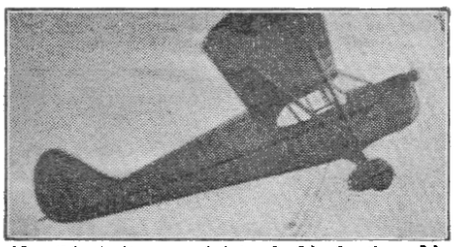
Build our

Cub "Coupe"

The little two-place Cub planes are among the most popular knockabouts in the world and can be seen on any airport at any time. Right? Well, we know you boys have wanted to build a replica of Piper Aircraft's newest addition to the sportster family—the "Coupe." And we're right here to help you along! So sharpen that balsa knife of yours, drag down the old supply box, and get goin'!

THERE she comes! A gentle bank and the bright yellow cabin monoplane heads into the breeze. Settling steadily, she touches the grass on all three points and rolls to a stop. A Sunday afternoon scene at the local airport? Nope, it's just our snappy model of the latest of the famous line of Cubs—the Cub Coupe!

Demand for side-by-side seating arrangements on the lightplane market induced the Piper Aircraft Corp. to follow the lead of Taylorcraft and Aeronca and produce a little competition for their products in the form of the Coupe. The new ship is a bit more luxurious than the usual lightplane and is equipped with wheel pants, a streamlined fin, hydraulic brakes, a full swivel tail wheel, and a roomy, fully-upholstered cabin with doors on both sides.



No, this isn't our miniature's big brother. It's really Claude's ship heading for a bit of altitude!

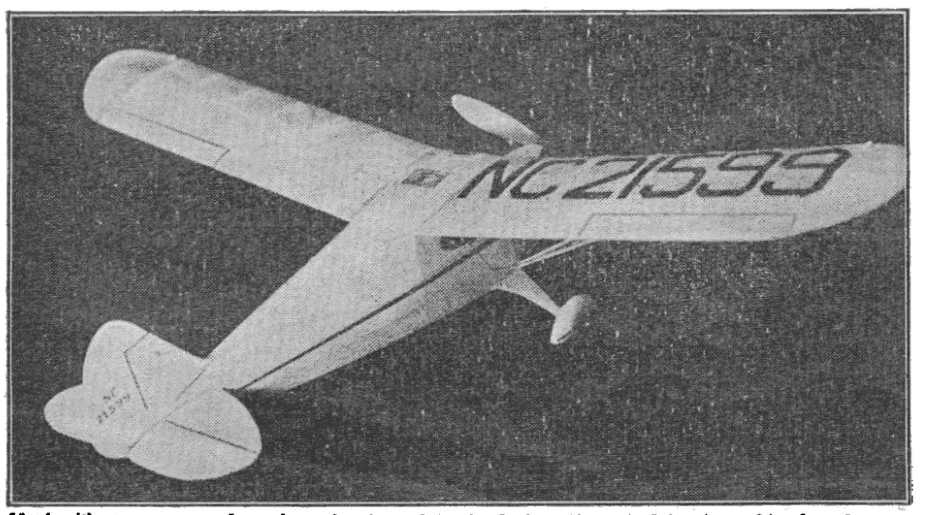
The rakish appearance of the 50-h.p. coupe must be of some assistance to its performance, for although weighing 110 pounds more than its sister ship, the tamden 50-h.p. Cub Sport, it has a 2-m.p.h. advantage in speed and an equal rate of climb. Of course, the greater weight does increase the landing speed and take-off run, but not to a great extent. An even further refinement on the original design has produced a model featuring the new 65-h.p. Continental to give extra performance.

But we're more interested in the miniature than in the ship itself. As a model, the Coupe has much to recommend itself to the beginner as well as the expert. What could be simpler to build than a rectangular fuselage, with a high wing and a simple cabin?

Even when the original model took off on it's first flight it showed remarkable stability and required very little adjustment. It consistently gives flights of 45 to 75 seconds, with occasional flights that would do credit to an endurance job. Using a winder you'll be able to put between 800 and 900 turns on a lubricated motor without straining anything.

But we'll let the ship speak for itself. So dust off your workbench and let's begin. Now just because we've whetted your enthusiasm to get the ship built, don't try to get her done before supper time. A little patience spent in seeing that the landing gear is on perfectly solid, and that all the joints are securely cemented will save you hours of repair and despair. And in this same line, we can't over-emphasize the value of "pre-coating"—that is, coating all cemented joints with cement and allowing it to soak into the wood pores before putting on the final coat just before placing that particular piece in the frame. If more modelers observed this simple suggestion, there would be fewer examples of "accordionating" fuselages. the familiar type when, after about 400 turns are put on the motor, the nose block kisses the tail skid in a not-too-friendly fashion.

By Claude D. McCullough



Maybe it's our eyes—and maybe we're just plain dumb. But if we hadn't given this shot the once over a couple of times with a magnifying glass, we'd still think this is a pic of a real "Coupe" standing in front of the Piper plant! Do you blame us?

Building the Body

SELECT your wood carefully, fellows. That soft balsa handles easily but takes little punishment. And after studying the Bill of Materials and the plans, collect your implements—razor-blade, pins, pocket-knife, and iodine—and tack the plans down to a soft board. Measure the main ⅛" sq. longerons and pin them in their proper positions on the plan. Work down the fuselage, adding the vertical braces of 1/16" by ⅛" balsa. The other side of the body is built in exactly the same manner and is constructed directly on top of the first half.

After the fuselage sides have completely dried, remove them from the plan and cut them apart. Pin each side on the top view with the tops face down and at right angles

BILL OF MATERIALS

(All wood medium balsa except where specified)

Twelve strips ⅛" by ⅛" by 18" for longerons, wing spars, and leading edge;
Eight strips 1/16" by ⅛" by 18" for stringers and vertical fuselage cross pieces;
Eight strips 1/16" by 1/16" by 18" for stringers and tail ribs;
Four sheets 1/16" by 2" by 18" for ribs, formers, and tail outline;
Two strips 1/16" by¼" by 18" for trailing edge;
Two strips 1/16" by 3/16" by 18" for wing struts;
One sheet of ⅛" by 2" by 8" hard balsa for landing gear struts and scrap parts;
One block ¼" by 2" by 12" for wheel pants;
One block ¾" by 1¼" by 7" balsa for prop;
One block 2" by 2¼" by 1¾" soft balsa for nose block;
One piece 1/16" by 1/16" by 18" bamboo for wing tips;
One pair 1" balloon type wheels, one small tail wheel, length of No. 14 piano wire, sheet of celluloid, small scrap of sheet brass, three sheets of Jap paper, 10' feet of 1/30" by ⅛" brown rubber, 6" length of 1/16" wire, small piece of soft iron wire, thread, pins, glue, dope, washers, razor blade, sandpaper, etc.

to the table. The cross members may then be cemented in, forming the rectangular portion of the fuselage. To prevent the fuselage from twisting while drying, a simple jig may be made from book ends or some other similar straight sided object placed against the sides of the body.

The formers are cut from 1/16" flat balsa, using the patterns shown on the plan, and cemented in their respective positions. The two longerons that run the length of the fuselage are pinned in place along the side and cemented at each point where they cross a vertical brace. Note that these longerons taper slightly at the front and rear.

The nose is very simple to make and is carved from a soft balsa block and hollowed as indicated on the plan. Fit it carefully to the front of the fuselage and add the dummy motor cylinders. The cylinder banks, incidentally, are offset slightly, as explained on the plan. The landing gear is of the conventional faired wire-braced type and no difficulty should be encountered with this item. Be sure, however, that the parts are joined to the fuselage securely, coating several times with cement. If your fuselage seems to be slightly weak at the landing gear juncture, add several internal cross-pieces to strengthen it.

The Wing Structure

CUT NINETEEN wing ribs from the pattern on the plan from 1/16" flat balsa sheet. Pin the ⅛" bottom spar to the plan and cement the ribs in place. When they have dried, add the top spar and the leading and trailing edges of the indicated sizes. Pin, if necessary, until dry.

Taper and sand the wing to correct airfoil and add the tips of 1/16" square bamboo. After the wing is entirely finished, crack the spars for dihedral, reinforce with small triangles of balsa, and cement securely. Each tip is raised 1" by placing blocks underneath and weighing it down solidly.

The main struts are of streamlined balsa and the jury struts are rounded to ⅛". Measure the strut lengths to the finished fuselage for absolute accuracy but do not install them until the plane has been completely finished and decorated.

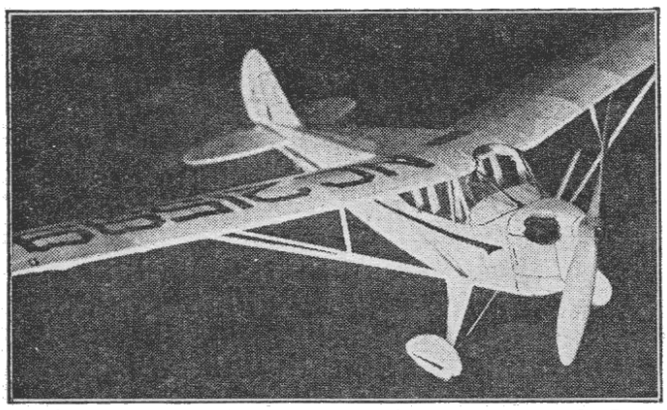
The curved edges of the rudder and stabilizer are cut from 1/16" balsa. They are pinned on the plan and completed with the addition of the 1/16" sq. cross pieces. Use care in construction, for badly built tail surfaces will often ruin the flying qualities of an otherwise good model. The rudder and elevator have been slightly enlarged to give better stability in flight. They are covered before assembly and braced with thread. If you care, you might make them movable by using soft wire hinges, as indicated on the plan, for greater ease of adjustment.

Covering the Coupe

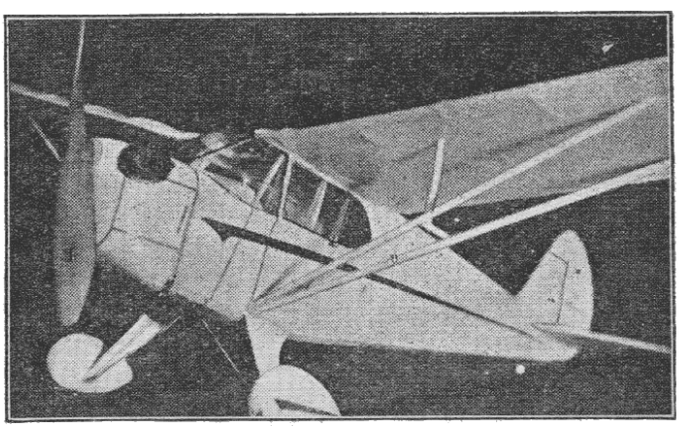
BEFORE covering, bend two wire hooks of 14 gauge music wire. Cover each with spaghetti tubing and install one in the rear of the fuselage and the other on the prop shaft. When you're absolutely certain that all interior details are finished, prepare for covering by selecting a color scheme. The original ship was all yellow with black trim, which is the usual Cub color scheme. In later models of the Coupe, the colors of red and cream seem to predominate.

The covering operation itself is difficult only if you make it so. In all cases cement only the *outline* of the part to be covered. It's not at all necessary to fasten the paper to the top and bottom of the ribs or to the vertical fuselage cross braces. Use cement or heavy dope and place the part down on a sheet of tissue, trim the edges, and pull out wrinkles by stroking the sides with your fingers before the adhesive dries.

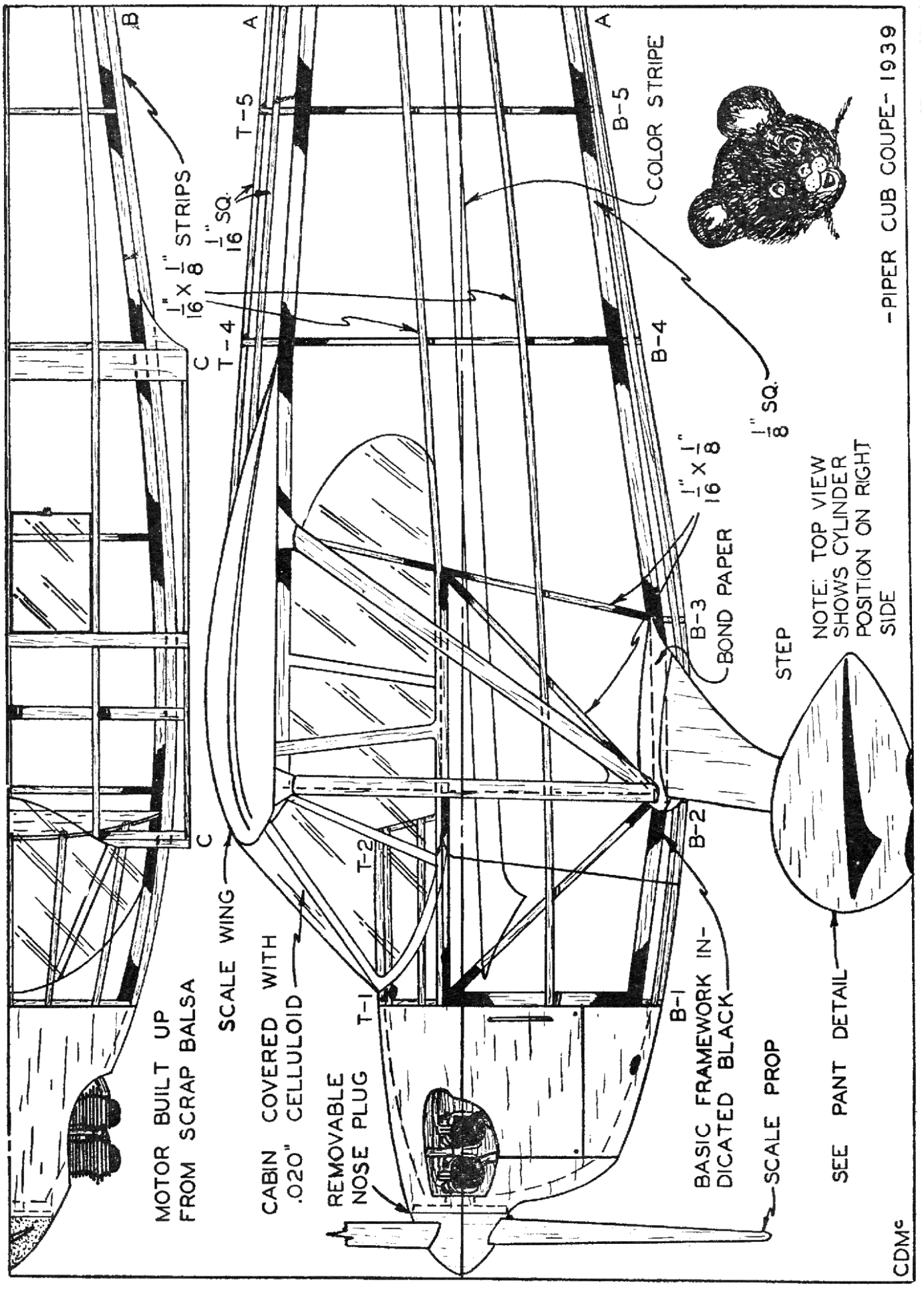
(Continued on page 80)

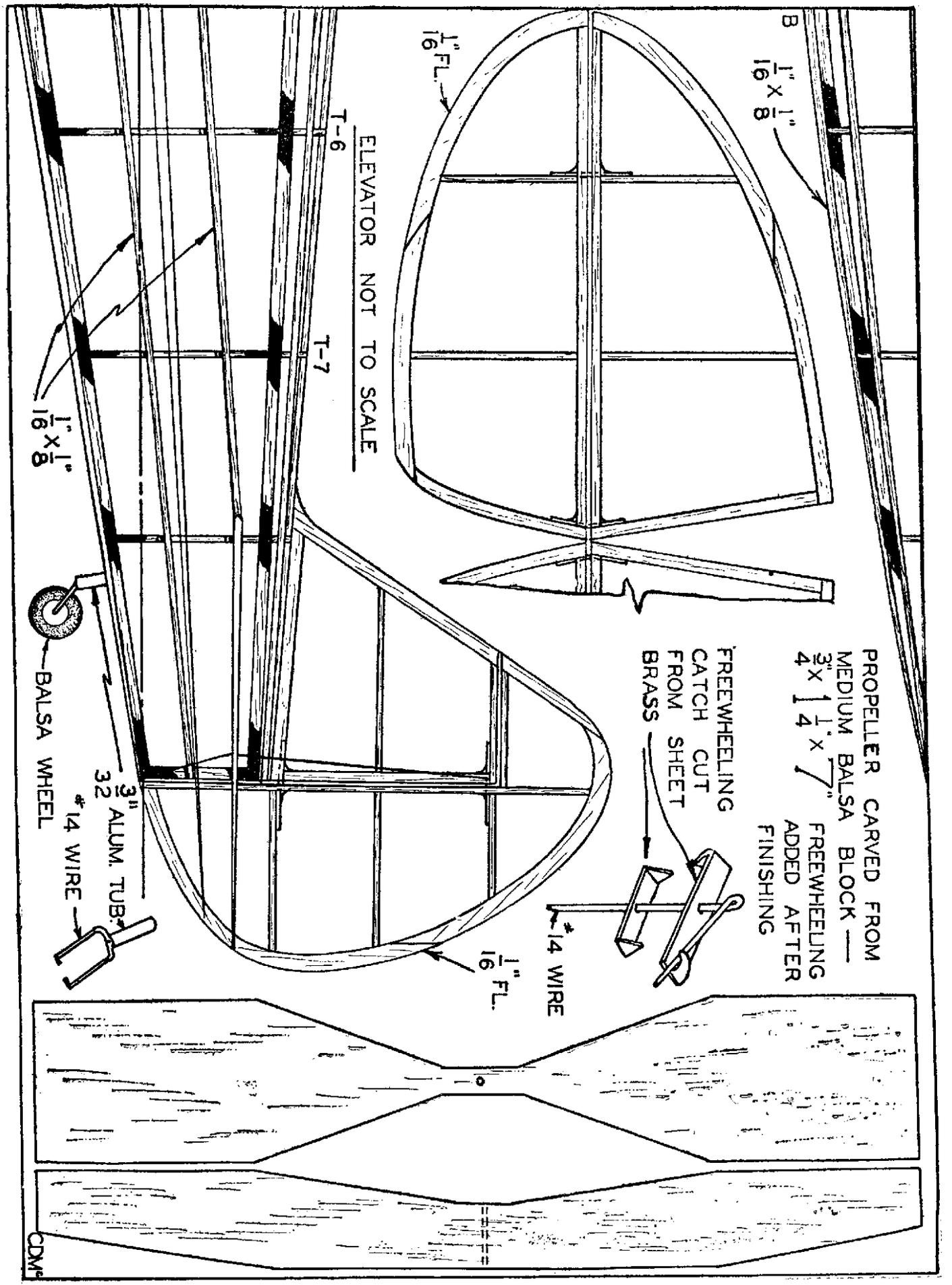


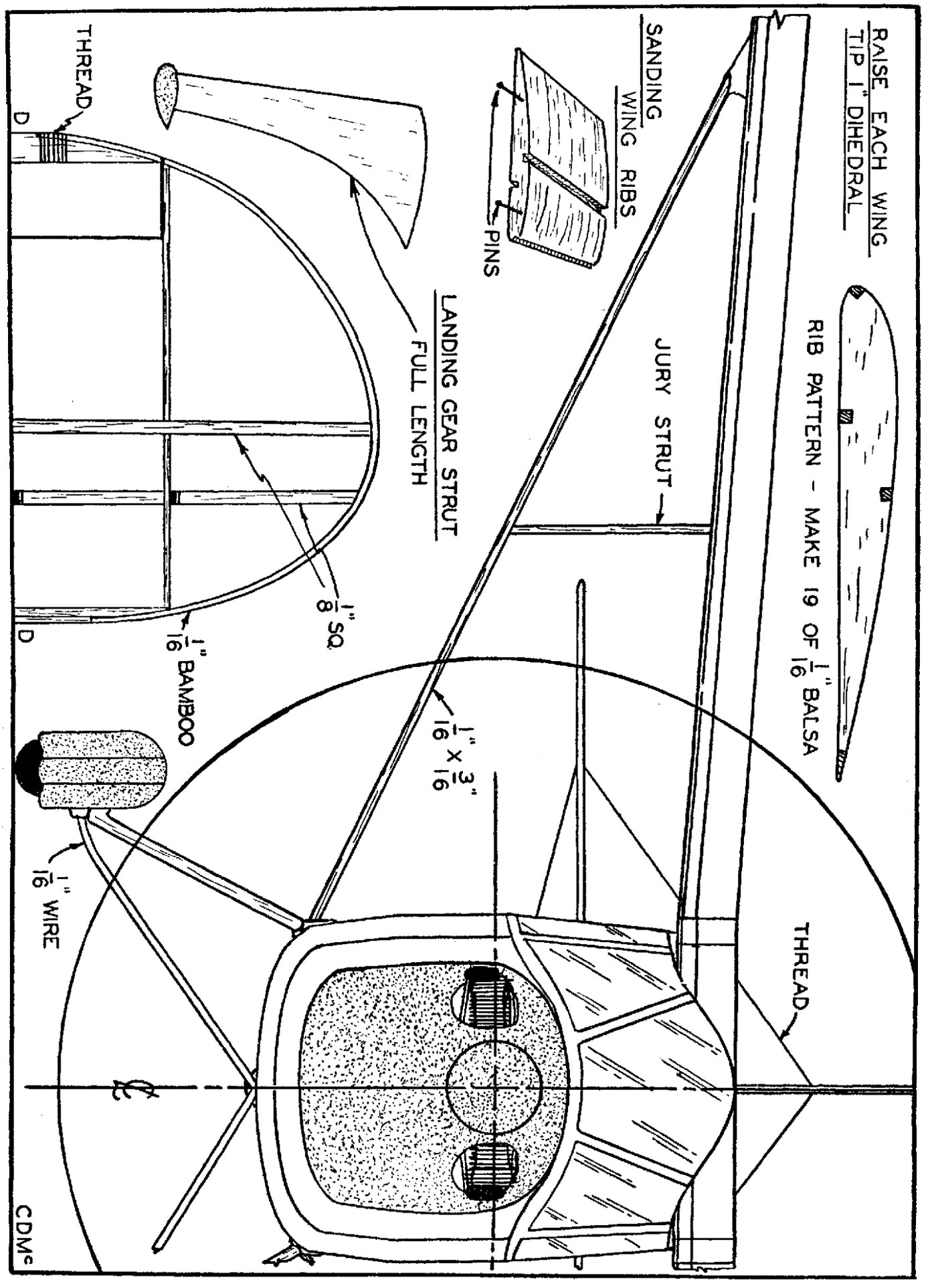
In this upish and frontish view of the "Coupe," many fine details are clearly brought out. Look closely and you'll see what a swell job Claude did of the prop, how carefully he installed the celluloid windshield, and what a particularly top-notch paint job he achieved. Also, the gentle dihedral angle of the wing can be noticed here, which gives the miniature a very rakish appearance—besides making her fly heaps better.

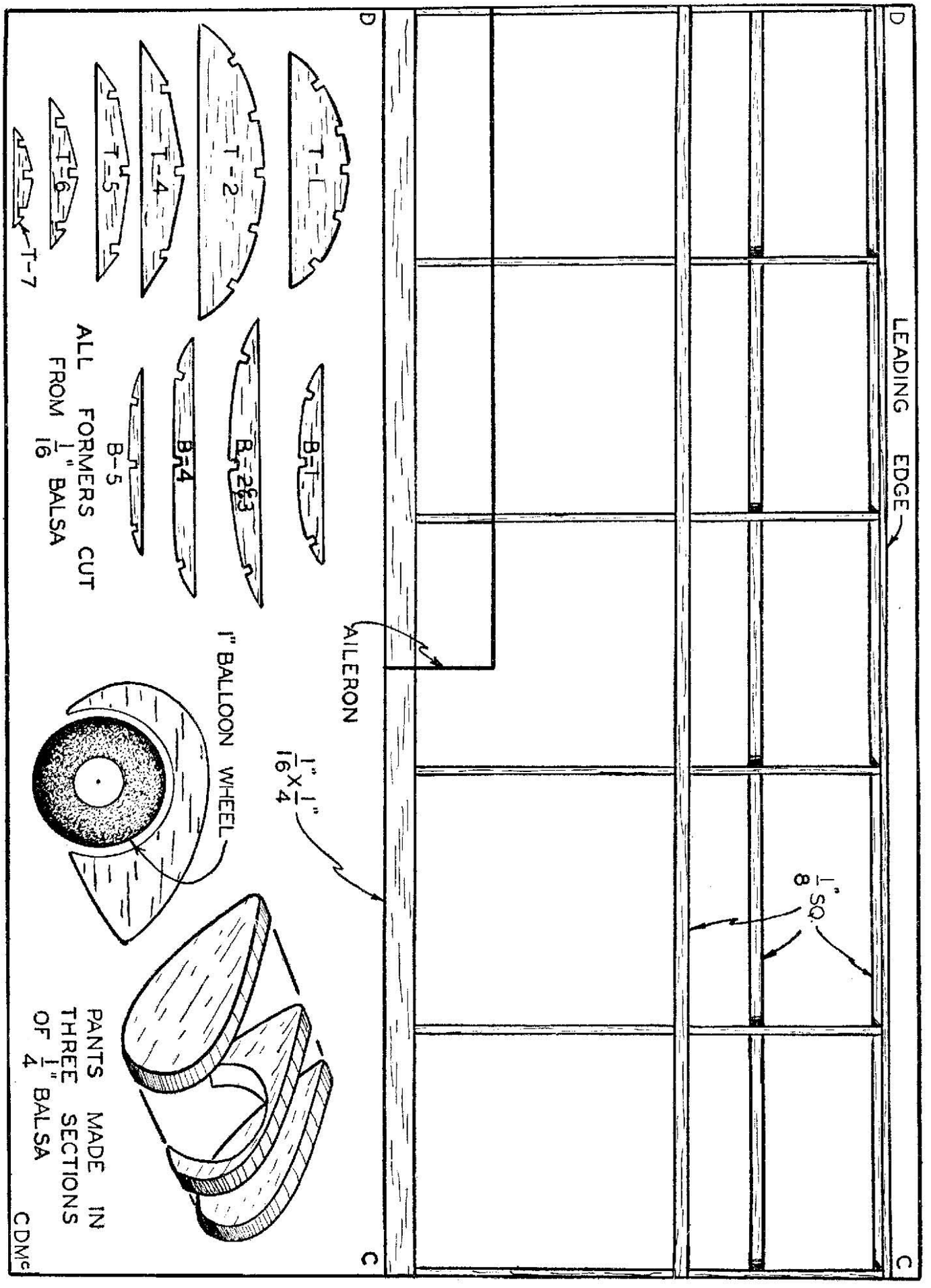


Here we have still another front shot of Claude's model, and we supply it so you fellows will be able to see just what your miniature should look like real close up on both sides. The details we spoke of in the shot immediately on the left are brought out in even nearer fashion here. Also, in this view, you can see that jury strut and how it is attached to the wing spar.


-PIPER CUB COUPE- 1939
B
A
T-5
T-4
C
B-5
B-4
B-3
B-2
B-1
T-2
T-1
1" SQ.
16
1" X 1" STRIPS
16 8
COLOR STRIPE
1" SQ.
8
1" X 1"
16 8
BOND PAPER
STEP
NOTE: TOP VIEW
SHOWS CYLINDER
POSITION ON RIGHT
SIDE
MOTOR BUILT UP
FROM SCRAP BALSA
SCALE WING
CABIN COVERED WITH
.020" CELLULOID
REMOVABLE
NOSE PLUG
BASIC FRAMEWORK IN-
DICATED BLACK
SCALE PROP
SEE PANT DETAIL
CDMc


B
1/16" X 1"
1/16" FL.
ELEVATOR NOT TO SCALE
T-6
T-7
1/16" X 1"
BALSA WHEEL
3/32" ALUM. TUBE
#14 WIRE
1/16" FL.
#14 WIRE
FREEWHEELING CATCH CUT FROM SHEET BRASS
PROPELLER CARVED FROM MEDIUM BALSA BLOCK — 3/4" X 1 1/4" X 7" FREEWHEELING ADDED AFTER FINISHING
CDM


RAISE EACH WING TIP 1" DIHEDRAL
SANDING WING RIBS
PINS
THREAD
D
D
LANDING GEAR STRUT FULL LENGTH
JURY STRUT
RIB PATTERN - MAKE 19 OF 1/16" BALSA
1/8" SQ.
1/16" BAMBOO
1/16" X 3/16"
1/16" WIRE
THREAD
CDMc


D
C
LEADING EDGE
AILERON
1/16" X 1/4"
1/8" SQ.
T-1
T-2
T-4
T-5
T-6
T-7
B-1
B-2&3
B-4
B-5
ALL FORMERS CUT FROM 1/16" BALSA
1" BALLOON WHEEL
PANTS MADE IN THREE SECTIONS OF 1/4" BALSA
CDMc

Build Our Cub "Coupe"

(Continued from page 33)

The fuselage should be covered on one side at a time, with the grain running from top to bottom and side to side. Cover the wing in halves, with the grain of the tissue running lengthwise. Remember, this must be done carefully! There is *no* reason for even beginners to have a covering job that looks like a nickelodeon paper-hanging.

When all parts have been covered, spray each with a fine mist of water. Coat each part with two coats of clear dope. A very light coating is recommended for the tail surfaces of the model.

Add the fuselage stripe and control markings with a ruler and pen. Assembly is comparatively easy, but follow plan dimensions exactly. Touch up any rough spots and add the last details.

FLYING

THE POWER consists of six strands of rubber, which are strung through the fuselage with a wire hook. A wire loop on the front of the prop makes it much simpler to "charge" the motor with a winder. Lubricate the rubber with shampoo or shaving cream.

Of course, every modeler should have a folding plot of long grass as standard equipment in his workbox for gliding tests. But since these plots aren't available, we'll have to get along out in the field.

The Coupe, because of its long moment arm and short nose is apt to be a bit tail heavy. But if you're not skimpy in building the landing gear and nose and use a heavy prop, the balance will be about right. If your ship glides perfectly flat but does a series of stalls and dives under power, the best remedy is to add down thrust. This may be done by putting a sliver of wood under the top of the nose plug so that the prop's "pull" is slightly downward. Any tendency toward spiral diving should be corrected by opposite rudder. In any case, do not add weight unless *absolutely* necessary. When she flies and glides perfectly, wind her to full capacity—and the sky's the limit!

But on second thought the sky's not the limit, after all! Rush right into the house and get the trusty old Kodak and snap a couple of shots of your spiffy bus right on the runway. Be sure you get 'em up close enough to include all of those scrumptous details and have a contrasting background. And if you have a yellow Coupe, good old Mother Nature has given you a perfect backdrop in the form of the front lawn.

When you get the snap back from the corner drug store, send a couple of the best ones to F.A.'s Model Editor. He'll be tickled pink to get them!

And if any of you fellows have any trouble building or flying the Coupe, drop me a line, in care of FLYING ACES, enclosing a stamped self addressed envelope and a note explaining the difficulty. Even if you haven't any trouble, drop me a line anyway telling me how she flies. I guarantee an answer to everyone!

Answers

TO QUESTIONS ON PAGE 30

1—The angle of incidence is the acute angle the chord of a wing surface makes with the ship's line of thrust.
2—Selfridge Field is located at Mount Clemens, Mich., about 25 miles north of Detroit.
3—Information concerning the Army Air Corps may be obtained through the office of the Adjutant-General, U. S. Army, Washington, D. C.
4—The most important qualification of an airline hostess is that she possess a Registered Nurse's certificate.
5—Fred T. Jane was the original editor of the famous aeronautical volume, *All the World's Aircraft.* It is now edited by C. G. Grey.
6—A kharif is an intermittent but severe dust storm occurring between May and September in Somaliland. No, airmen don't like kharifs.
7—A jettison gear is a special valve arrangement for the rapid discharge of fuel in an emergency.
8—An opposed-piston engine is an engine in which the compression is effected by two pistons in the same cylinder acting in opposition.
9—The motion of a fluid past an obstacle in which no abrupt changes in direction or closed curves are noted is said to be streamline. To streamline a body is to give it such shape that its head resistance is lessened so that particles move back in a smooth path and produce the least amount of eddy motion.
10—Only 19 British airmen were awarded the Victoria Cross during the World War.