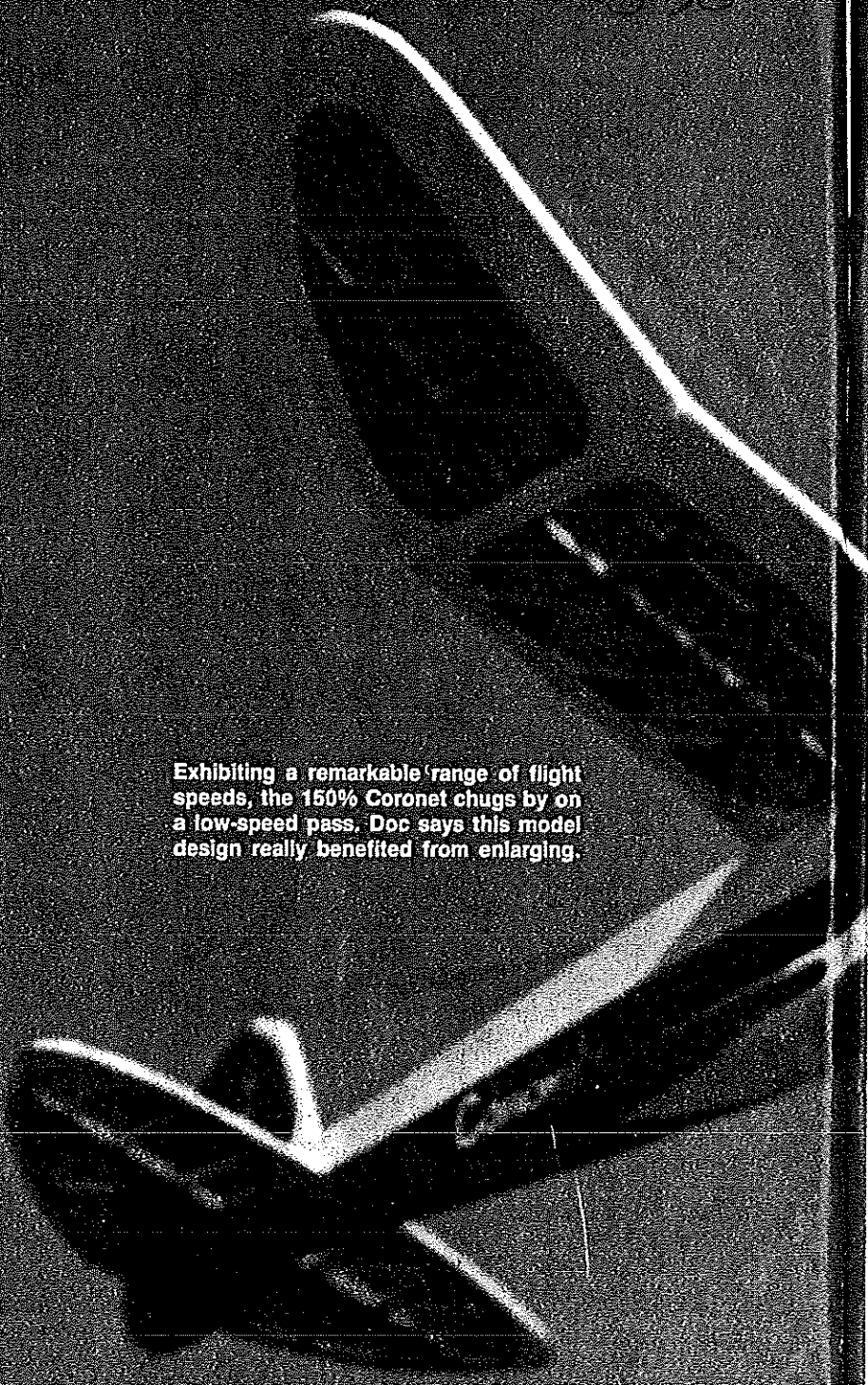


MY STRATEGY was straightforward enough. In updating Scientific's popular 1941 Coronet kit design by means of a 50% enlargement and the addition of RC-assist, I expected to produce nothing more than a cute-looking sport design outfitted with a four-stroker engine. What emerged instead was totally unexpected. The Coronet 150 goes well beyond sport flying. Not only does this SAM-legal model have strong competition potential, it's quite simply the finest-flying Old-Timer yet to come out of my workshop. To say that I was astounded at unleashing all that prowess is an understatement.

When the Coronet made its debut in the June 1941 issue of *Model Airplane News*, the magazine described it as a "new Gas model for Class 'A' or 'B.'" A lightweight cabin-style model with a 46½-in. wingspan. Has a climb rate of 2,500 ft. per minute and consistent soaring characteristics." The kit, priced at \$1.95, included a formed landing gear and bracket as well as a finished



Exhibiting a remarkable range of flight speeds, the 150% Coronet chugs by on a low-speed pass. Doc says this model design really benefited from enlarging.

It's always interesting to see a new design come along and challenge our expectations. Such is going to be the case with this great-flying SAM Class B Cabin model.

■ Dr. D.B. Mathews

# CORONET

propeller.

Back in those days, kit manufacturers usually did not credit the designers unless a model was nationally known. The Coronet was no exception. But whoever designed this model gave it considerable aesthetic appeal, and the Coronet kit was a very popular one for many years.

I tried to build a Coronet during World War II with poor results. The wartime shortages made it impossible to obtain balsa, and my kit had substitutions—an unspecified hardwood (which may have been pine) for strip and

some sort of paper for the ribs—that were not very satisfactory. I never completed the model, and until this project tilted it around 180 degrees, my feeling toward the Coronet had remained rather negative.

Since in designing the Coronet 150 all outlines and dimensions were machine enlarged from the original kit plans, the model is totally SAM legal. SAM rules allow four-cycle engines 60% of the displacement of two-cycle ones for competition. On that basis, a .40 four-cycle engine is considered the equivalent of a .24 two-cycle. That, in my experience, definitely favors the four-stroker. With a Schnuerle-ported .25 engine our Coronet is a fine flier and climbs rather briskly, but with the four-cycle .40 she will leap up as straight as an arrow! In the hands of an expert competi-

tion flier, this engine-model combination could well be an eye-opener to folks who are convinced that a Playboy Cabin or a Clipper is the only way to go in B Cabin.

Apart from the 50% enlargement and adding the RC-assist, I've made a few other slight changes in the original design features, primarily in the wing construction. The original had a single main spar, cap stripped ribs, and sheeting only on the top, a combination of features which, when enlarged, produced a very wiggly, unstable structure. My solution was to add top and bottom spars and shear webs. I then added triangular gussets to the trailing edge to correct warping.

Although no fuselage cross braces were used in the original design, our model employs them for rather obvious reasons. A hidden elevator control horn looks neat but is certainly not required. Likewise it's not mandatory to use the wing hold-down method shown in the plans. If you prefer a more pragmatic approach, it won't affect the flying characteristics of your model.

Equipped with the O.S. four-stroke engine, our model balanced without any ballast. If you're planning to use a two-cycle unit instead, be prepared to compensate by adding some nose weight.

The Coronet 150 is far from the

# et 150



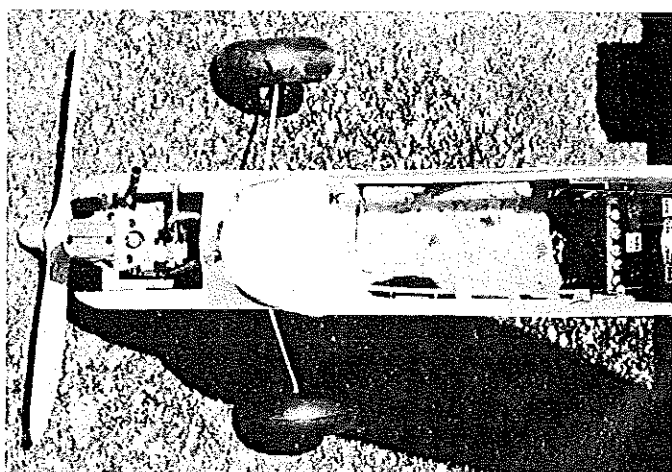
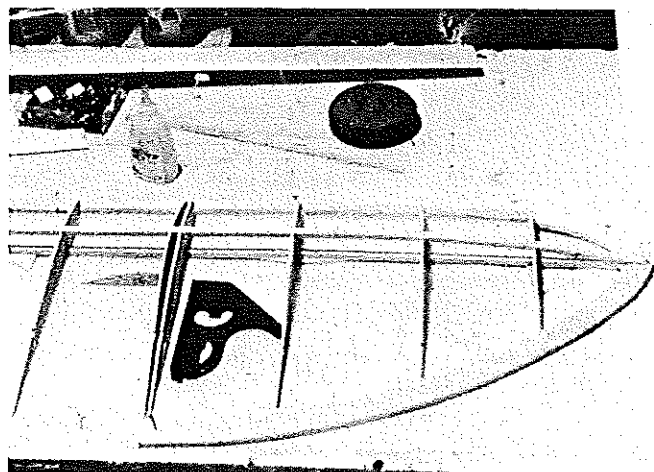
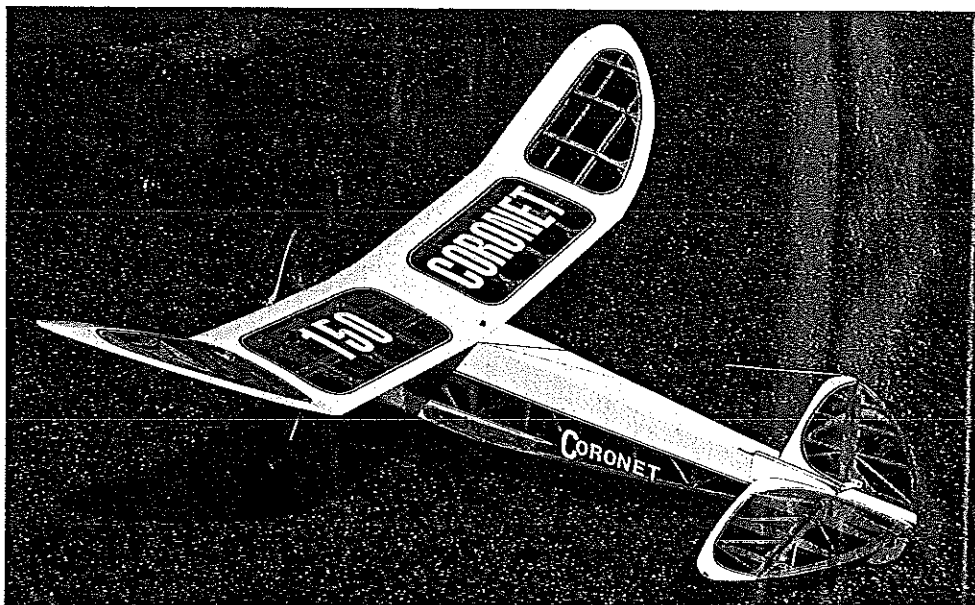
simplest of my construction designs and really isn't directed at the absolute novice scratch-builder. But if you can handle its relative complexity, you'll be more than compensated by the absolutely incredible slow-speed flight characteristics of the finished model. During the photo sessions, I attempted a touch-and-go in dead low throttle. With a light headwind, I brought the model down very slowly and placed it into a three-point setdown. Amazingly, the wheels didn't rotate at all—the Coronet just lit and perched as gently as a bird. Now *that* was a slow three-point!

For the Old-Timer buff who hankers after something really unusual in a contest design, or the sport flier who's interested in near-STOL handling, the Coronet 150 couldn't be a better choice.

**Construction.** Wood sizes have been carefully selected and represent close to the minimum for structural integrity. Be sure to select light but firm C-grain sheeting and unblemished stripwood.

Where neither cyanoacrylate (CyA) nor

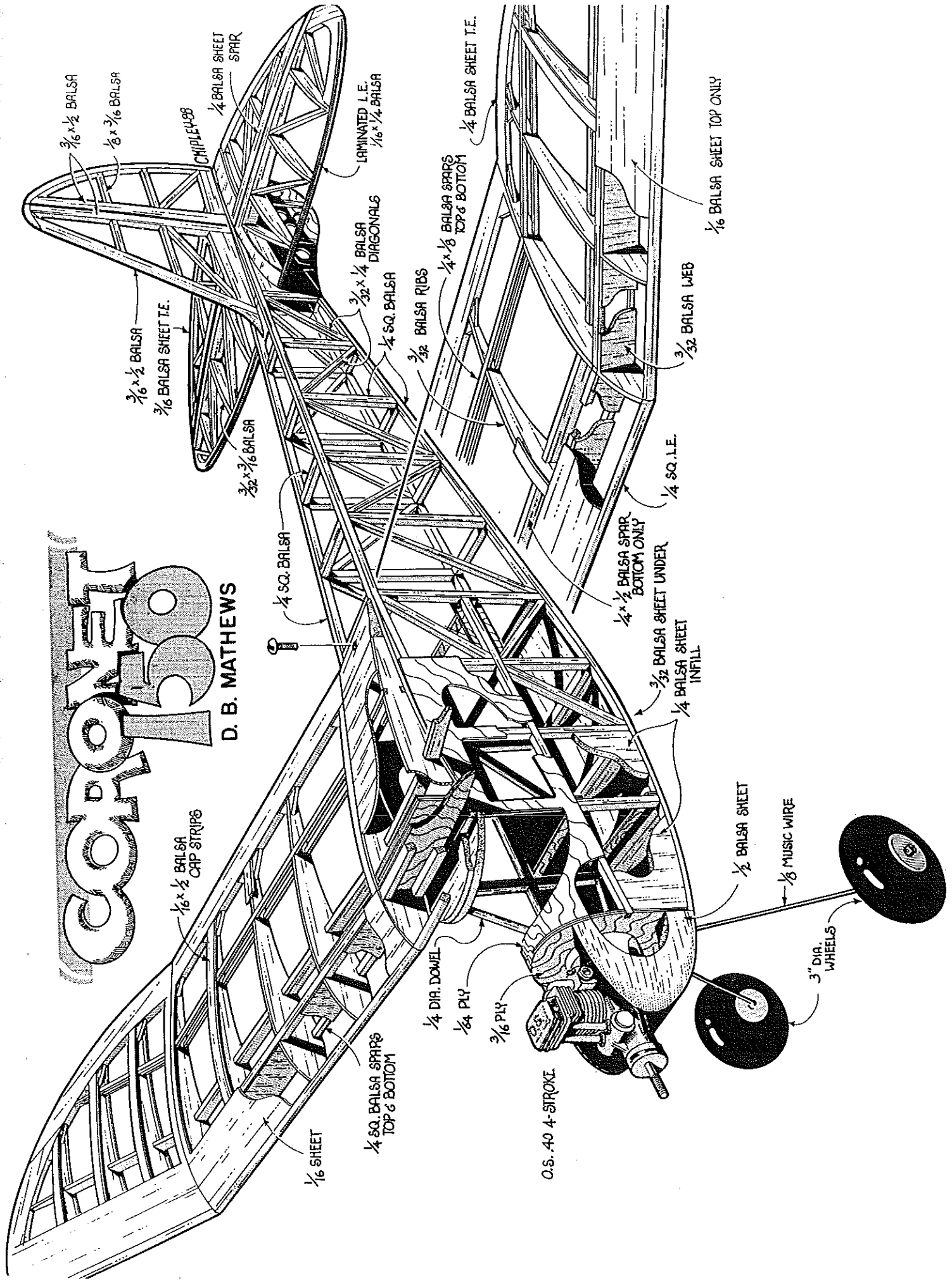
**Above:** Based on the trim scheme used in the original Scientific kit ads, this version comes out very attractive when done up in white and transparent green MonoKote. (Text has more.) **Below:** Combining a stubby wing with a long, thick fuselage and rounded empennage produces a classic design. The original version was an enduringly popular part of Scientific's line.



**Left:** Early stages of the wing construction. Note how the top front spar tapers down into the wing tip. The outboard rib is slanted for the polyhedral joint. **Right:** Firewall is moved back to allow for the extra length of the four-stroke engine. There's plenty of room for the radio system.

# CORNET

D. B. MATHEWS



$\frac{3}{16} \times \frac{1}{2}$  BALSA  
 $\frac{1}{8} \times \frac{3}{16}$  BALSA  
 CHIPLEY-88  
 $\frac{1}{4}$  BALSA SHEET SPAR  
 $\frac{3}{16} \times \frac{1}{2}$  BALSA  
 $\frac{3}{16}$  BALSA SHEET T.E.

$\frac{3}{32} \times \frac{3}{16}$  BALSA  
 $\frac{1}{4}$  SQ. BALSA  
 $\frac{3}{32} \times \frac{1}{4}$  BALSA DIAGONALS  
 LAMINATED I.E.  
 $\frac{1}{16} \times \frac{1}{4}$  BALSA  
 $\frac{1}{4}$  BALSA SHEET T.E.

$\frac{3}{32}$  BALSA RIBS  
 $\frac{1}{4} \times \frac{1}{8}$  BALSA SPARS TOP & BOTTOM  
 $\frac{1}{4}$  BALSA SHEET T.E.  
 $\frac{3}{32}$  BALSA WEB  
 $\frac{1}{4}$  SQ. I.E.  
 $\frac{1}{4} \times \frac{1}{2}$  BALSA SPAR BOTTOM ONLY  
 $\frac{3}{32}$  BALSA SHEET UNDER  
 $\frac{1}{4}$  BALSA SHEET INFILL

$\frac{1}{16}$  BALSA SHEET TOP ONLY

$\frac{1}{16} \times \frac{1}{2}$  BALSA CAP STRIPS

$\frac{1}{4}$  SQ. BALSA

$\frac{1}{4}$  SQ. BALSA SPARS TOP & BOTTOM

$\frac{1}{16}$  SHEET

$\frac{1}{4}$  DIA. DOWEL

$\frac{1}{8}$  PLY

$\frac{3}{16}$  PLY

O.S. 40 4-STROKE

$\frac{1}{2}$  BALSA SHEET

$\frac{1}{8}$  MUSIC WIRE

3" DIA. WHEELS

epoxy is specified, aliphatic resin should be used as the adhesive. Use five-minute epoxy wherever epoxy is specified.

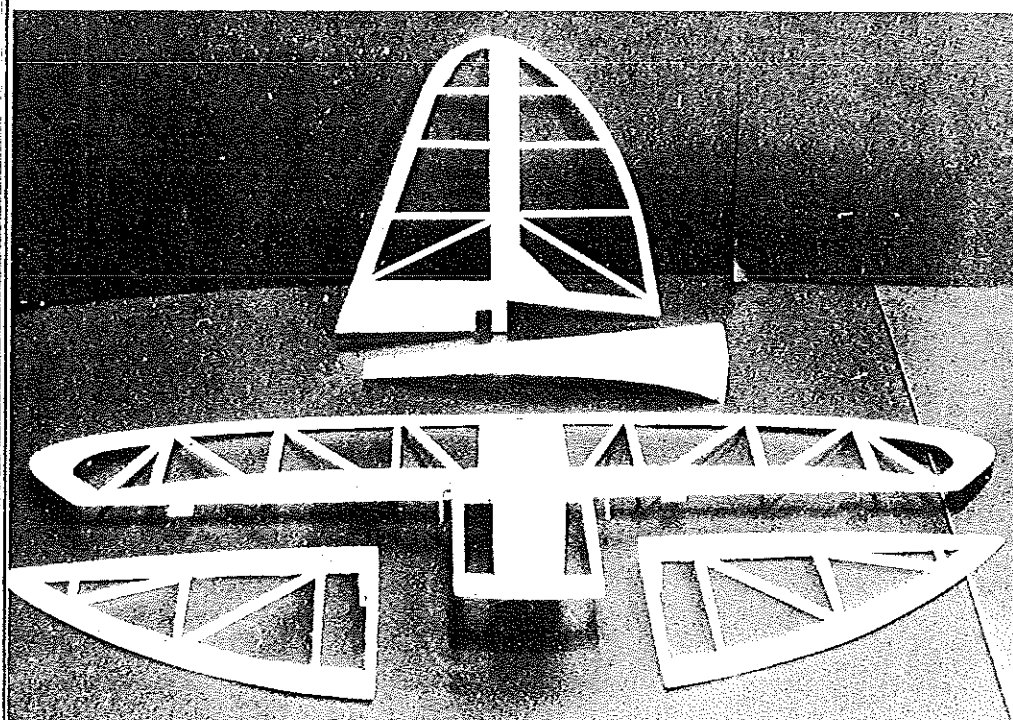
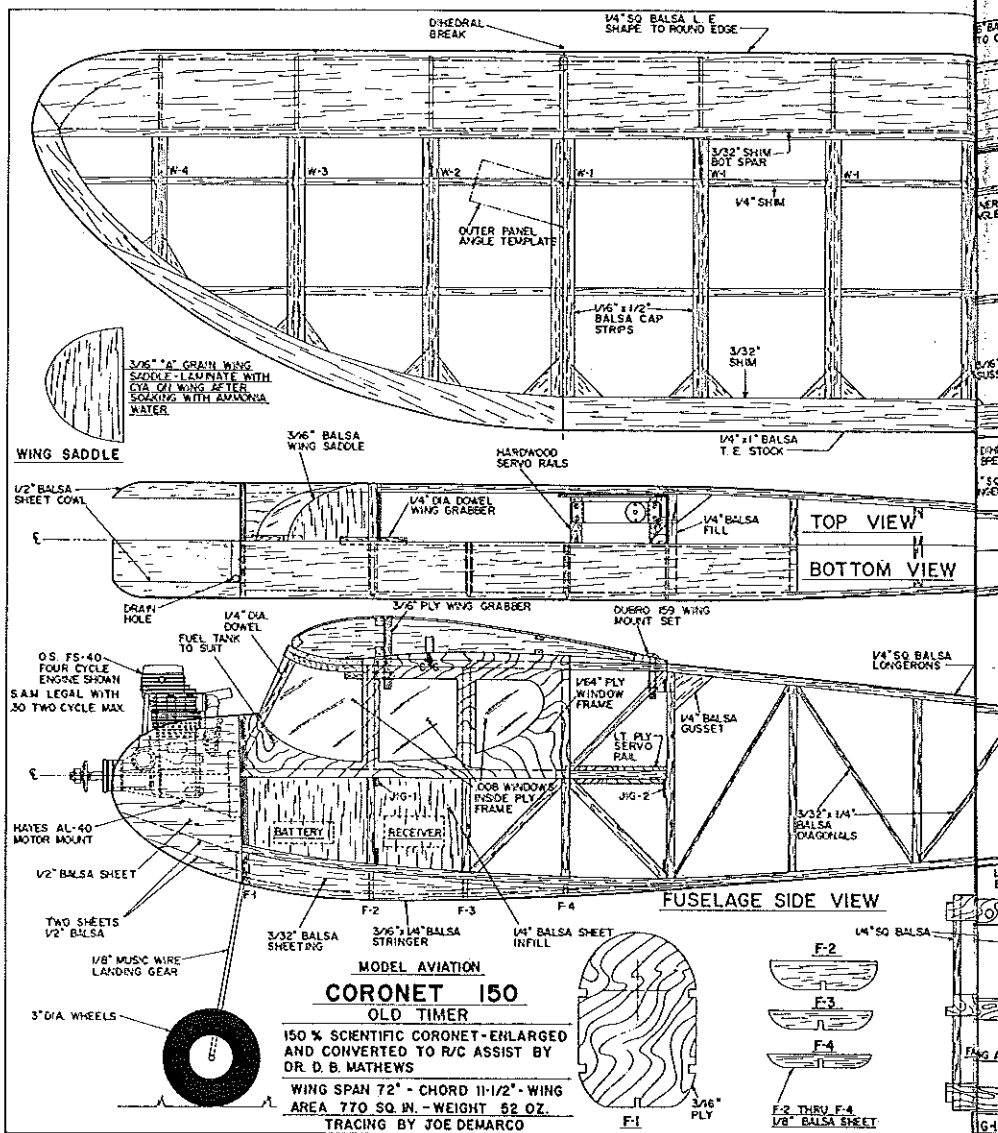
All parts should be cut out, drilled, and pre-kitted prior to actual assembly. Former and wing patterns can be developed either by using carbon paper under the plans or by photocopying. Use 3M Sprayment to adhere the patterns to the wood, cut out the part, and peel off the paper. Positioning of firewall holes and blind nuts will differ depending upon the engine used.

**Wing.** Stack cut the ribs from sandwiches of balsa sheet. Notch the trailing edge (reverse the blade in your jigsaw for better vision), and pin it flat over the plans. Block up the bottom spars with balsa scraps, carefully place the ribs over the spars, and attach with CyA.

Cut the wing tips following the outline on the plan, place them over the drawings, and adhere with CyA. Shim them slightly at the second spar, then add the ribs. Attach the leading edge using CyA. Remove the leading edge from the surface, and contour it to the outline shown on the plan. Add sheeting using thick CyA, and working from the leading edge to the spar. A spray of dilute ammonia is helpful in bending the sheet.

Complete the wing by adding the triangular gussets and then the cap strips. The angled ribs at the dihedral joints serve as a cutting guide when trimming the spar ends with a razor saw. Sand the ribs to the proper level by blocking up the opposite end to the prescribed height and using a flat table edge as a sanding guide. *No dihedral gussets are required if epoxy is used on the rib faces when assembling!*

The wing should be left uncovered until it has been aligned to the fuselage.



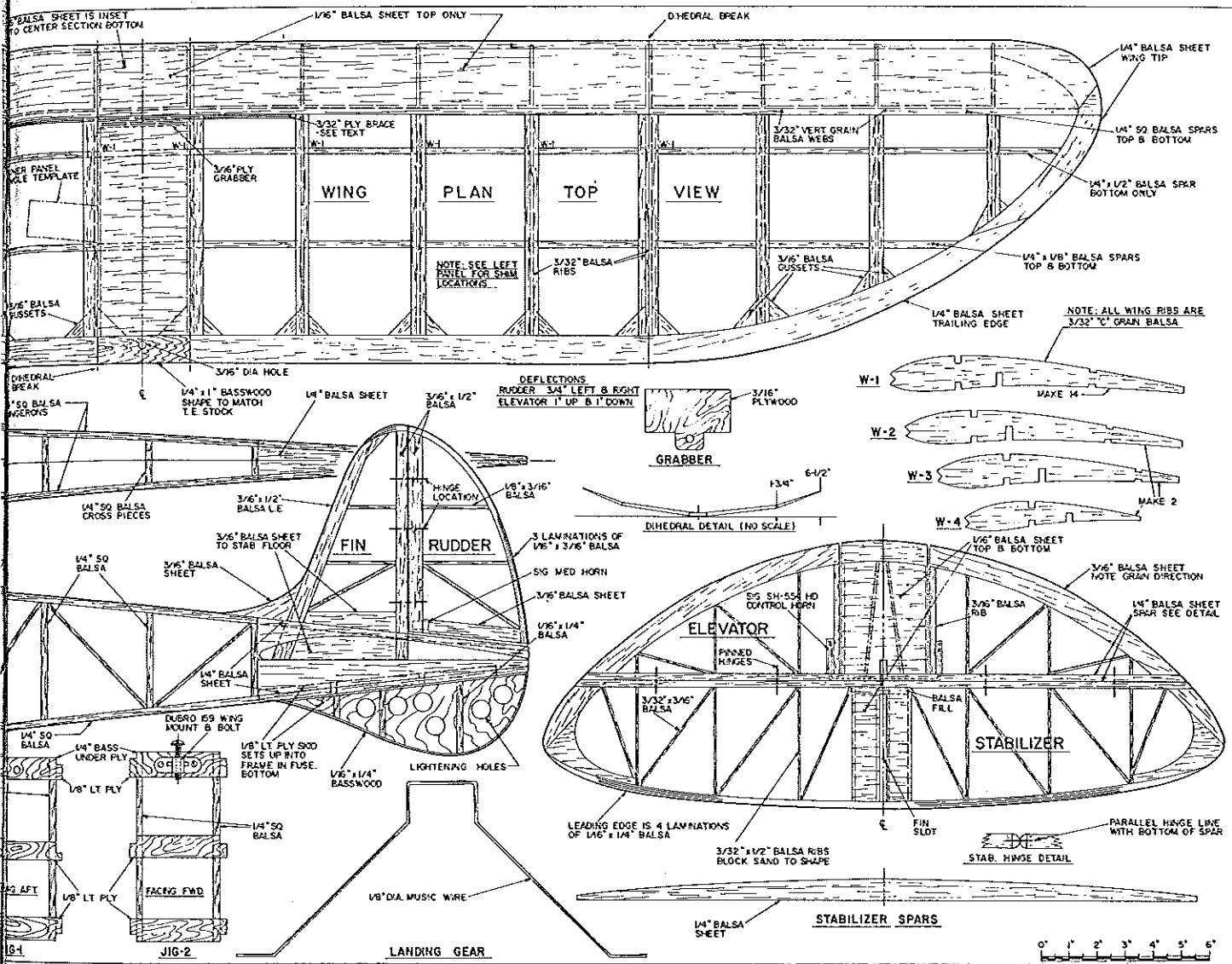
The tail details shown here will be helpful in visualizing how all the parts fit together. Note the location of the wire elevator joiner, and the specifics of the built-up construction techniques.

**Empennage.** Make the laminated rudder outline from strips of balsa soaked in ammonia water and coated with aliphatic resin. Merely pin the outline over the drawing and bend the treated wood around the pins.

The stab/elevator frame is fashioned in the same manner as the wing tips, then pinned over the plans. On the prototype the leading edge, which is laminated like the rudder, was built completely flat using blanks of balsa for the ribs and stripwood for the spars. Of course, individual ribs and contoured spars may be used instead. It's simpler, though, and equally effective, to use square balsa blanks for the ribs and spars and sand them to the appropriate shape using a large sanding block fitted with 100-grit paper.

Trial fit the hinge sections and align the control horn before final assembly. When you're satisfied that everything fits and is in alignment, add the filler sheeting.

The sub-fin takes a beating on takeoffs and landings, but the light ply structure capped with balsa on the prototype has held up well. Slotted to fit between the cross-member of the fuselage, it fits into a scrap balsa slot so that everything can be precovered before final assembly.



Fuselage. Make two identical sides and lay one on top of the other, using scraps of masking tape to prevent sticking. Remove the two sides, and pop them apart with a table knife. Align the fuselage with one side flat on the building board, and assemble the frames using CyA. Use a carpenter's square and 90° triangles to keep the frames at right angles in all planes.

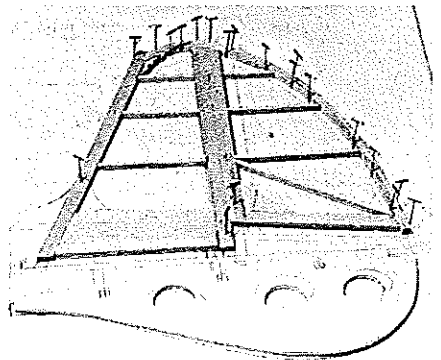
Pull the tail post together, and measure to ensure that it's raised off the building board exactly half the width of the fuselage. Again, use a 90° triangle to check for absolute squareness in all directions. Secure temporarily with clothespins, and CyA the tail post halves together. Cut out the crossmembers over the top view, and add them in pairs. Once everything has set up and cured, remove the box and add the details.

Fabricate the wing saddle unit of two sheets of balsa that have been moistened with ammonia. They are pushed against the wing bottom, then coated with thick CyA on the opposite side to hold the shape.

Install the rear wing hold-down as close to dead center as possible. The front dowel should run parallel with the centerline and slightly downward toward the rear. Epoxy it in place, and then fit the wing.

Drill a hole through the hardwood trailing edge of the wing's center section. Secure the grabber against the spar faces with a clamp or two, and insert a bolt through the hole to trial mount the wing onto the fuselage.

Carefully measure the distance from wing tip to wing tip relative to the fuselage tail post center line. Some helpful hints: Use a string held to the post with a pin, and mark the tip end. Continue to adjust the po-



Doc's Coronet is a mixture of both old and new construction techniques. Balsa strips are soaked in diluted ammonia and formed around pins. Sub-fin must be of hard balsa.

sition of the grabber on the dowel until the wing is absolutely square relative to the fuselage. Attach the grabber with epoxy.

An optional wing mounting method uses 3/16-in.-dia. dowels and rubberbands. The dowel positions are obvious and don't require further explanation. This approach may be advisable for the less experienced flier who might occasionally put in a rough landing.

Trial install and mount the engine (notice that a hole must be drilled in the engine mount for proper placement of the throttle cable). Cut two sections of bass or other hardwood for a tight fit inside the light ply servo rails, and temporarily seat the servos. Position the receiver and battery pack as far forward as possible. Trial fit and plumb the metal tank on its light ply floor.

Move the servos about to obtain a slightly nose-heavy balance point to compensate for the covering. The servos in the prototype were placed pretty well to the rear, and rather firm stock was used for the nose cheeks in compensation.

Make the pushrods using either 1/4 x 1/4-in. firm balsa or nylon rods. The prototype used a solder clevis on the elevator con-

## Custom Aviation Prints and Original Paintings

Custom made photo prints of the several most recent Model Builder COVER PAINTINGS by Bob Benjamin are now available. INCLUDING:

Gee-Bee R-1  
('32 Thompson Race)

Laird  
Super Soluloon  
('31 Bendix Race)

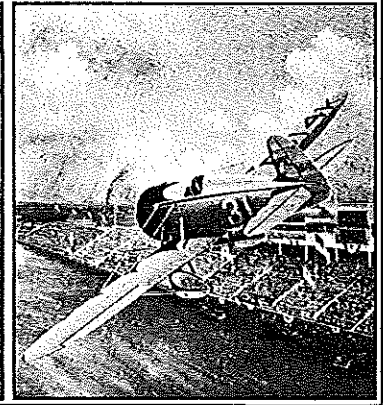
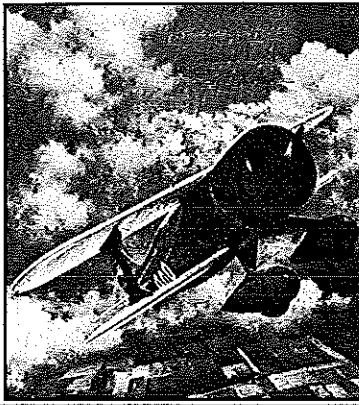
Travel Air "R"  
('29 Thompson Race)

Prints of all future Model Builder COVER PAINTINGS will also be available. If you have something special in mind, Bob is pleased to discuss creating new originals on a custom commission basis.

For complete details on ordering prints or to inquire about original paintings call or write:

**Robert A. Benjamin Aviation Art**

1222 26th Ave. N.E., Olympia, WA 98506 (206) 352-2602

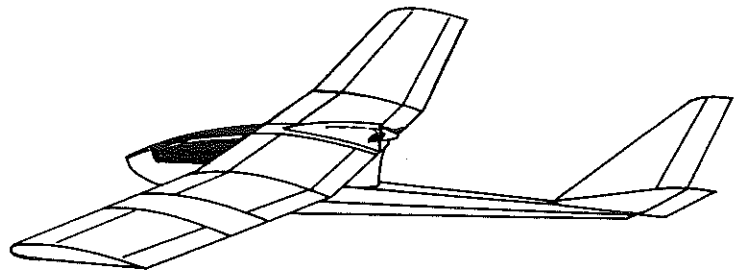


## THERMAL CHARGER

If what you are looking for in an electric sailplane is, good looks, easy to build, fun to fly, and great performance, Thermal Charger is the one for you.



PRECISION  
PRODUCTS INC. (714) 592-5144  
510 E. Arrow Highway, San Dimas, CA 91773



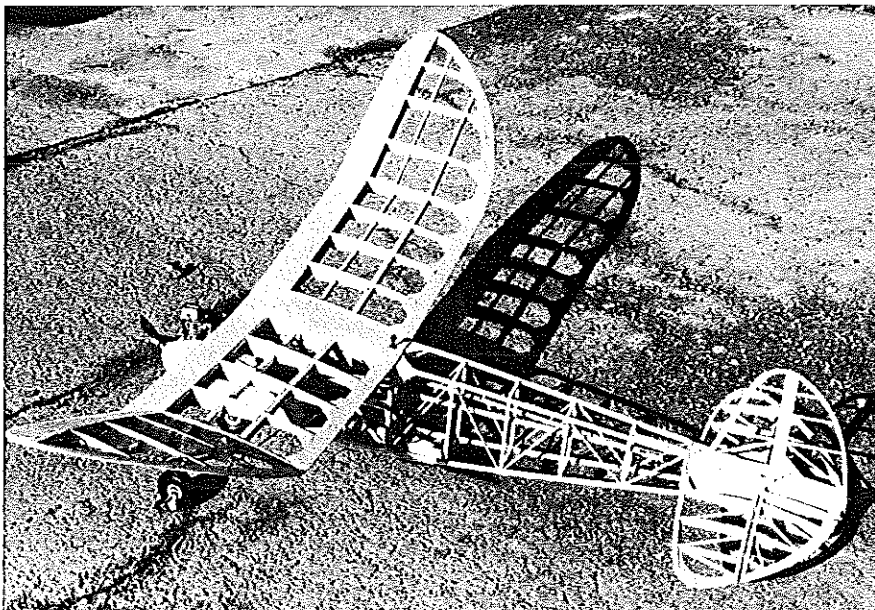
trol horn and an EZ connector on the servo.

MonoKote was the covering I chose for the prototype. For simplicity's sake, all small assemblies (the stab, the filler unit, and finally the fin-rudder assembly) were precovered before seating. The hinges were well secured by inserting a section of toothpick through a hole in each hinge and attaching with CyA.

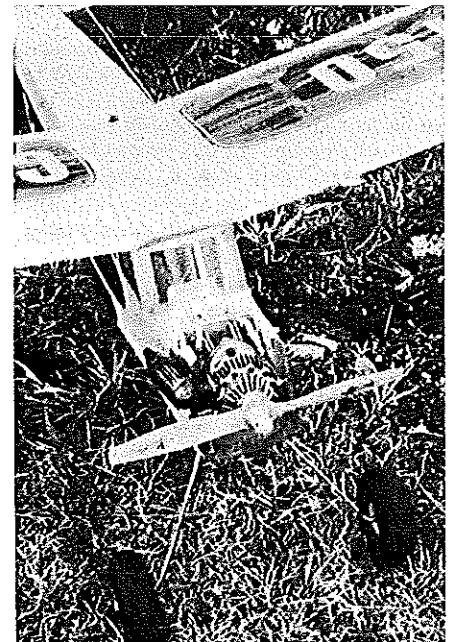
If the MonoKote is slightly roughened with 400 steel wool, thoroughly cleaned with acetone, and then sprayed with Poly U, the paint will do a much better job of adhering. I've also used Super Poxxy successfully in this way. Vinyl tape such as Sig's Stripe Rite is excellent for masking the joints. I use the latter for trim stripes, too, by sealing the edges with a thin, brushed-on coat of Skybrite clear.

After covering over the window frames, cut out the MonoKote, and then cut sections of clear plastic to fit *inside* the plywood. Adhere with Willhold RC 56. This resulted in a very neat and durable window while eliminating the mess usually associated with

*Continued on page 138*



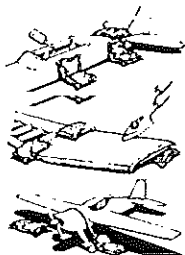
Typical light-but-strong old-time construction. While this airplane is not terribly difficult to build, it will certainly be a source of great pride in one's craftsmanship when it's completed.



Once Doc completed his drawings of the Coronet, it was only a matter of a very short time before others began experimenting with the design. One new owner installed the O.S. Wankel engine. Climb is awesome.

## WEIGHT MATES™

Heavy duty fabric weight bags for:



**Building**

**Covering**

**Transporting  
& Field  
Tie-Down**

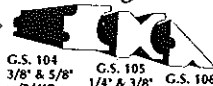
- Easily filled with sand or shot, up to 5 pounds
- Five 4"x6" bags per package
- Conforms to all curvatures
- Complete instructions

**\$6.95\***

\* Add \$1.00 for shipping.

## GRATE SHAPES™

World's Most Useful Sanding Blocks



G.S. 101 1/4" & 3/8" G.S. 102 1/2" & 5/8" G.S. 103 3/4" & 1"  
 Combo package #1: G.S. 101, 102, 103 **\$13.95\***  
 \*Add \$2.00 for Shipping

SAVE! Six Pack Combo (G.S. 101-106) **\$23.95\***  
 \*Add \$3.00 for Shipping

All with long lasting silicon carbide grit on all sides.

Combo package #2: G.S. 104, 105, 106 **\$13.95\***  
 \*Add \$2.00 for Shipping

Rounds..... G.S. 200 PKG **\$9.95** + \$2.00 Shipping

Squares..... G.S. 300 PKG **\$6.95** + \$2.00 Shipping

Single G.S. .... **\$5.95\***  
 \*Add \$1.00 for Shipping

All blocks are 10" Long

## MODEL JOX™

Engine Covers

Dust and dirt are among your engines' worst enemies, and can greatly reduce the life of those prized powerplants! So, complete your modeling accessories by ordering a set of MODEL JOX™.....they'll protect your engines, and save you money! Order Yours Today!



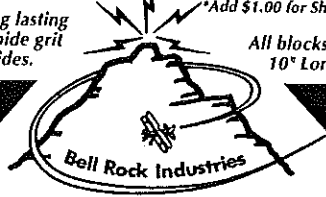
- Easily secured to your model in seconds
- Fuelproof stretch fabric conforms to engine/muffler shapes.
- Long life Velcro fasteners
- Attractive assorted colors

Catalog No.	Size	Price*
J101	1/2A thru .25 engines	\$2.00
J102	.40 thru .60 engines	\$2.50
J103	.60 thru 1.20 engines	\$3.00
J104	Quadras & Up	\$3.50

\*Add \$1.00 for shipping

## Bell Rock Industries

6486 Hwy 179 • Suite 108  
 Sedona, Arizona 86336



**(602) 284-1808**

Arizona residents add 5% for tax  
 All products guaranteed  
 Dealers invited



## Safety/Preston

Continued from page 22

model did become uncontrollable, then you should not be flying.

"The primary responsibility for safety rests with the pilot, not the meeting organizers or the insurance companies. I have seen flying this year that has been quite definitely dangerous, and unless we take steps to reduce the risks the worst will happen."

It just so happens that in two weeks' time I will be off to the Nats to cover the RC Scale events for *Model Aviation*. Bob and Dolly Wischer, who have been covering these events for years, cannot make it this time. It will be interesting to see whether flight safety is foremost in the minds of U.S. Scale competition fliers.

Till next month, have a safe one.

## Coronet/Mathews

Continued from page 30

other techniques.

**Flying.** When balanced at the point shown on the plans and with deflections set as indicated, the Coronet 150 will literally jump off the ground in full throttle—so much so that I recommend gentle applications of throttle on the first few flights. Just point her nose into the wind, and gently advance the throttle until she's airborne. No control input should be needed.

Climbout is purely a function of the amount of power applied—the more throttle, the steeper the climb. Likewise, the faster she flies the touchier she is. For just good old fun-flying, leave the engine in half-

throttle. When you're in the heat of competition, it's time to let her rip!

The Coronet 150 is remarkably "thermal ready." It tends to ride even very light lift well. Whether the power is on or off, the model's combination of extremely slow flight speed with exceptional stability give it a definite edge. In strong lift this airplane is quite capable of beating the socks off some of her more streamlined sisters.

Power, stability, and versatility. With the Coronet 150, you can have it all. Reduce the power for gentle, enjoyable sport flying; pull out all the stops and take advantage of her highly competitive thermaling ability. This airplane marries the best of both worlds, and either way you can't lose!

## Fun Fly/Oldenkamp

Continued from page 35

were about as smooth as riding over a washboard. At least today's closed, quiet, air-conditioned vehicles are more forgiving than those of yore, and our airplanes arrived without any traces of dust. Shades of '52 in Indiana!

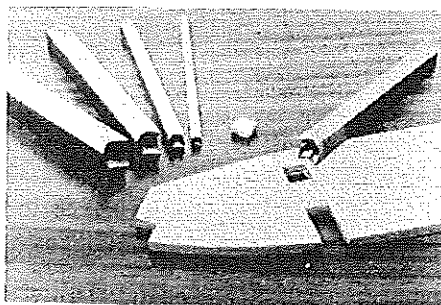
Those of us who took the trek to the outdoor site were not disappointed. We were greeted by a complex of three flying sites separated by perhaps a mile each, one for RC power and Sailplanes, the second assigned to Free Flight, and the most distant given over to the Old-Timer RC-Assist crowd. For the latter group, the Society of Antique Modelers (SAM) 51 was holding its West Coast Championship Meet in conjunction with the fun-fly/convention. By informal counts on Saturday and Sunday, about 700 vehicles showed up for the events, including many motor homes camping on-site.

The Reno Radio Control Club (home of the Hungry Valley Fliers) hosted the RC activities. This relatively new field features a long, wide runway, vast pit areas, a sheltered control center, and excellent frequen-

## SQUARE CUT TOOLS

Balsa  
 Cutters

5 pc. Masters Set  
 1/8, 3/16, 1/4, 5/16, 3/8" .. \$16.98  
 3 pc. Builders Set  
 3/16, 1/4, 5/16" ..... \$9.98



Whether you are a kit builder or a scratch builder, SQUARE CUT Tools will save you time. Remove those stubborn die cuts or cut your own squares and slots. Made in the U.S. with quality machined zinc plated steel. Order your set today!

**See Your Dealer or Cataloger to Order**

(If they don't carry Square Cut Tools, call us — you pay for the call, we'll pay for the shipping.)

**SQUARE CUT Tools**  
**(407) 254-0516**

905 N. Harbor City Blvd., Melbourne, FL 32935  
 Dealer/Distributor Inquiries Invited

