804

MOHAWK

THE PERIOD BETWEEN the First and Second World Wars was an exciting time for the aircraft industry in the United States. In addition to the established aircraft companies, many new firms started designing and building airplanes. One of these companies was the Mohawk Corporation, based in Minneapolis, Minnesota. They produced several models of the Pinto, the airplane presented here.

I only have a little information about the Pinto and its flight characteristics. This version was produced in 1930, designed by Professor John Ackerman. It was powered by Kinner K5 engine. The wingspan was 34 feet 11 inches, and its length was 24 feet 2 inches.

I found drawings for a rubber-powered model of this airplane in *Worldwide Aeroplans* issue number three. The drawings, designed by Dick Gates, were quite detailed and included sketches and a photo of the full-scale aircraft.

I phoned Mr. Gates and talked to him about my desire to build an RC version of this airplane. I asked if he had a three-view that I could use for Scale documentation. A short time later he sent me three-view drawings that I used as a reference when I drew the construction plans. The outline is accurate according to the three-views.

After I drew the building drawings I built two almost-identical models: One is powered by an Astro 25 geared Electric motor; the other is powered by an O.S. 26 four-stroke engine. An airplane of this period should be flown at a slow, scalelike speed.

Both models fly well, except that the rudder isn't too effective in flight. It's effective on takeoff and while taxiing, but when the tail comes up it becomes sluggish. Fortunately, the ailerons are an effective substitute. The model's appearance is more than enough to compensate for this shortcoming.

■ LaddiMik

CONSTRUCTION

Try to use the lightest balsa that you can find, especially if you are going to power the model with an Electric motor. I used cyanoacrylate (CyA) for all of the construction.

K PINTO

Wing: The wing is built in two halves. Pin the bottom leading- and trailing-edge sheeting over the plan. Glue the bottom main spar to the leading-edge sheeting. Pin the aileron hinge spar and aileron leading edge in place. Position all of the ribs and pin them to the building board. As you may have noticed, ribs W1, W2, and W3 are in halves, as the wing's dihedral brace will be inserted later.

Insert the top-main spar, making sure that all of the ribs are square to the building board. Glue all of the ribs to the main spars and the trailing edge. Glue the sub-leading edge to the front of ribs.

The bottom leading-edge sheeting can be glued in place now; note that the bottom of the sub-leading edge must be sanded to an angle before you can do this. Install the ⅛ x ¼ balsa strip to the top of the trailing edge.

Glue on the wingtip balsa sheet, and laminate it on the outside with two balsa strips. Glue in the plywood plate between ribs W3 and W4 as shown. Glue the plywood Glue in the plywood plate between ribs W3 and W4 as shown. Glue the plywood doublers to ribs W3 and W4.

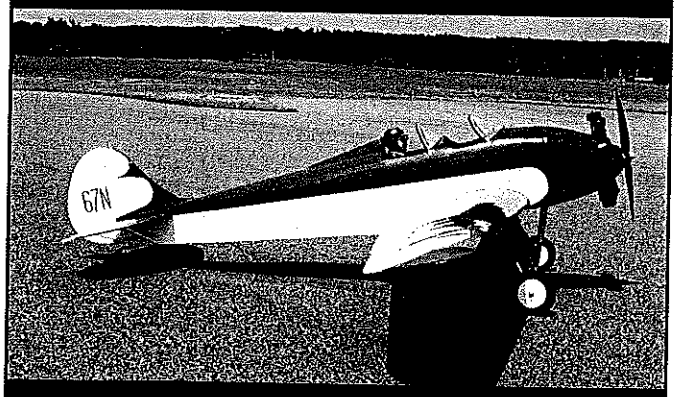
Before the top leading-edge sheeting is glued on, sand the sub-leading edge to the contour of the ribs. Make sure not to damage the ribs as you sand the leading edge. To prevent this, stick masking tape to the ribs before you sand.

Install the top leading-edge sheet. Glue on the top capstrips, *except* over ribs W1 to W4. Slide the Nyrod for the aileron control through the ribs and glue it in place. Cap the leading edge with ⅛ balsa sheet.

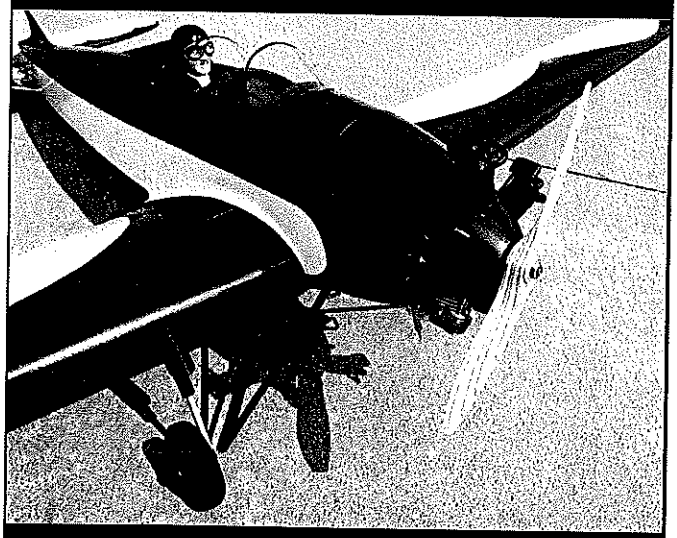
Repeat the steps and build the other half of the wing to the same stage. When it is complete you're ready to join both halves. Pin one half to the building board at rib W1. Place (and pin) a 2½-inch shim under W16. Slide the plywood dihedral brace in the slot in the ribs. Now slide the other half of the wing onto the brace, and place a 2½-inch shim under rib W16. Pin rib W1 of the second half to the building board. Glue the brace to the spars and the ribs.

At this time, glue in the secondary spar at the rear. Glue the plywood support for the ¼ hardwood dowel to ribs W1, then install the dowel. Glue on the top leading-edge sheeting between ribs F1. Install the bottom trailing-edge sheet, and then add the plywood support for the wing bolts. Glue

Mikulasko



The well-proportioned Mohawk Pinto is a perfect example of "Golden Age" aircraft design and construction.



The O.S. 26 cylinder extends from the lower half of the cowling, between the dummy Kinner K5 cylinders.

Photos by the author Graphic Design by Carla Kunz

MOHAWK PINTO

Type: RC Scale

Wingspan: 64 inches

Engine: Astro 25 geared Electric/O.S. 26 four-stroke

Functions: Throttle, rudder, elevator, ailerons

Construction: Built-up

Flying Weight: 5½ pounds

Covering: MonoKote or similar material

on the top sheeting between ribs W2. Complete the top by gluing capstrips over ribs W3 and W4.

Remove the wing from the building board. Glue in the bottom secondary spar. Between ribs W1, glue in the plywood support plate for the landing gear.

Finish the wing by adding all of the capstrips and the sheeting as shown on the drawing. Sand the wing to prepare it for covering, then put it aside.

Tail Surfaces: Since the model has relatively a short nose, the tail surfaces *must* be built from lightest balsa you can find.

Cut out the shape of the tail surfaces from 1/16 balsa sheet. On one side of the sheet, add the leading and trailing edges, made from 1/8 balsa strips. Glue the false ribs between them. Do the same to other side. Finally, finish-sand everything to an airfoil shape.

Fuselage: Again, it's best to use the lightest-possible balsa. The fuselage is built in a more-complicated manner than usual, as I wanted the scale framework to show through the covering. To accomplish this, each fuselage side is made from two parts: an inside frame with a plywood doubler, and an outer skin with 1/16 framework glued to it.

Build a frame for each side of the fuselage. Glue the outer frame to the inside frame.

Since I wanted to be able to interchange parts between two models, I made the front removable; the firewall is made from two parts. Former F1A has the middle cut out; this is where the glow engine (or the Electric motor) will be bolted. Glue former F1A to F1B.

Now take the two fuselage sides and glue in the firewall and formers F2, F4, and F5—make sure that everything is square with the plan. Glue in all crossbraces in the rear of the fuselage, then add all of the top formers. Add the cockpit floor between formers F3 and F5.

Glue on the top fuselage sheeting; at the front, glue the triangular stock between the firewall and the fuselage sides. Glue the balsa block to the bottom, between formers F1 and F2, then glue in the plywood landing-gear support. Install the hardwood blocks for the wing bolts. In the rear of the fuselage, glue in the plywood plate that holds the tail skid.

The wing fillets are next. From 1/32 plywood, cut out a strip as shown on the plan. To continue, you will need the finished wing. Cover the center section of the wing with clear plastic, and place it in the wing saddle. Slide the plywood strips between the fuselage and the wing. Bolt the wing to the fuselage so that the plywood strip is held tightly against the wing sheeting. Using CyA, glue the strip to the fuselage.

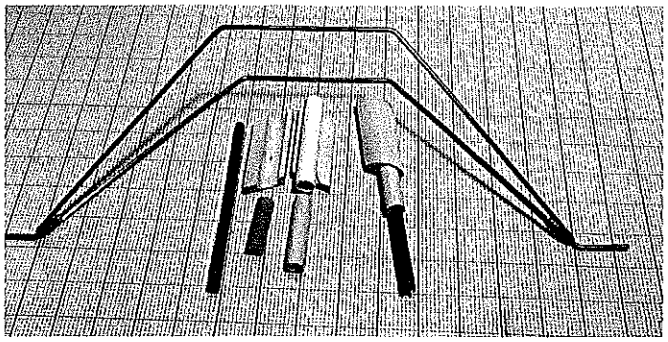
Cut the 1/16 wedge shown on the drawing and wet it slightly. Glue the tip down first; create the inside radius by pressing on the sheet. While maintaining pressure, use CyA to glue it to the plywood base and to the fuselage. Continue gluing all the way to the trailing edge. With a little patience, both sides will have the same shape. Sand the whole fuselage, then cut out the cockpit openings using the templates shown on the drawing.

For simplicity's sake I made my cowl using the balsa-sheet-and-planking method. The cowl is made in halves that are glued together.

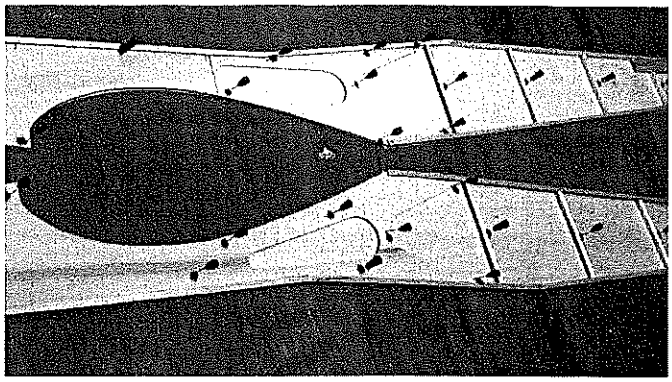
Pin all of the formers to the building board and glue the flat sheets to the front and back formers *only*. Try not to put any glue on the middle formers; these will be removed after all of the planking is completed. After one half of the cowl is done, remove it from building board and make the other half. Once the halves are completed you can glue them together. Sand the cowl to take out the high point on its surface.

Now you can mate the cowl with the fuselage. Attach the cowl to the fuselage with four self-tapping screws. These are accessible from inside the fuselage after the wing is removed. Sand the cowl so that it flows into the fuselage. You may have to use some filler to get a smooth finish over the planking. If you are going to use iron-on covering material, use water-soluble filler.

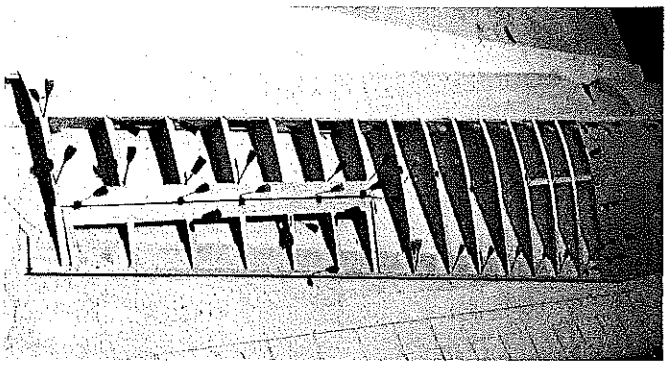
Install the stabilizer and the fin. Depending on your choice of power (electric or glow), you'll need to adjust the size of the



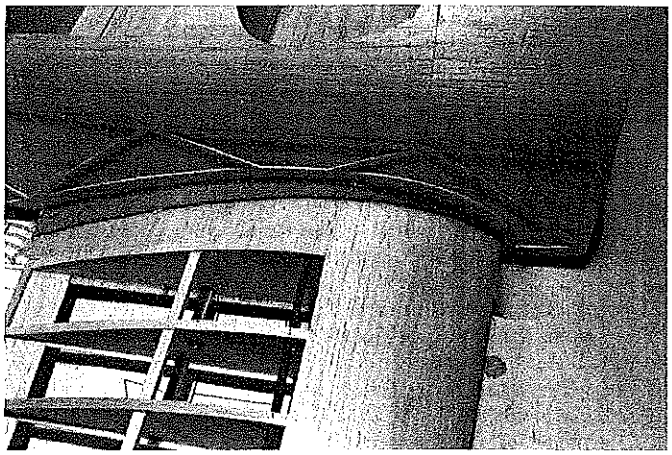
The original landing-gear arrangement (shown) was later modified to the version detailed in text.



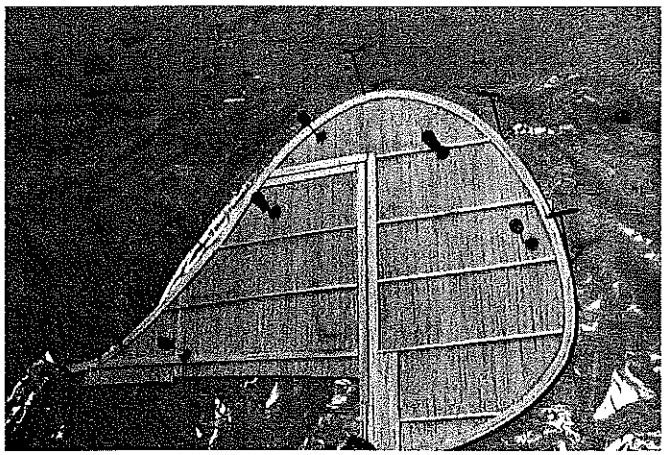
Each side of the fuselage has two parts: an inside frame with a plywood doubler, and an outer skin with scale framework.



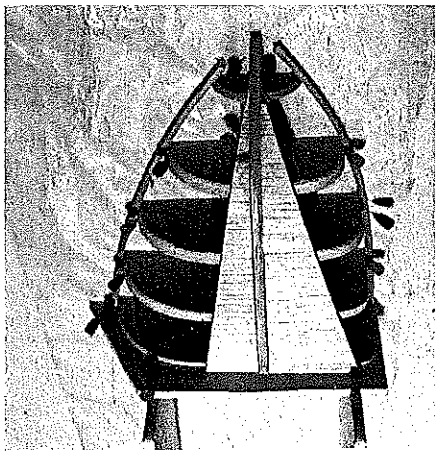
The 64-inch wing is constructed in halves. The completed wing is covered with MonoKote or a similar covering.



The wing-saddle base is made from 1/32 plywood. The plywood strips are glued to the fuselage with CyA after alignment.



The fin-and-rudder assembly. False ribs are glued to both sides of a 1/16 balsa-sheet base, then sanded to an airfoil.



The cowling is built in halves, then planked. Note grain direction.

mounting box so the propeller will clear the cowl. Glue the box to the firewall.

Landing Gear: Bend the two pieces of 5/32 piano wire to shape, then join them with copper wire. When you are satisfied with the fit, solder them together. The oleo strut is for show only.

The skirt over the strut is made from typing paper. Make a form for the pants out of balsa block, and cover it with clear plastic. Wrap typing paper once around the form and squeeze some thick CyA onto the seam. Continue rolling the paper (and adding glue) until you have five layers. Let the glue harden, then pull the skirt from the form. The round tubes can be made same way, or you can use aluminum tubing.

The inside strut is 1/16 piano wire. Dave Brown lightweight wheels were used. The hubcap is a plywood disk with a balsa sheet glued to it. The cone shape is made by fastening the disk it to the drill and sanding while it spins. The hub is drilled out so that the 5/32 (I.D.) aluminum tube can be inserted.

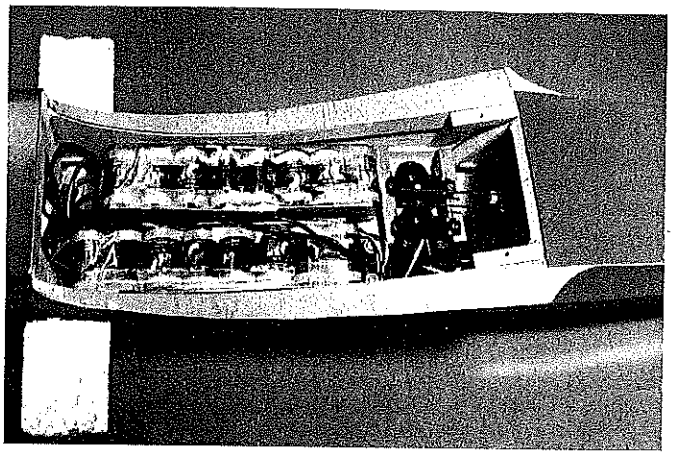
The tail skid is made from 1/16 piano wire; it's bent to shape, then a strip of steel is soldered to it. Two clips are also made from the steel to hold the tail skid in place.

The cylinders for the dummy radial engine are made from balsa disks of different diameters, and small balsa blocks.

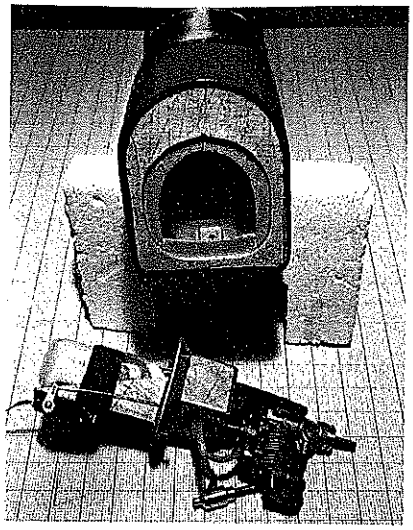
At this stage you can install the engine or Electric motor. You may need to cut openings in the cowl to accommodate your engine.

Install the servos and temporarily connect them to the control surfaces. Bolt the wing to the fuselage and install the landing gear. When everything fits, you can take the components apart and start covering.

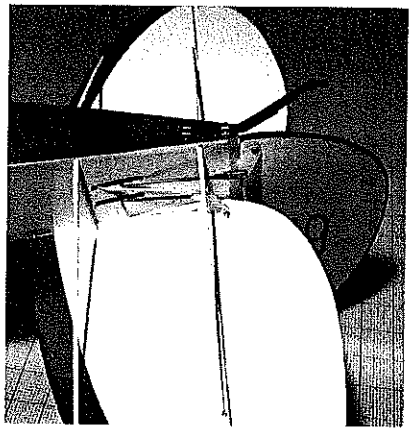
Covering and Color Scheme: I used MonoKote on my model. The color scheme is per the original full-scale airplane. To get accurate shapes for the trim, I cut out cardboard templates. Place the iron-on



The Pinto is an excellent candidate for Electric power; the fuselage provides plenty of space for batteries.



Details of the model's firewall. The engine-and-fuel-tank assembly can be removed as a unit.



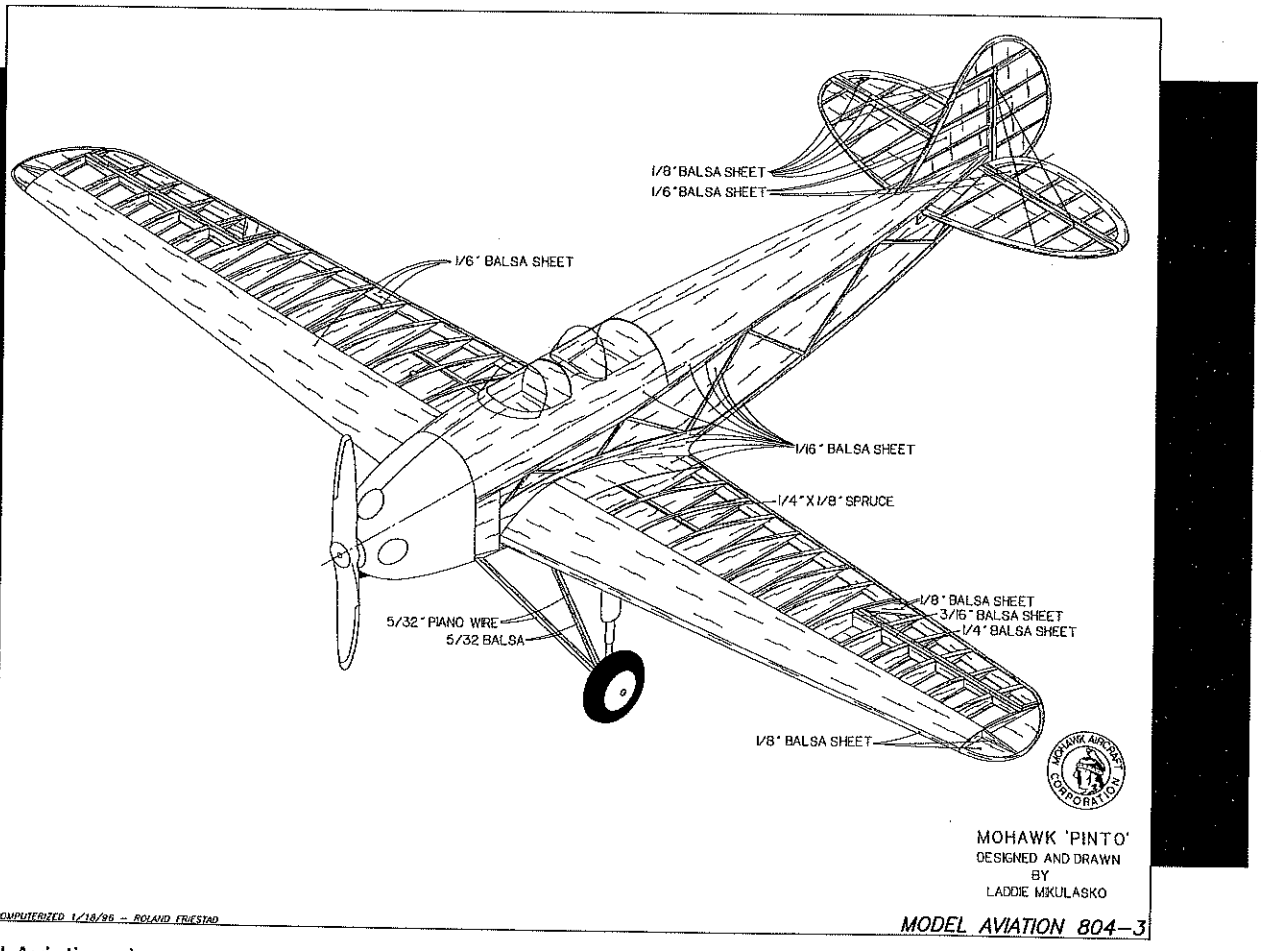
The tail skid is formed from 1/16 piano wire; two steel clips hold it in place.

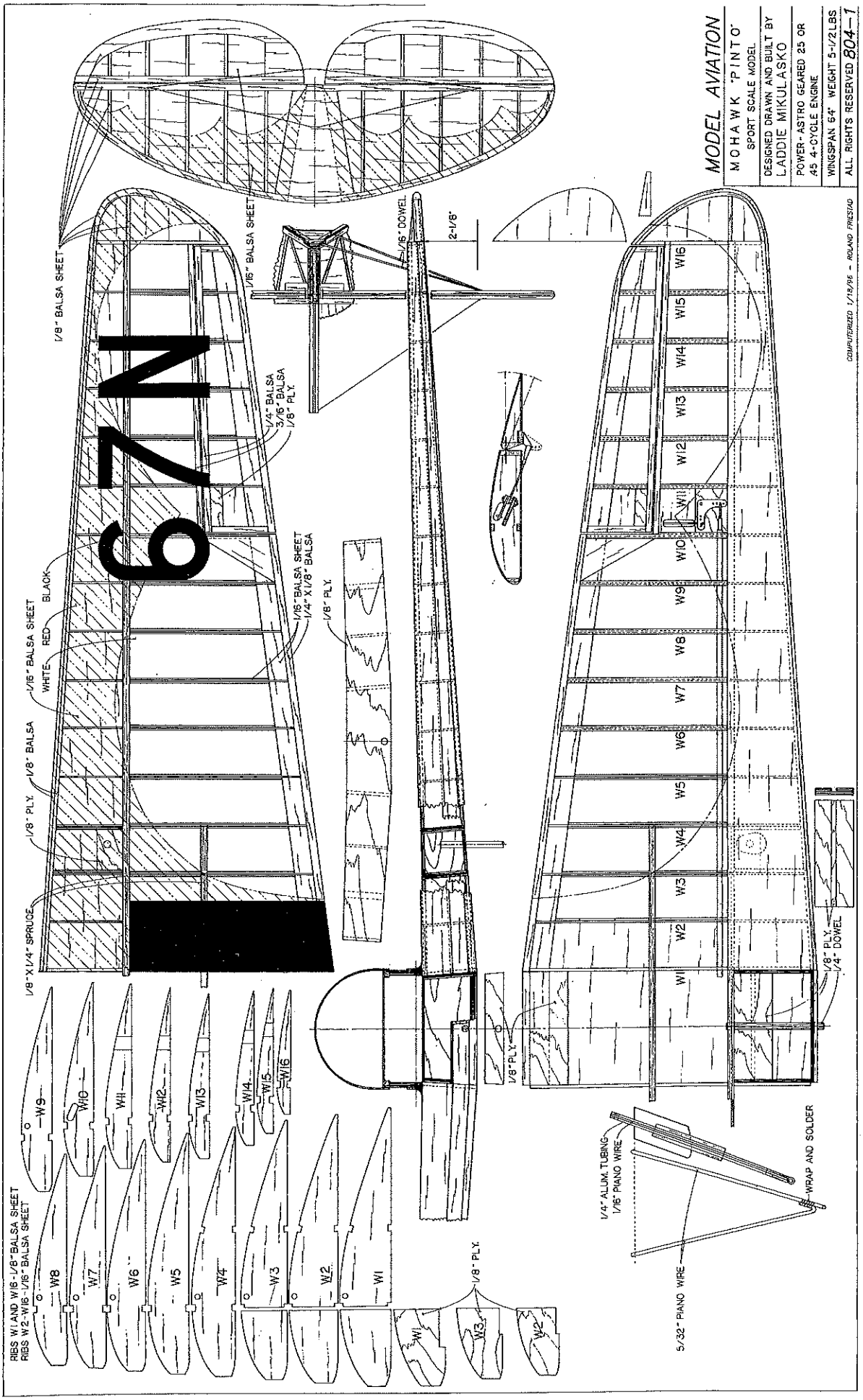
sheet on a smooth, flat surface, then place the templates on top and cut around them with a sharp knife.

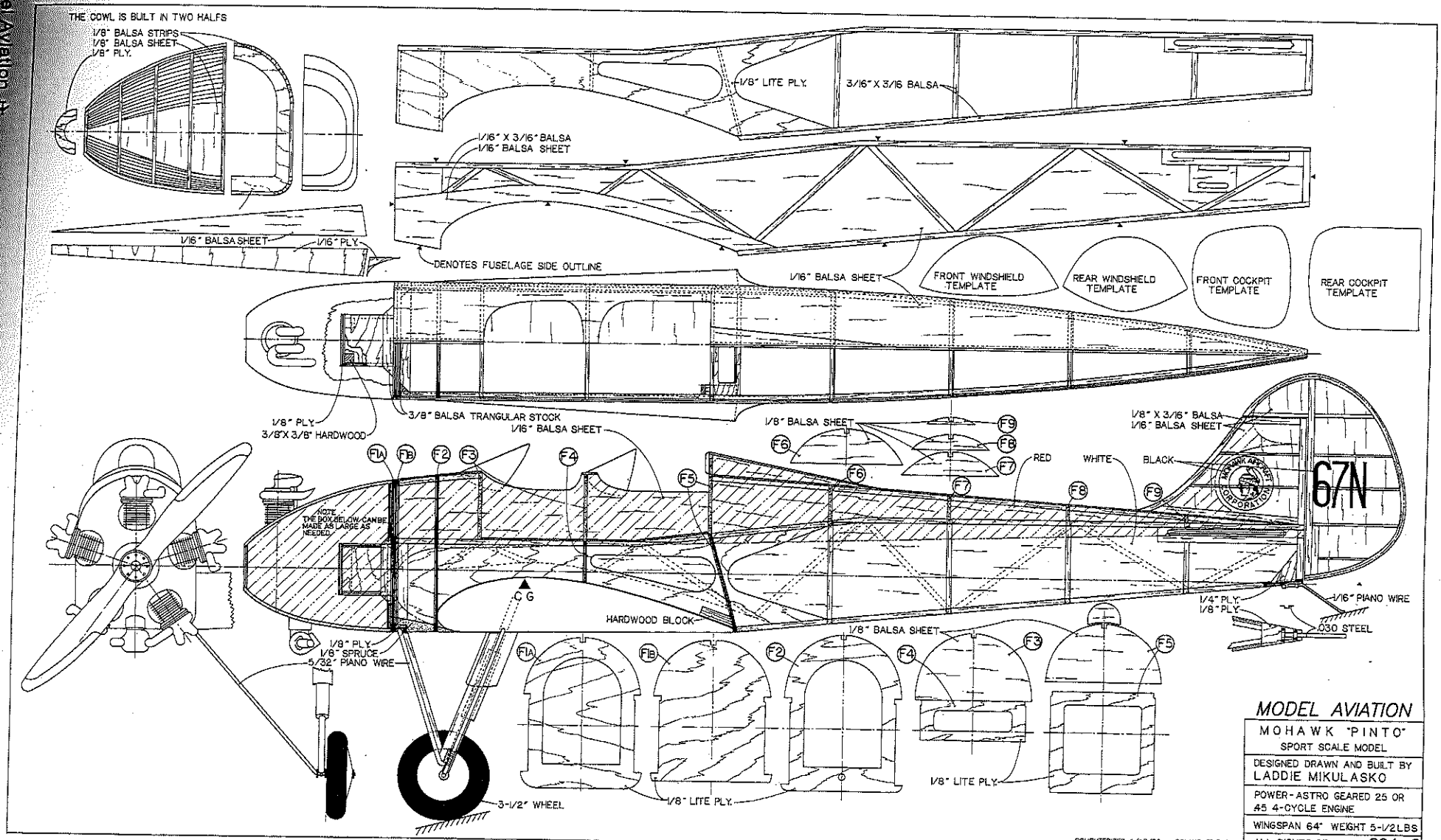
Make a photocopy of the black identification numbers, and place the copy on top of the iron-on covering sheet. Secure it with masking tape, then cut right through the paper and the plastic. These identification numbers are unusual, but are authentic according to photographs of the full-scale airplane.

Flying: Make sure that the center of gravity (CG) it is in the location shown on the drawing. The main undercarriage is wide and well-forward on the model, so there is no problem with taxiing, takeoffs, or landings. Taxi into the wind, and go for it! The model is light, and will be airborne in no time.

The model will do loops and rolls, but it was mainly built to fly at a relaxing pace. I hope you will find this model charming enough to build. Good luck! ✈




MODEL AVIATION
MOHAWK "PINTO"
SPORT SCALE MODEL
DESIGNED DRAWN AND BUILT BY
LADDIE MIKULASKO
POWER - ASTRO GEARED 25 OR
45 4-CYCLE ENGINE
WINGSPAN 64" WEIGHT 5-1/2 LBS
ALL RIGHTS RESERVED 804-1
COMPUTERIZED 1/18/96 - ROLAND FRIESTAD
67N
1/8" BALSA SHEET
1/16" BALSA SHEET
1/16" DOWEL
2-1/8"
1/4" BALSA
3/16" BALSA
1/8" PLY.
1/16" BALSA SHEET
1/4" X 1/8" BALSA
1/8" PLY.
BLACK
1/16" BALSA SHEET
RED
WHITE
1/8" BALSA
1/8" PLY.
1/8" X 1/4" SPRUCE
W1
W2
W3
W4
W5
W6
W7
W8
W9
W10
W11
W12
W13
W14
W15
W16
1/8" PLY.
1/4" DOWEL
1/8" PLY.
1/4" ALUM. TUBING
1/16" PIANO WIRE
WRAP AND SOLDER
5/32" PIANO WIRE
RIBS W1 AND W16 - 1/8" BALSA SHEET
RIBS W2-W16 - 1/16" BALSA SHEET



MODEL AVIATION

MOHAWK "PINTO" SPORT SCALE MODEL
DESIGNED DRAWN AND BUILT BY LADDIE MIKULASKO
POWER - ASTRO GEARED 25 OR .45 4-CYCLE ENGINE
WINGSPAN 64" WEIGHT 5-1/2 LBS
ALL RIGHTS RESERVED 804-2

COMPUTERIZED 1/18/96 - ROLAND FRIESTAD