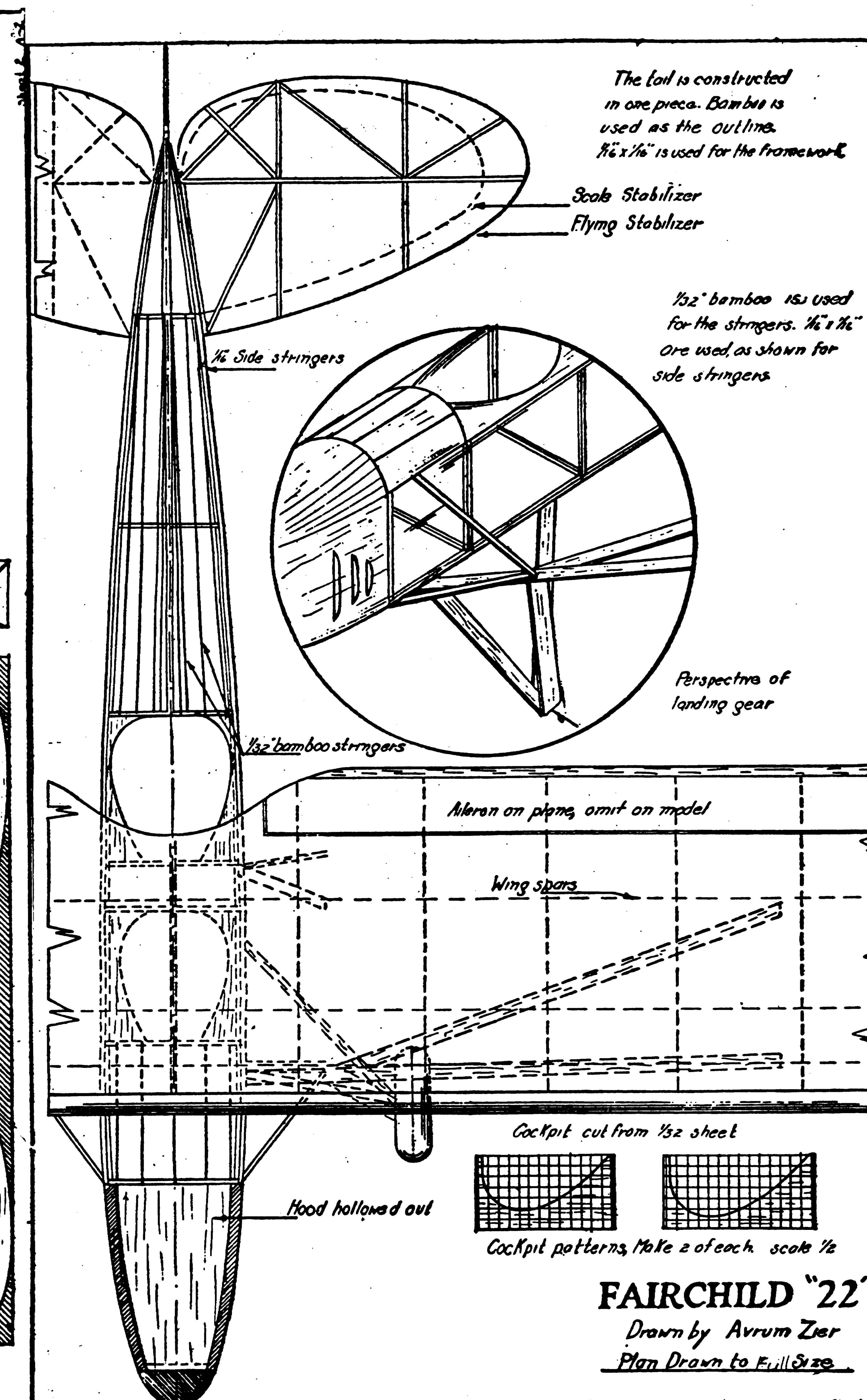
After the wing has dried in place, the Y-strut is then glued as shown on sheet 3. The landing gear is then attached with the wheel strut glued to the intersecting point of the Y-strut. A bamboo brace is then placed, leading from the intersection of the wing to the center line of the fuselage. Another bamboo strut leading away from the intersection of the Y-strut is glued to the lower longeron next to the nose block, as shown on the side view. The complete tail is glued in place. Two loops of ¼" flat rubber are used for the motor power.

The plane should be properly balanced at the center of gravity 1/3 of the way back of the leading edge. However, if the nose is heavy when the model is finished, Section B should be carved out until the plane is properly balanced. If the model stalls in flight, which is an indication of tail heaviness, a tack should be placed in the nose.

The plane can be wound to a capacity of 200 winds and under its own power will climb to an altitude of about 50 feet or more and give flights of 300 feet.







19½x33½ FA

Provided to www.Outerzone.co.uk