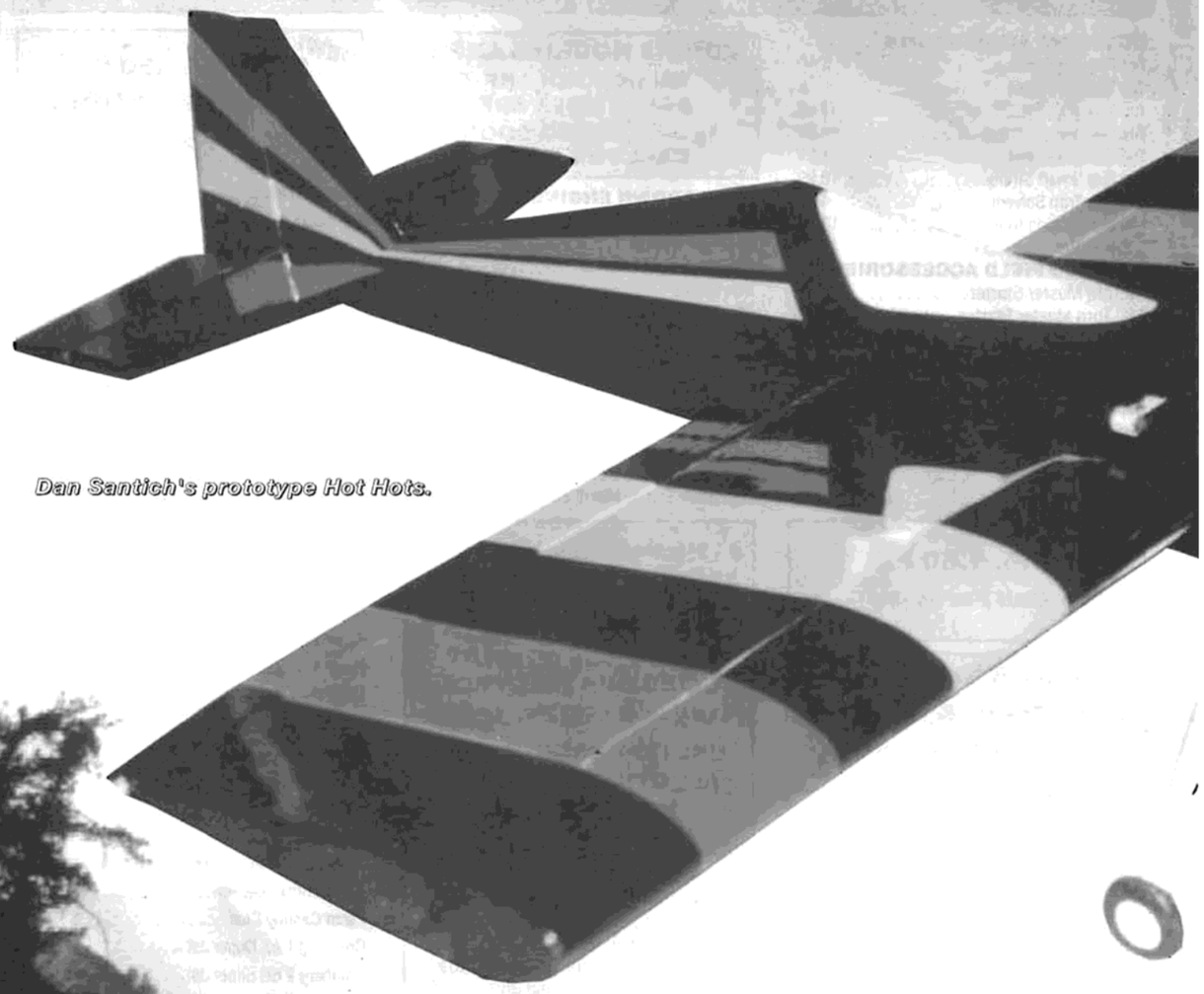
HOT

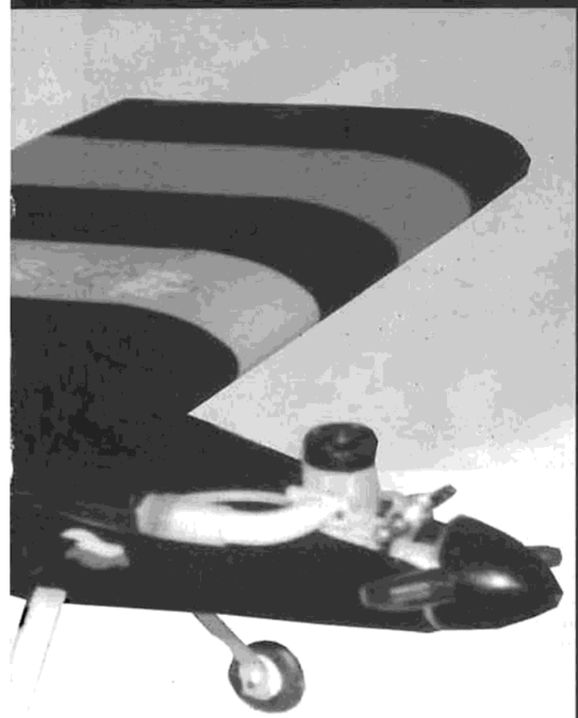
.23-.45 Sport Flier



Dan Santich's prototype Hot Hots.

HOTS

By Dan Santich

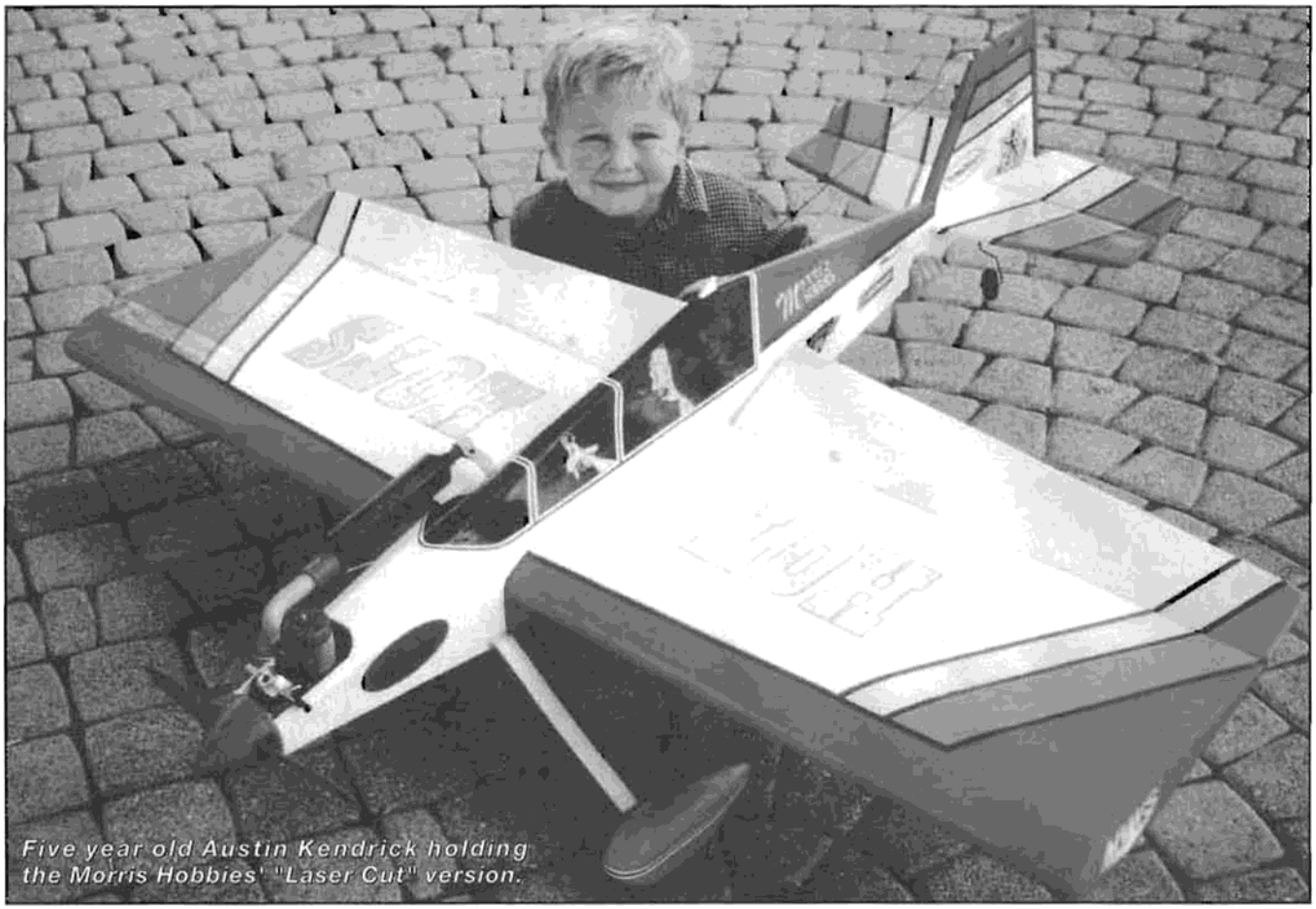


The Hot Hots is a sport model with a lineage that goes back nearly 20 years. I designed the first Hots in 1982 because of a need for a model to compete in a local fun-fly. At that time there were no kits available expressly designed for the style of flying that these fun-flys demanded, namely the most touch and goes, spins, loops, etc., that could be done in a given amount of time, which was usually one minute for each maneuver. The design I came up with was a one piece, 48" span model powered by an O.S. .45 ABC and had a flying weight of 4 lbs. I named it the "Hots" and it was an immediate sensation. It would out-perform anything in the air at that time, and it could be built in one evening.

Midwest Model Products released a kit of the Hots the following year and sold 5,000 kits on their first run. It was so successful that I obtained a U.S. Trademark in 1985 for the name "HOTS™," one of the few models ever to be so recognized. Other Hots soon followed, and next came the Super Hots, also kitted by Midwest, the Big Hots, Ultra Hots, and Fun-Fly Hots. There was also an electric Hots as well as a biplane version of the Super Hots.

Other modelers have come up with variations of their own, such as a giant twin Hots, a float plane Hots, a micro-Hots, and a Giant-Giant Hots with a 12 foot wingspan. In fact, there is a project ongoing to build a Real Hots. It seems as though the design has provided a platform for just about every flying need or desire. What are the ingredients for such a successful design? Simplicity, ease of construction, and above all, great flying qualities. If you have a model that you love to fly, does anything you wish, has no bad habits, is quick to build and easy to repair, and is inexpensive to begin with, then you have a Hots.

The Hot Hots is an extension of that concept. It is a friendly model that you will soon learn to love. It is small enough to fit in a small vehicle, it has a removable wing, it will accept a wide variety of engines in the low-price range, and best of all, it will fly the pants off anything at the field. You can launch it from your hand, scream vertical out of sight, spin down and recover at 5 feet, and hover like a helicopter. It will do a knife-edge loop, or square eights right in front of you, and perform looping touch-and-goes like no other model you have ever seen. Yet with all this capability, it can be as mild as you want it, which makes it an excellent choice as an intermediate trainer. As your flying skill increases, the Hot Hots will challenge you to do more. It will make you a better pilot, yet will not jump up and bite you in the process. It is a flying platform that simply says "Take me and do what you can." Whether you are a beginner or expert, the Hot Hots will meet that need in all of us to excel in the air, challenge that need, and satisfy it.



Five year old Austin Kendrick holding the Morris Hobbies' "Laser Cut" version.

CONSTRUCTION

The first step in construction is to study the plans and read over the building sequence until you are familiar with each part and where it goes. Cut your parts out and separate the fuselage and wing pieces. You will need a building board at least 2' wide and 4' long. We will build the fuselage first.

Fuselage:

Cover your plans with wax paper to protect them. If you use CA glue, the glue will stick to the wax paper or anything you use to cover the plans, so be prepared to have your parts stick. If you use Titebond or Elmers you won't have as much of a sticking problem. Remember to use only enough glue to secure the joint. When you cut a part, be sure to have a good fit. A sloppy fit will not be as strong as a good one.

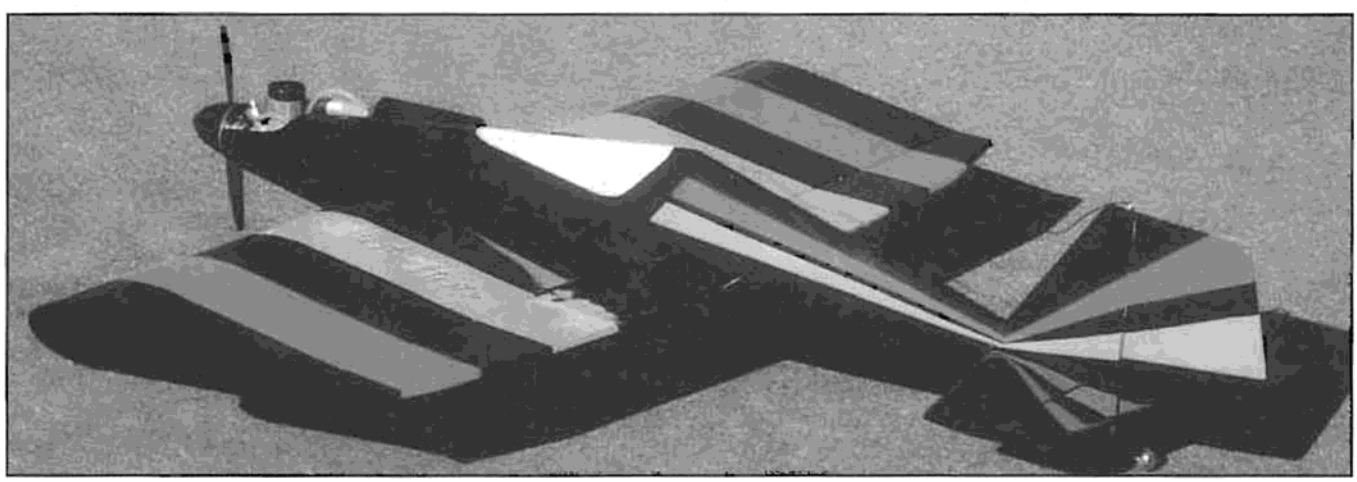
Editor's Note: To allow the fuselage sides (F1) to be cut from 36" length balsa, the sides are shown in three pieces, which are glued together during assembly. This allows you to make better use of your wood, and to utilize your scrap pieces. You will also note that the top front and rear pieces (F6 and F8) are shown oversize to allow for fitting and shaping during assembly. The full-size parts are all shown on sheet 2 of the plans. Additionally, for your reference, at the bottom of sheet 2 you will find a reduced size drawing of the fuselage top and side pieces shown in their respective positions.

Building Sequence

Glue the 1/4" square balsa strips to the fuselage sides F1 and F1B. Be sure to make a left and right side.

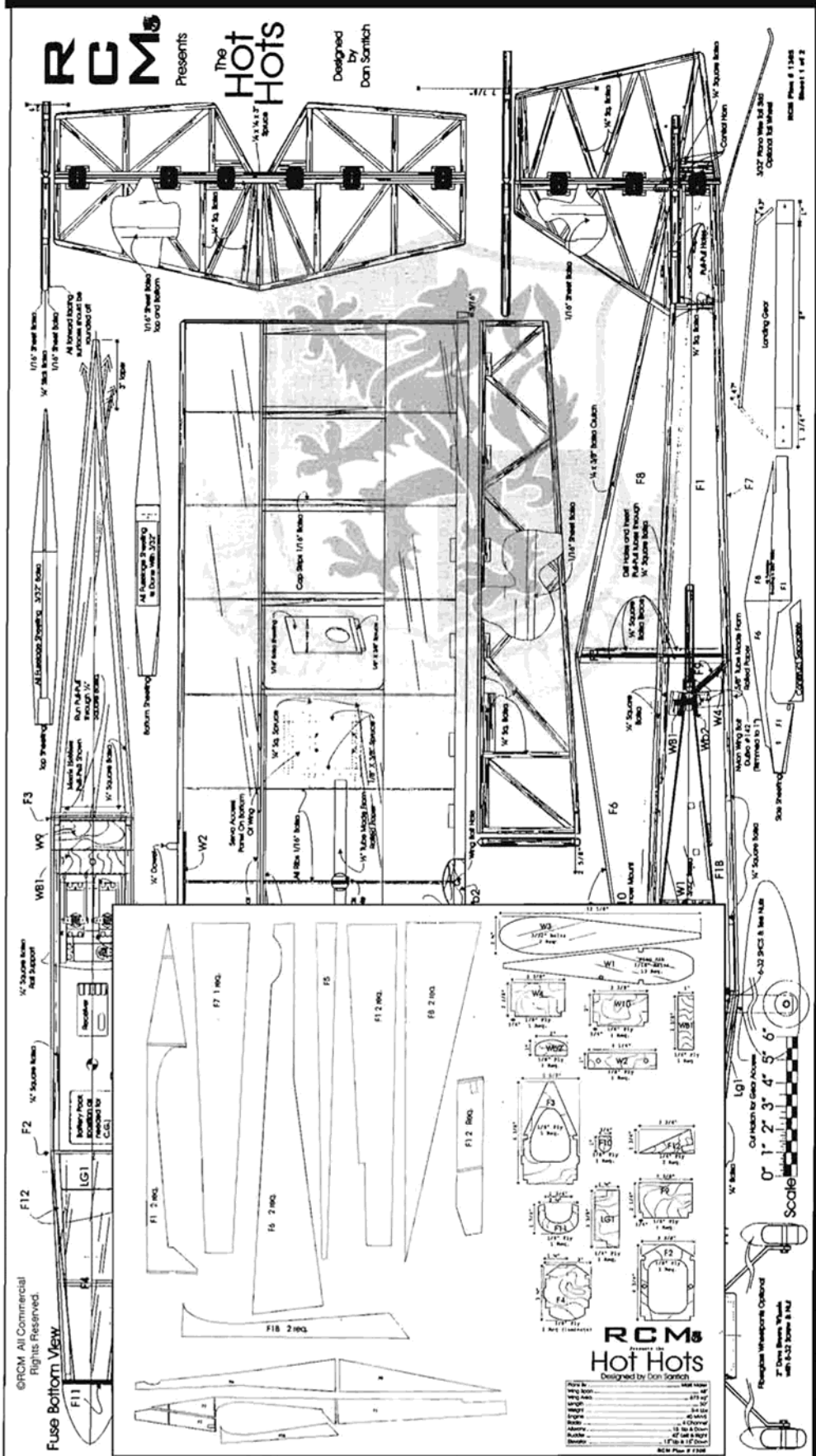
Using an X-Acto saw, cut the 1/4" balsa strips below the wing saddle and remove F1B.

Glue the plywood bulkheads F2 and F3 in place. Make sure they are vertical and at right angles to the centerline.



PLAN NO.1305

FULL-SIZED PLAN AVAILABLE, SEE PAGE 205



HOT HOTS

Designed by:
Dan Santich

TYPE AIRCRAFT
Sport

WINGSPAN
48 Inches

WING CHORD
16-3/8 Inches (Avg.)

TOTAL WING AREA
771 Sq. In.

WING LOCATION
Mid-Fuselage

AIRFOIL
Symmetrical

WING PLANFORM
Constant Chord

DIHEDRAL, EACH TIP
0 Inches

OVERALL FUSELAGE LENGTH
51-1/2 Inches

RADIO COMPARTMENT SIZE
13" (L) x 5" (W) x 3" (H)

STABILIZER SPAN
18 Inches

STABILIZER CHORD (inc. elev.)
7 Inches (Avg.)

STABILIZER AREA
126 Sq. In.

STAB AIRFOIL SECTION
Flat

STABILIZER LOCATION
Mid

VERTICAL FIN HEIGHT
6-3/4 Inches

VERTICAL FIN WIDTH (inc. rud.)
8 Inches (Avg.)

REC. ENGINE SIZE
.23-.45

FUEL TANK SIZE
6-8 Oz.

LANDING GEAR
Conventional

REC. NO. OF CHANNELS
4

CONTROL FUNCTIONS
Rud., Elev., Throt., Ail.

C.G. (from L.E.)
3-5/8 Inches

ELEVATOR THROWS
1" Up — 1" Down

AILERON THROWS
1" Up — 1" Down

RUDDER THROWS
2" Left — 2" Right

SIDETHRUST
—

DOWNTHRUST/UPTHRUST
—

BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	Balsa & Ply
Wing	Balsa, Ply & Spruce
Empennage	Balsa
Wt. Ready To Fly	54 Oz. (3 Lbs. 6 Oz.)
Wing Loading	10.0 Oz./Sq. Ft.

Glue the opposite fuselage side in place, then add the engine bulkhead F4.

Glue the landing gear brace LG1 and the 1/4" plywood F12 braces in place.

Join the fuselage sides at the rear. Check for alignment over the centerline on the plans.

Glue F7, the lower balsa sheet in place on the fuselage.

Glue the 1/4" sq. balsa strip to the top of F3 and pin it in place at the rear of the fuselage, then add the F8 sides.

Locate your engine mount, and mark the location for the screws.

Install the mount with the engine in place and glue F9 in place.

Drill the mounting holes in the landing gear, then place over LG1 and drill the holes for screws and the landing gear mount.

Glue lower nose balsa sheet in place.

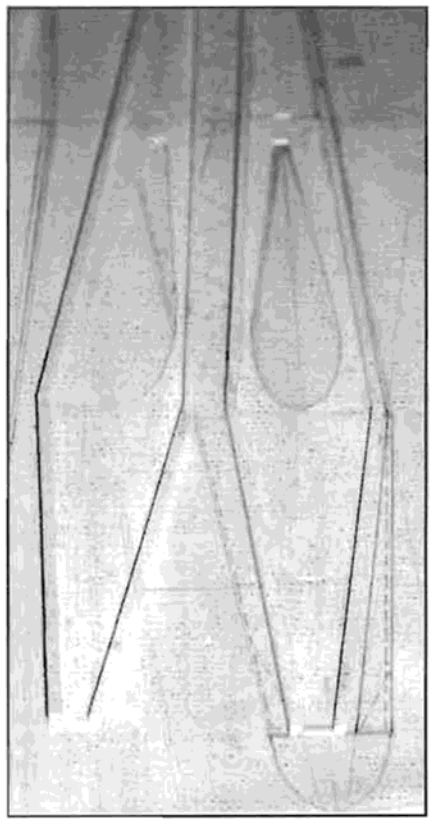
Glue balsa F5 to the top forward section, trim the edges, and add the F6 balsa sides.

With the engine in place, make the final fit for the silencer and spinner.

Locate and glue the silencer support F10 in place.

Glue the 1/4" plywood wing block WB1 in place and brace it with 1/4" balsa strips.

Using 1/4" balsa strips, assemble the horizontal stabilizer and vertical fin, as well as the rudder and elevators over the plans. When dry, cover with 1/16" balsa sheet. Sand edges to final shape.



Glue 1/4" balsa strips to sides F1 and F1B.

Wing Assembly:

Pin the 1/4" sq. balsa spar and the trailing edge 1/4" balsa strip to the plans.

Position all wing ribs and glue them in place at the spar and trailing edge.

Glue top spar in place and add the leading edge, then glue ply wing dowel brace W2 in place.

Cut notches in the wing ribs for the hardwood servo mounts, then glue them in place.

Cut holes in the center ribs for the paper servo lead tubes and glue in place.

Glue 1/4" sq. balsa strips to inside trailing edge for hinge support.

Sheet the wing with 1/16" balsa and add the capstrips.

Locate and drill holes in leading edge for wing dowels.

Cut a hole in top wing center section for servo leads (refer to plans).

Glue plywood WB2 to the trailing edge at center of wing.

Glue 1/4" plywood WB1 in place at rear of wing saddle on the fuselage.

With the wing aligned and in place, drill the hole for the 1/4-20 wing bolt. Tap threads in WB1 and reinstall wing.

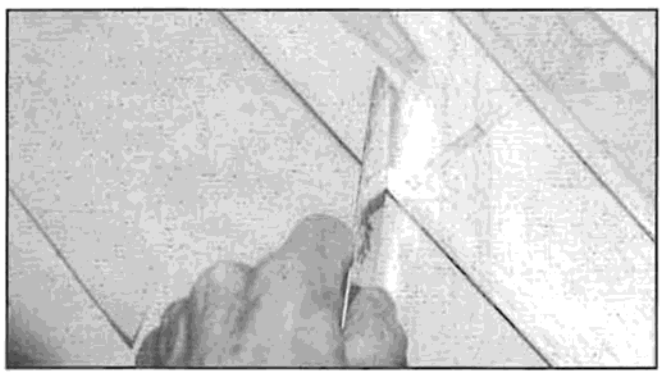
Glue lower F9 to rear bottom of fuselage.

Glue formers W4, W10, and F1B to bottom of wing. Add lower sheeting and drill access hole to screw.

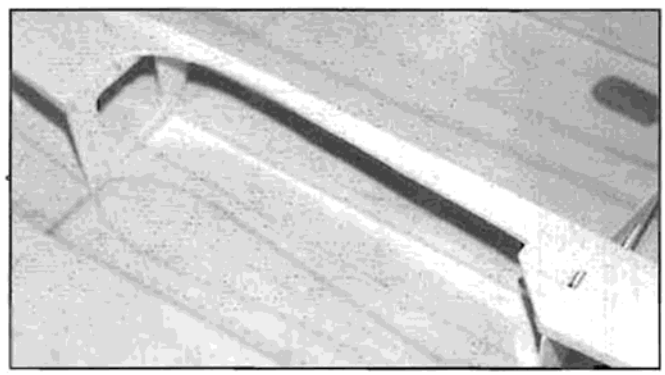
Final Assembly:

With wing bolted in place on fuselage, glue the horizontal stabilizer in place making sure it is parallel to wing.

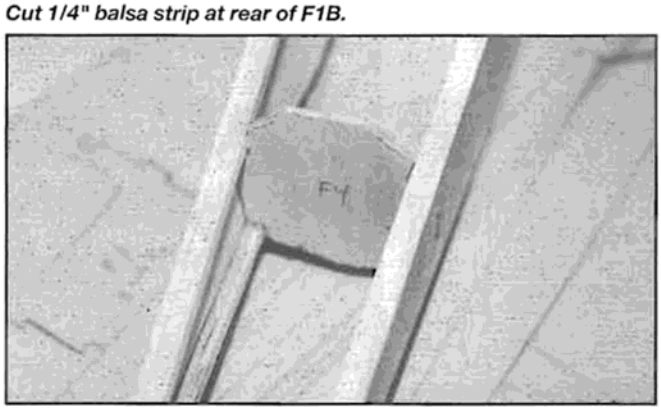
Glue the vertical fin in place making sure it is at right angles to the horizontal stab and aligned with the fuselage centerline.



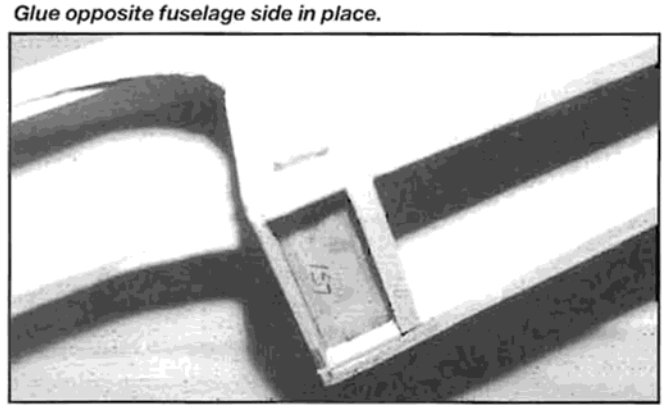
Cut 1/4" balsa strip at rear of F1B.



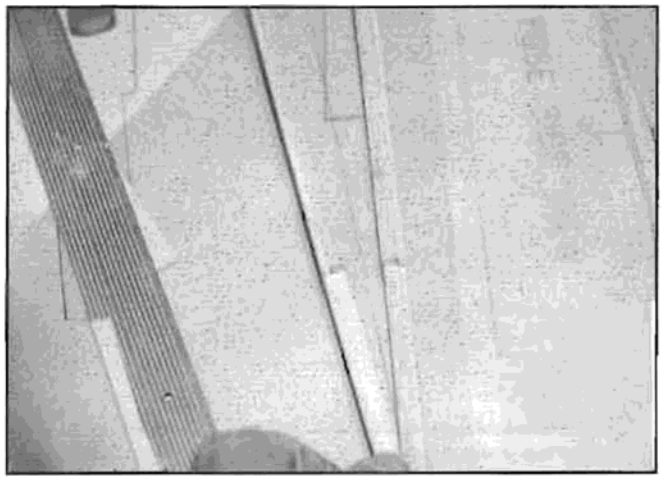
Glue opposite fuselage side in place.



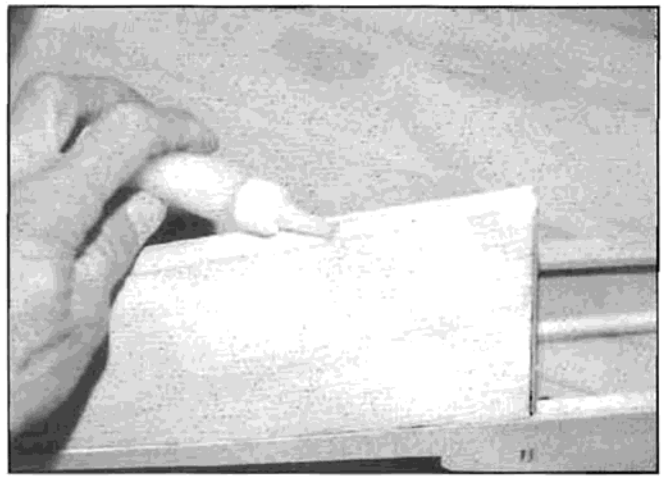
Glue engine bulkhead F4 in place.



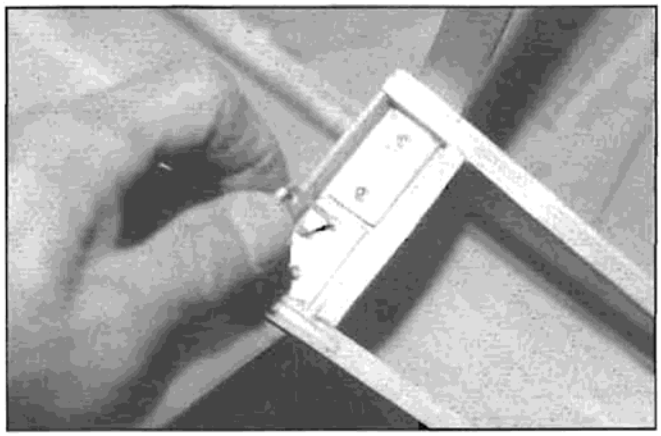
Glue LG1 in place and add ply F12 braces.



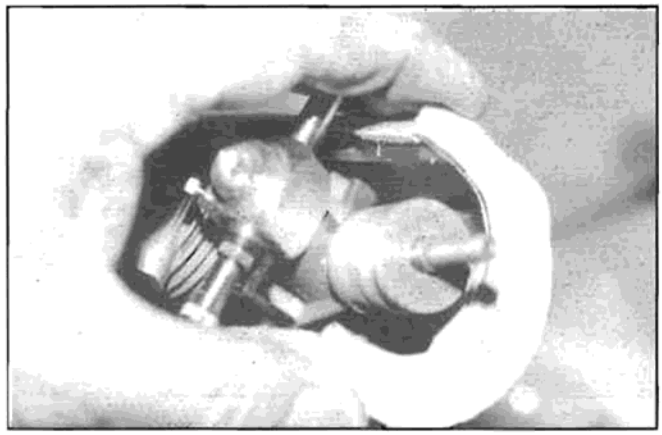
Glue rear of fuselage halves together.



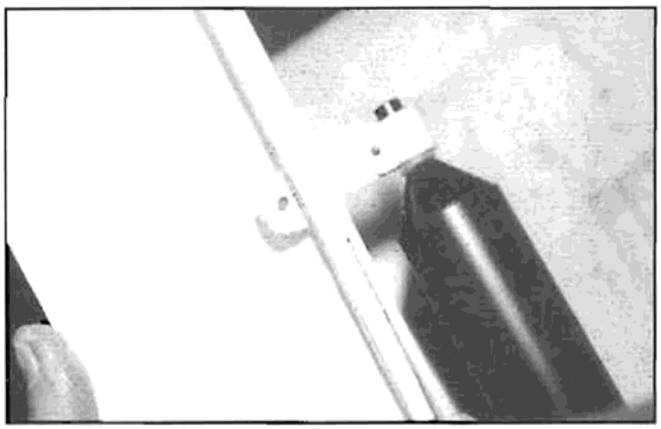
Glue top rear sides F8 in place.



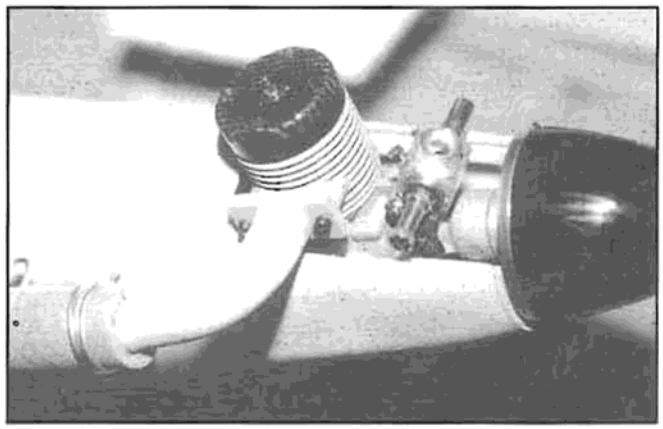
Drill holes in LG1 and mount landing gear.



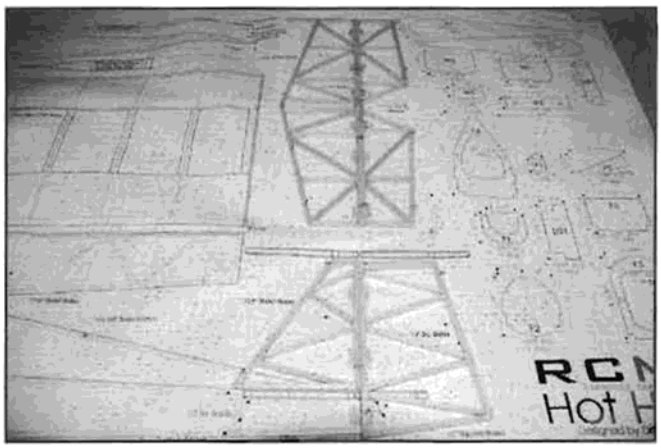
Glue F11 to nose section.



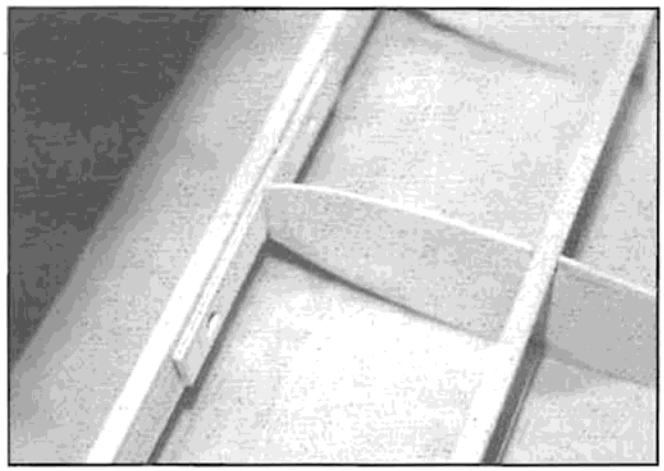
Glue 1/8" ply tab F10 for silencer in place.



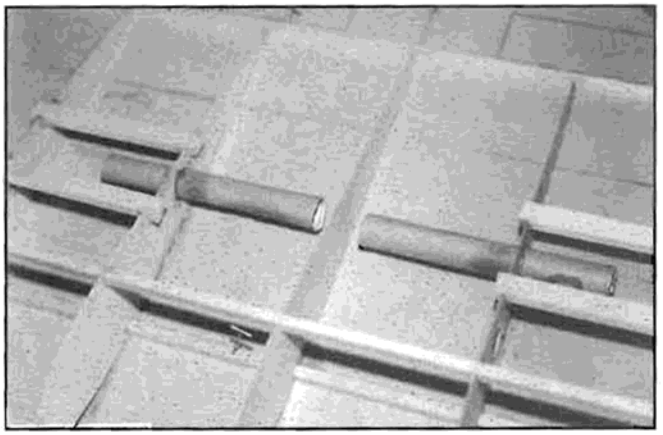
Mount engine and make final fit for spinner and silencer.



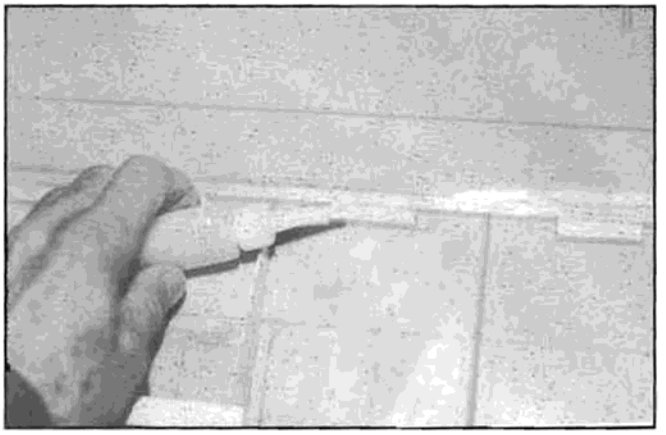
Assemble horizontal stabilizer, vertical fin, rudder, and elevators over plans using 1/4" sq. balsa strips. Sheet with 1/16" balsa.



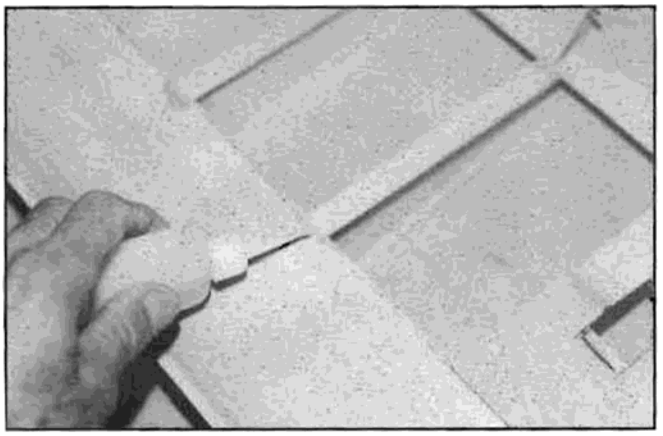
Trim center wing rib back and glue ply W2 in place.



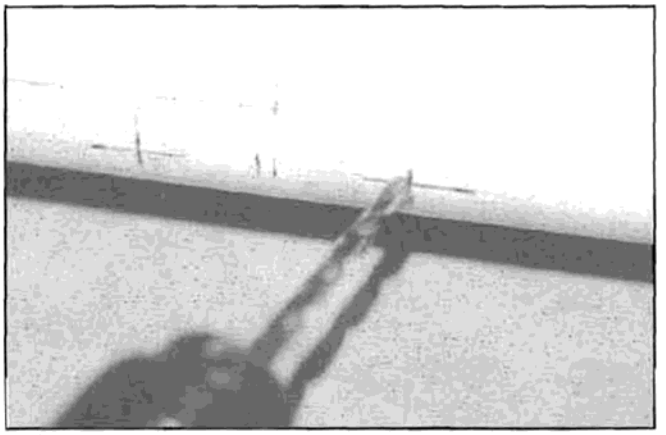
Glue aileron servo mounts in place.



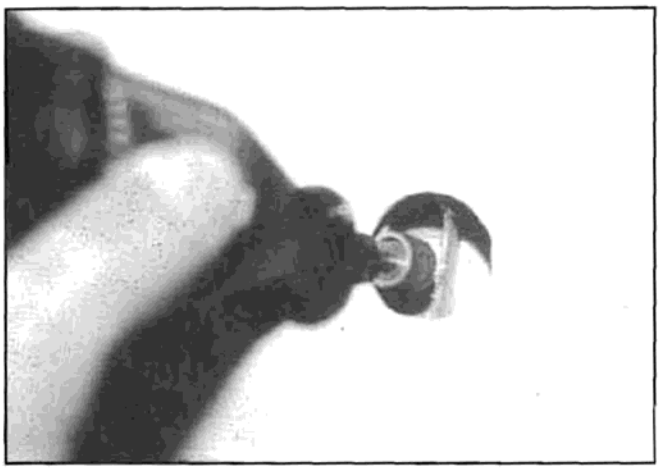
Glue 1/4" sq. balsa hinge supports to inside trailing edge.



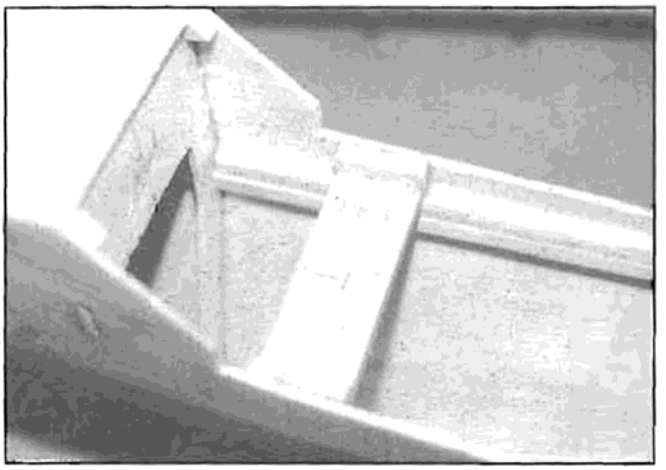
Glue capstrips to ribs.



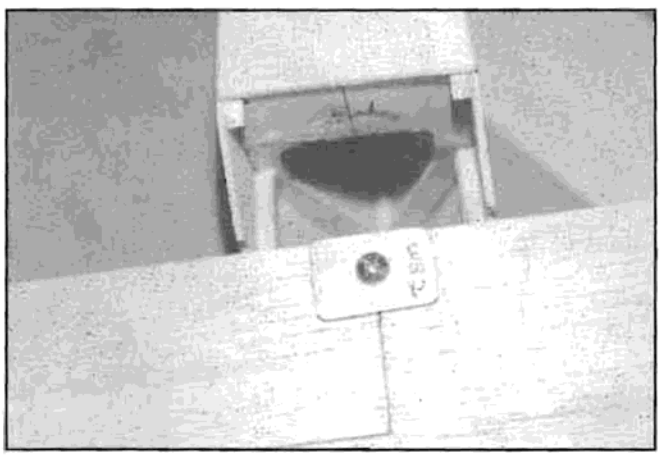
Drill holes for wing dowels and glue dowels in place.



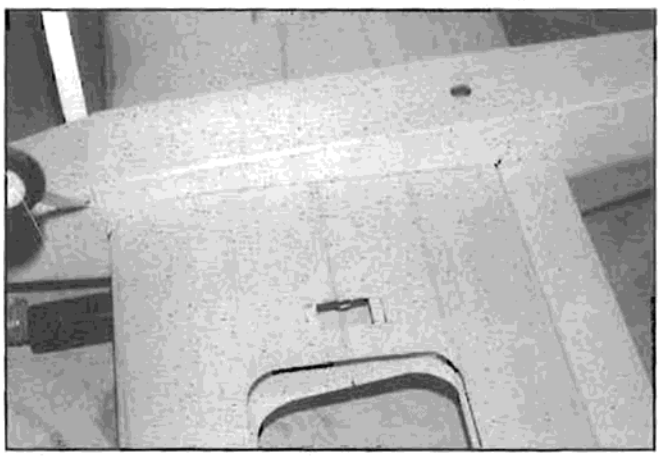
Cut hole in top wing center section for servo leads.



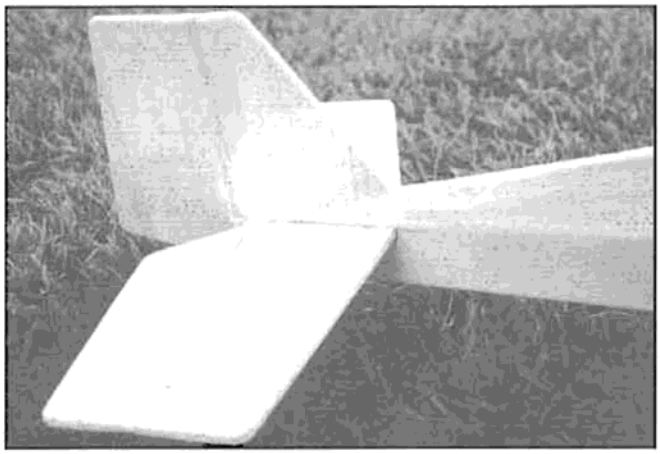
Glue ply WB1 in place in fuselage and add balsa supports.



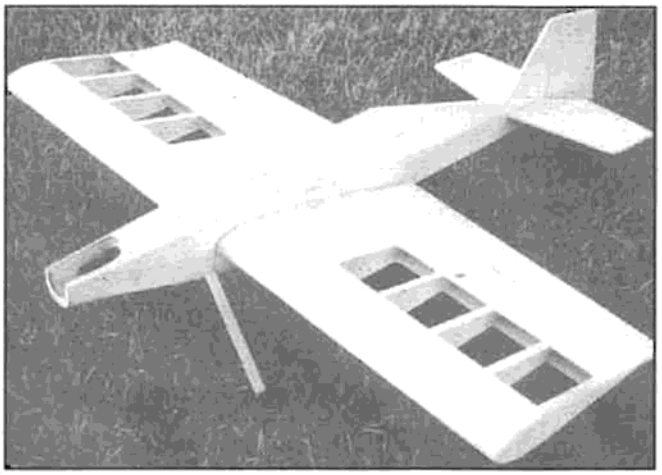
Glue WB2 to trailing edge of wing and drill 1/4" dia. hole.



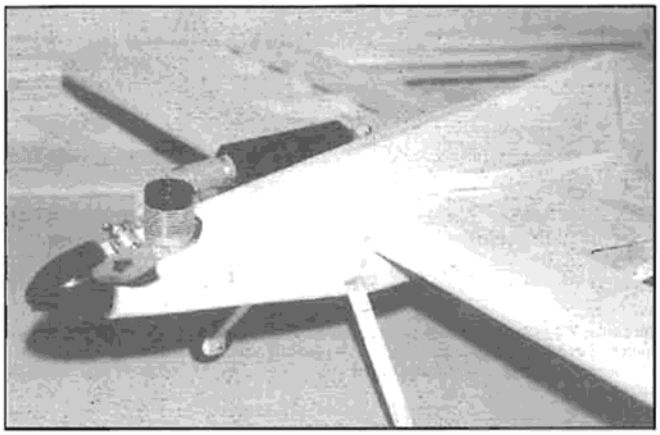
Bolt wing to fuselage, then add W10, W4, and F1B sides.



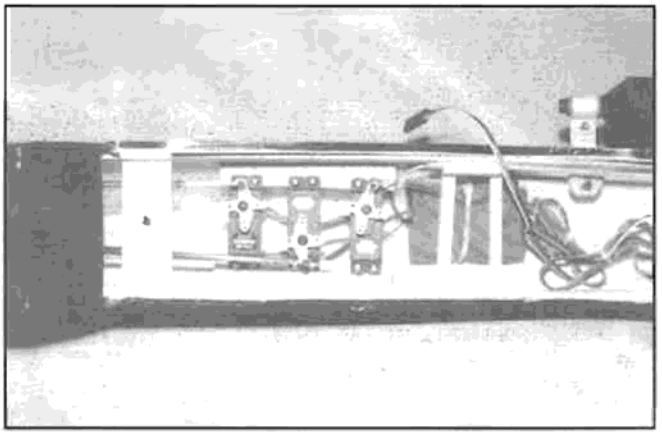
With wing in place, align, then glue horizontal stabilizer and vertical fin to fuselage.



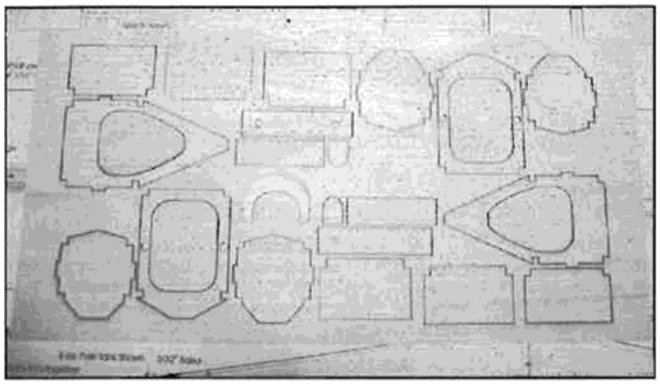
Completed airframe, ready for covering.



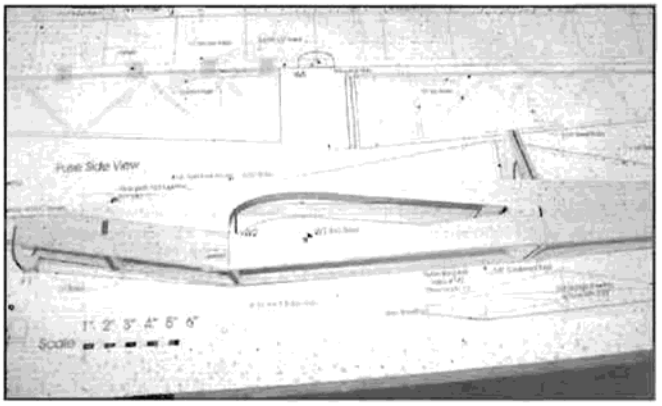
Sand down entire model and cover with heat-shrink Mylar.



Install engine, radio, pushrods, servos, fuel tank, and wheels.



Laser-cut parts available from Morris Hobbies fit perfectly, and make building a snap.



Laser-cut fuselage builds quickly.

Remove the wing and sand the entire structure smooth.

Cover the model using your favorite covering material and install your radio equipment, engine, fuel tank, wheels, tail wheel, pushrods, and control horns.

Flying:

The model should balance, less fuel, at the point shown on the plans. Do not attempt to fly it if it balances behind this point. A little nose heavy is okay, but not tail heavy. Reposition your battery if necessary.

The amount of control surface travel will determine how mild or how wild you want this model to be. If you have a dual-rate radio, set everything on low rate for the first flight. The minimum travel I would recommend is 1" left and right on the rudder and 1/2" up and down on elevator and ailerons. Also, a first-flight at half throttle will give you all the speed you will need for a trim flight. After that you can burn up the sky!

Cut Parts Info:

A nicely prepared laser-cut parts kit is available from Morris Hobbies and is made from top quality balsa wood and lite ply. The laser-cut parts kit includes all ribs, bulkheads, doublers, and formers and should sell for around $35.00. A real bargain! The parts are precisely cut using a computer-controlled laser beam to match specifications of the RCM plans perfectly. The laser-cut parts speed up building time tremendously and your model builds perfectly straight and true! Sheeting, hardware, and balsa strip material are optional and are also available from Morris Hobbies (800) 826-6054.

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