

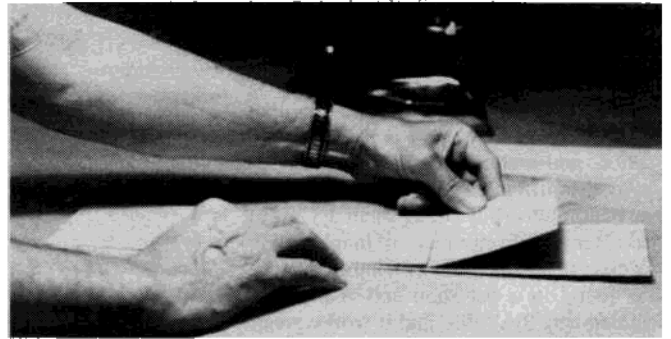
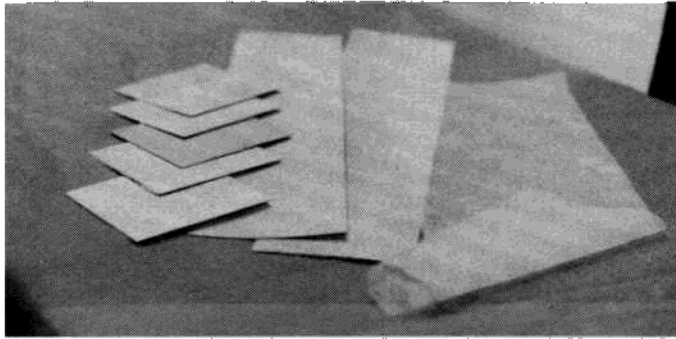


# ZIP R/C

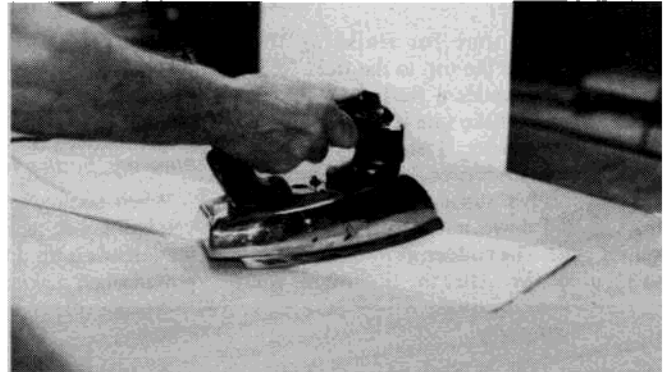
By Pete Mathis



**Tired of building and flying the "same old thing"? Then give this quick building, .40-.46 2-stroke sport flier a try, and put some excitement into your life!**



**LEFT:** Material for making the balsa/ply for fuselage sides. **RIGHT:** Balsa sheet on bottom, then Wonder Web, then cross-grain balsa; use hot iron here just enough to hold pieces in place, then add Web and top sheet and iron all together, keep turning it over until you're sure all pieces are fused together. Lay on flat surface with weights until cool.



**LEFT:** The two pieces for the boom with grain running the same way, put web between and iron same way. **RIGHT:** Iron both sides until very hot, wood may turn brown, then cool.

I have been building both scratch and kits for a lot of years and enjoyed every one of them. But the Zip caused more excitement than any, and has been more fun.

My intention was to build a light ship that is easy to fly and, at the same time, one that would please the stunt flier, and I think I have done that.

By using special construction techniques and materials, the result is a 4 lb., 12 oz. ship that has balsa sheet sides which are

made into plywood by using an iron-on webbing. Using this material, balsa sheets become plywood instantly, and 1/16" sheet balsa is used throughout. A boom is made with two layers of balsa rolled into a tube with no bulkheads, but with foam inside. It uses a single wheel, (handmade) twin rudder, a flying stab, and has retracts. With all that, you have a good flying ship called Zip.

Now join us and you will have a good plane to fly, and lots of fun building it. (I

swear all the ideas in building the Zip are solely mine, except the ones I stole from my friends.)

First, you will be using a couple of different materials; one is called Pellon Wonder Web. It can be purchased at any fabric shop and is a sheet of web adhesive 17" wide. It's sold by the yard at about \$1.00 per yard. The web is normally used to fuse cloth materials together. Insert the web between balsa sheets and, with a hot iron, it fuses the balsa together and makes

**ZIP R/C**

Designed By:  
Pete Mathis  
**TYPE AIRCRAFT**  
.40-.45 Powered Sport  
**WINGSPAN**  
55½ Inches  
**WING CHORD**  
10 Inches (Avg.)  
**TOTAL WING AREA**  
555 Sq. In. (Approx.)  
**WING LOCATION**  
Shoulder Wing  
**AIRFOIL**  
Semi-Symmetrical  
**WING PLANFORM**  
Double Taper  
**DIHEDRAL, EACH TIP**  
1¼ Inches

**OVERALL FUSELAGE LENGTH**  
51¾ Inches  
**RADIO COMPARTMENT SIZE**  
(L)12¼" x (W)3⅛" x (H)3½"  
**STABILATOR SPAN**  
21 Inches  
**STABILATOR CHORD (incl. elev.)**  
5 Inches  
**STABILATOR AREA**  
105 Sq. Inches  
**STAB AIRFOIL SECTION**  
Symmetrical  
**STABILATOR LOCATION**  
Top of Vertical Fin  
**VERTICAL FIN HEIGHT**  
7¾ Inches  
**VERTICAL FIN WIDTH (incl. rud.)**  
9 Inches (Avg.)

**REC. ENGINE SIZE**  
.40-.45 2-stroke  
**FUEL TANK SIZE**  
8 Oz.  
**LANDING GEAR**  
Single  
**REC. NO. OF CHANNELS**  
5  
**CONTROL FUNCTIONS**  
Rud., Elev., Ail., Throt., Ret.

**BASIC MATERIALS USED IN CONSTRUCTION**  
Fuselage ..... Balsa, Ply & Foam  
Wing ..... Balsa, Ply & Foam  
Empennage ..... Balsa & Spruce  
Wt. Ready To Fly ..... 80 Ozs. (5 Lbs.)  
Wing Loading ..... 20½ Oz./Sq. Ft.

laminated balsa sheets. I used this laminated balsa to make the tail boom of the Zip.

By using three thicknesses, cross grain, you will also have a "plywood" which is used for the sides of the front half of the fuselage. It's very light and strong!

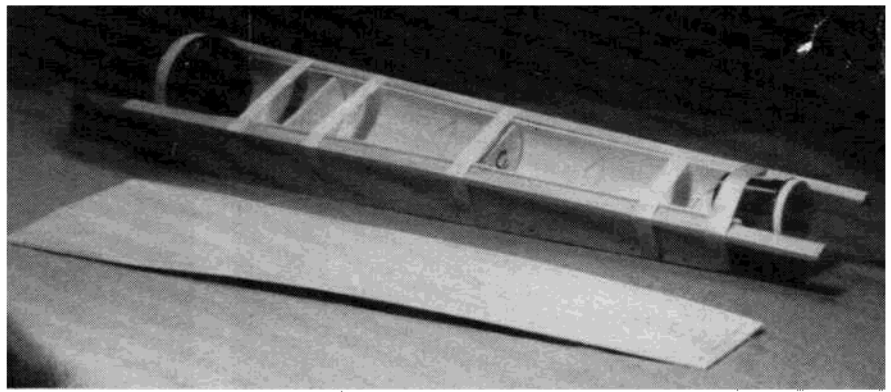
The second product is called Great Stuff. It's an insulating foam in a can and is available in most hardware and building supply stores. I only use it in the tail boom section, and it adds very little weight.

Another different item is the main wheel. Not being able to buy what I wanted, I had to make it myself from a piece of maple, using my electric drill in a vise as a lathe. The tire was found in a pet shop and is a puppy teething ring 2 1/2" dia. and it works great. Insert a nylon bushing in the wheel and the whole assembly weighs only 3/4 oz. All the rest of the materials are pretty well standard.

#### Flying:

Now is the time for finishing the alignment before the trip to the field.

I work on a modern flush door that is really flat and I make sure it is level. Using my incidence meter, I set the wing and stabilator at 0 degree. The stabilator movement is 3/8" up and down max., with 1/4" up and down min., measured at the trailing edge. The rudder movement should be 1" each way. After the first flight, you



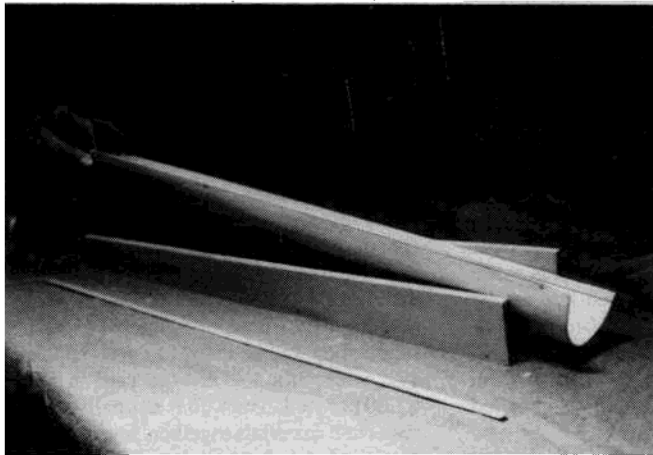
**One half in jig, bottles taped to both ends and pinned securely to sides and bottom.**



**Now dry, bottles removed but still pinned until trimmed. Then add doublers on inside.**

When taxiing into position for take-off you will notice that the engine torque pulls the left wing tip down a little, so use low power when making your turns.

up with the wheel, get some altitude and level off. Slow down to 1/2 throttle and check all trims; you will find it is very gentle there.



**One half comes right out; put a little tape around it to hold its shape until you make the other piece.**

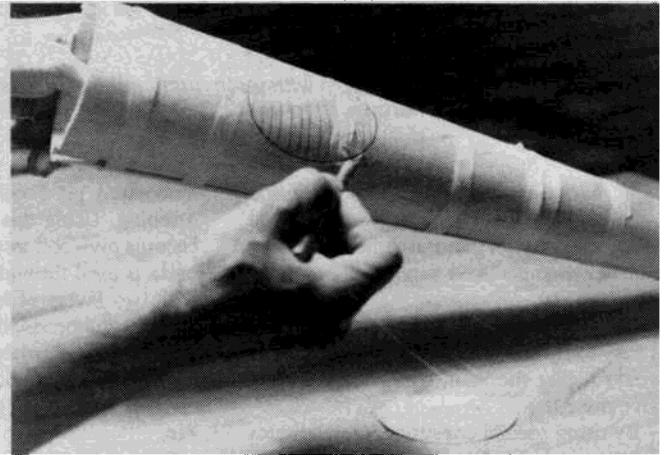
might want to cut it down some. Aileron travel is 1/4" up and 1/4" down. You will have a good roll rate at this setting. The C.G. should be exactly as shown on plans. Set the tip wires so that there is very little pressure on the ground at the tips if you fly on a hard runway. If you fly off grass, shorten the wires.

On the take-off, move gradually into full power; some correction will be necessary for the first few feet. Then sometimes a little rudder, depending on the winds and the type of grass.

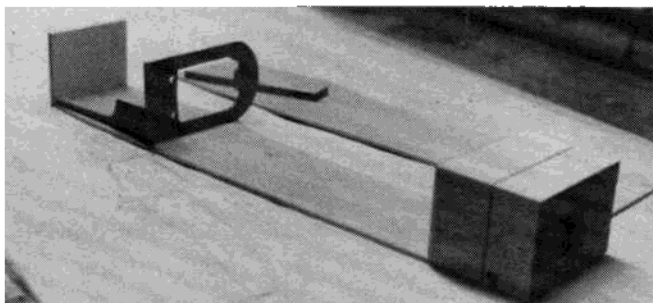
If there is no wind, you will have to lift the Zip off. On windy days and good grass, it's off in a hurry. Once off the ground, it's

The Zip will do most maneuvers at 3/4 throttle. Rolls are clean and easy. During inverted flight you might need a little down to hold the nose up. The inside and outside loops are good, as are the snaps.

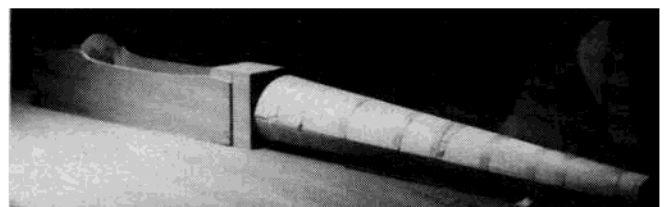
For spins, it takes a little extra elevator (switch into high rate). For vertical maneuvers the 45 engine gives better performance. With a little altitude, slow way down and feed in a little up on the elevator. You can really slow her down, and



**Boom all together, the oval on bottom is cut out for injecting foam and visual aid for pushrods.**

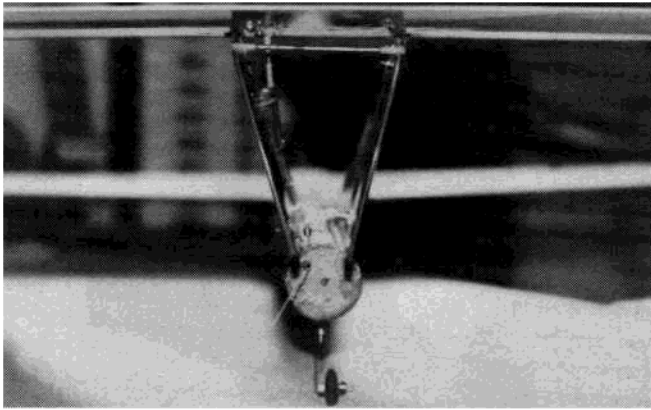


**Pieces for front half of fuselage with D-blocks in place — Note line marked where boom and front join.**

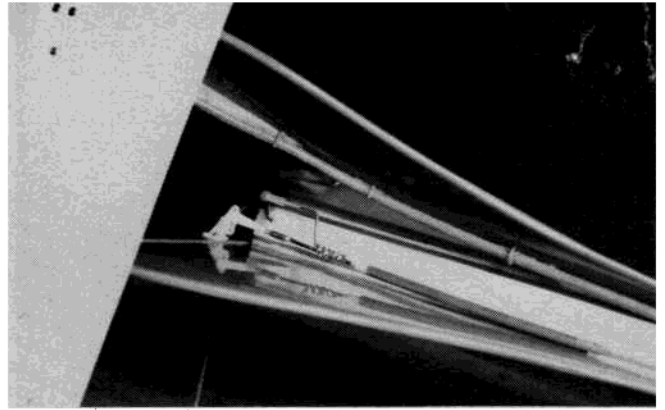


**Front half of fuselage and tail boom ready to finish.**

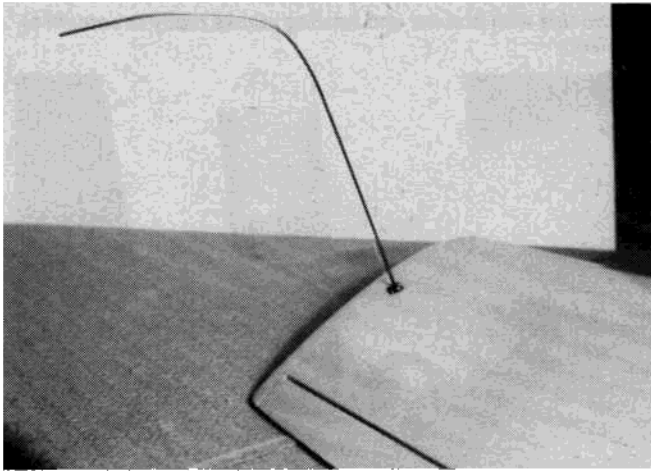




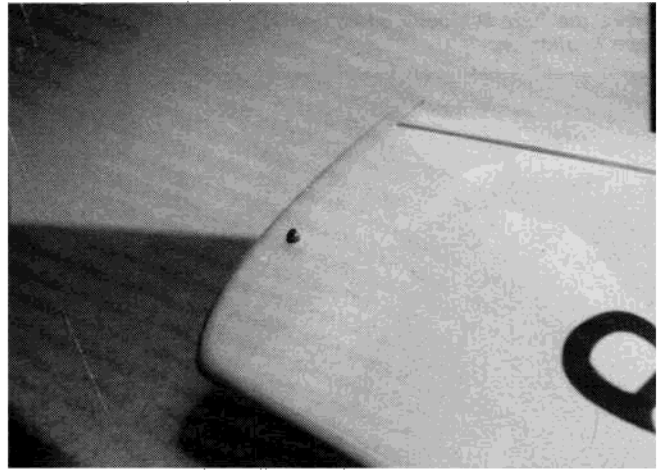
**Rear view. Here you can see ball joints that couple rudders together and stabilizer pushrod.**



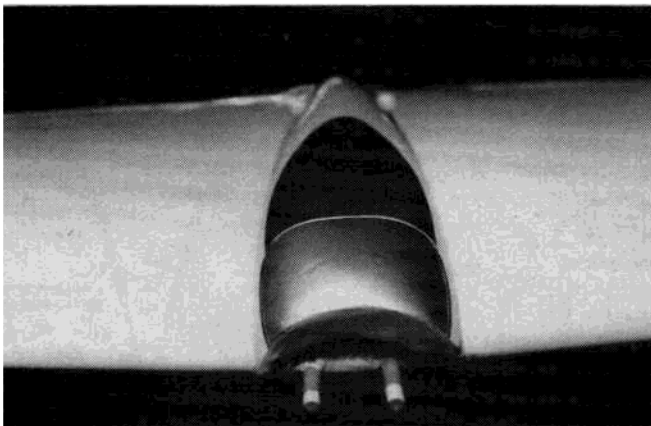
**View from top. Pushrod for rudders and steering, ball joint soldered to main pushrod.**



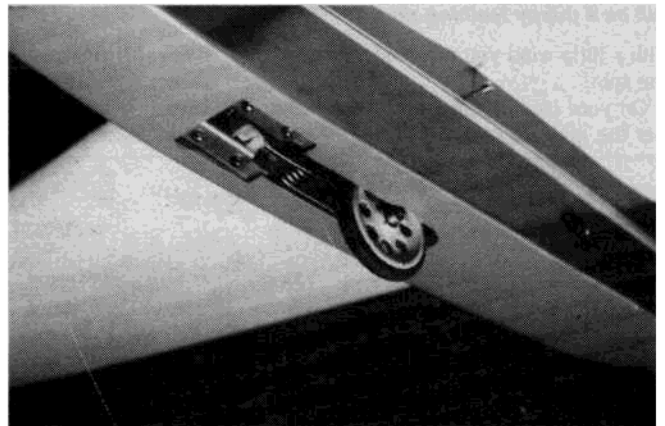
**Bottom of wing tip with tip wire bent at bottom. Washer soldered next to wing.**



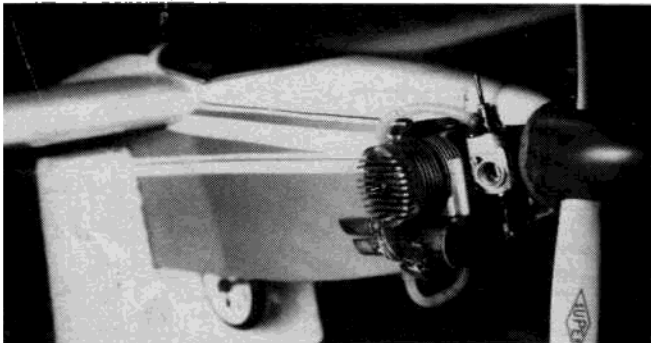
**Top of wing tip with collar holding tip wire in place so it can swivel.**



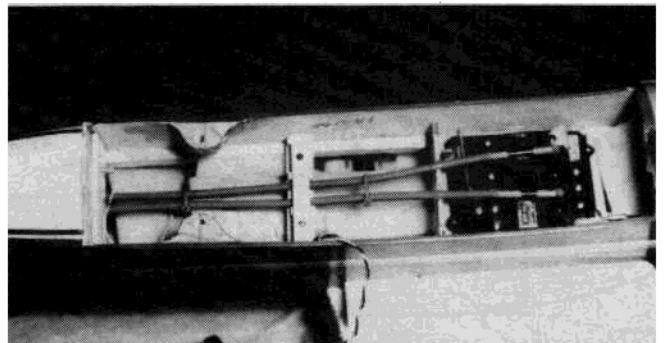
**Center leading edge of wing. Dowels for mounting wing contoured block on top of wing, front half is silver for windshield.**



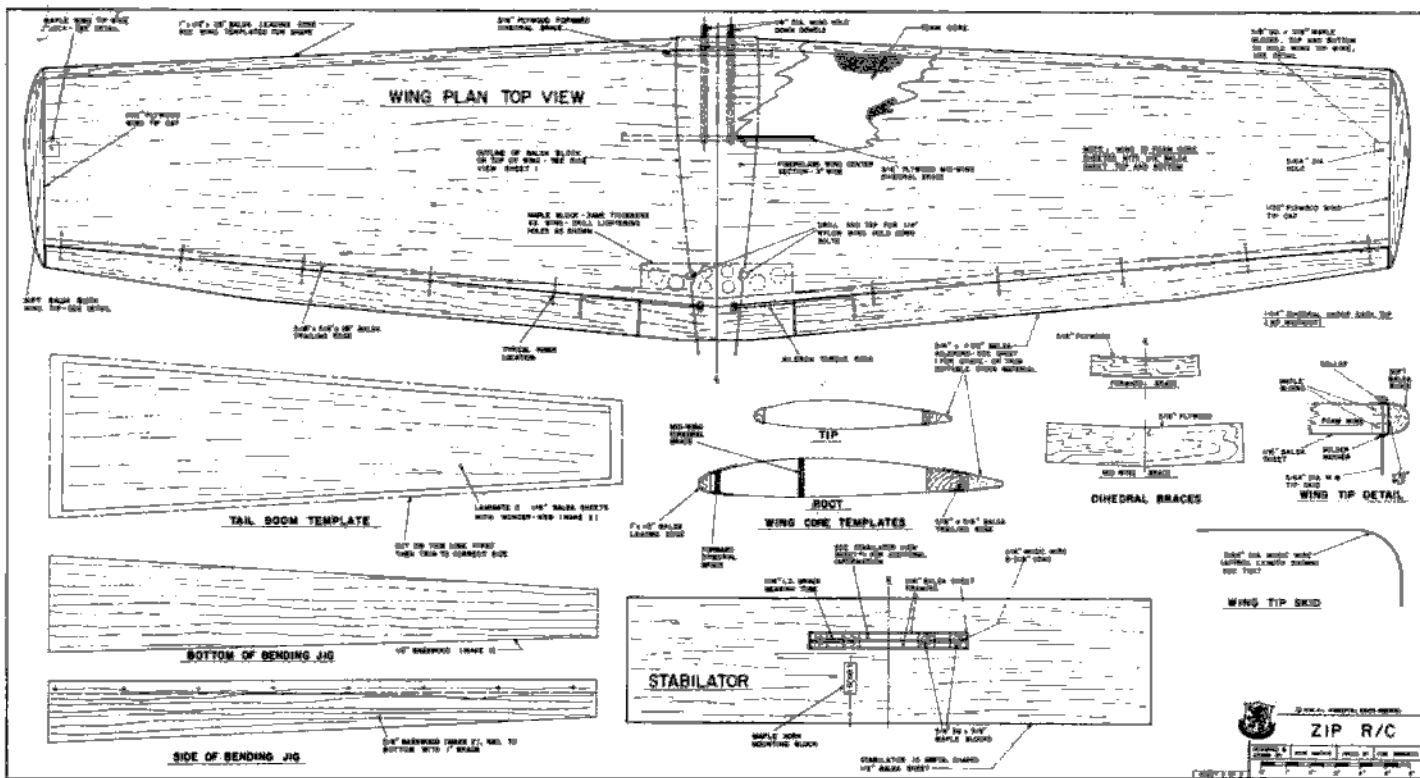
**Main wheel up in place, drilled a few holes to save weight.**



**Side mount Super Tigre .45.**



**Three servos side by side way up in front with batteries, receiver in rear. Wing mounting blocks epoxied to fuselage sides.**



Ave., So. Hackensak, New Jersey 67606.  
 Great Stuff Foam; Insta-Foam Products  
 Inc., 1500 Cedarwood Dr., Joliet, Illinois  
 60435; Pellon Wonder Web; Pellon  
 Division, 119 West 40th St., New York,

New York 10018; Sky Coat Covering:  
 Z-Planes, 1659 W. 98th Pl., Crown Point,  
 Indiana 46307.  
**Construction:**  
 (Editor's Note: Due to the length of the

construction sequence on the Zip R/C, it  
 is not being reproduced in this article.  
 The complete construction article will be  
 furnished when ordering the full size  
 plans.)

**From  
 RCModeler  
 Oct. 1991**