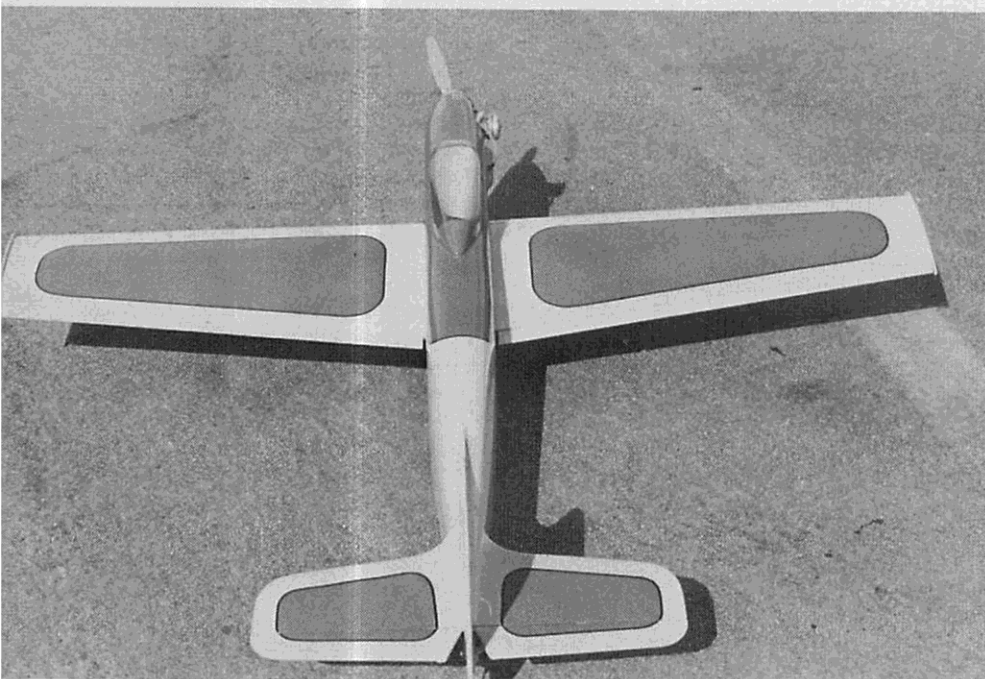


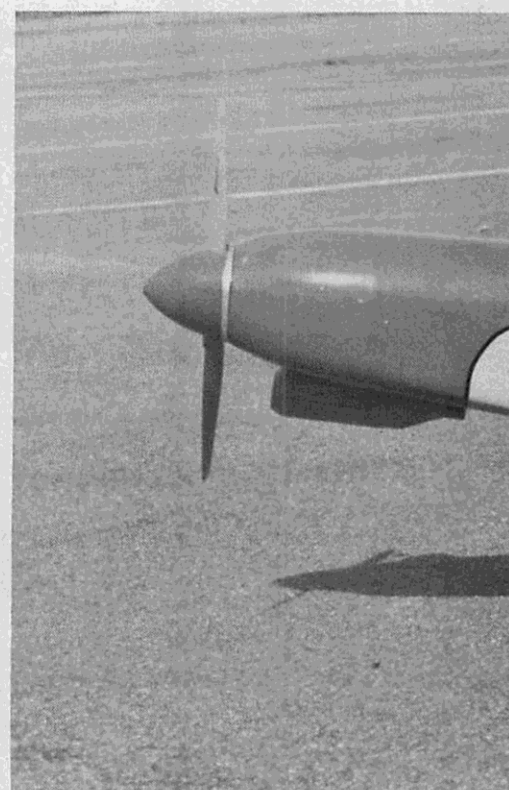
Chopsticks

Here's a fine-performing and different looking Pattern ship that will help take the wobble out of your flying. It uses .60 power and sports an easy rolled plywood fuselage and foam core wings for faster building/**Dan Reiss**

Chopsticks was designed to take the wiggle out of your model. No, not the kind that immediately comes to mind, but that wobbling around you see your R/C plane do so often. Fishtailing can be attributed to one of three things. First, you might have a sloppy set of pushrods. That can be easily cured. Secondly your tail surfaces could be too small. Well, that would take enlarging them with a somewhat not too attractive effect. Finally, a tail moment that is too short will also produce the same results. Now, a longer tail moment in conjunction with a proportionally lengthened nose moment will contribute to a more stable flying machine and one that is certainly more sleek and attractive in appearance. And that's what Chopsticks is all about. It might not be the world's greatest flying R/C model but it certainly is in the running for the longest. The



A straight forward, yet pleasing paint scheme. **Beneath:** Dan with his Chopsticks. The San Mateo area, a suburb of San Francisco. **Facing page:** Veco .61 engine and muffler, set up to run on muffler pressure. Easy engine access. **Center shot:** Ply tip plates serve as skids in rough landings. **Bottom:** Close up of canopy mounting. Don't try to cut a cockpit out of rolled ply, it's under stress, would crack easily.



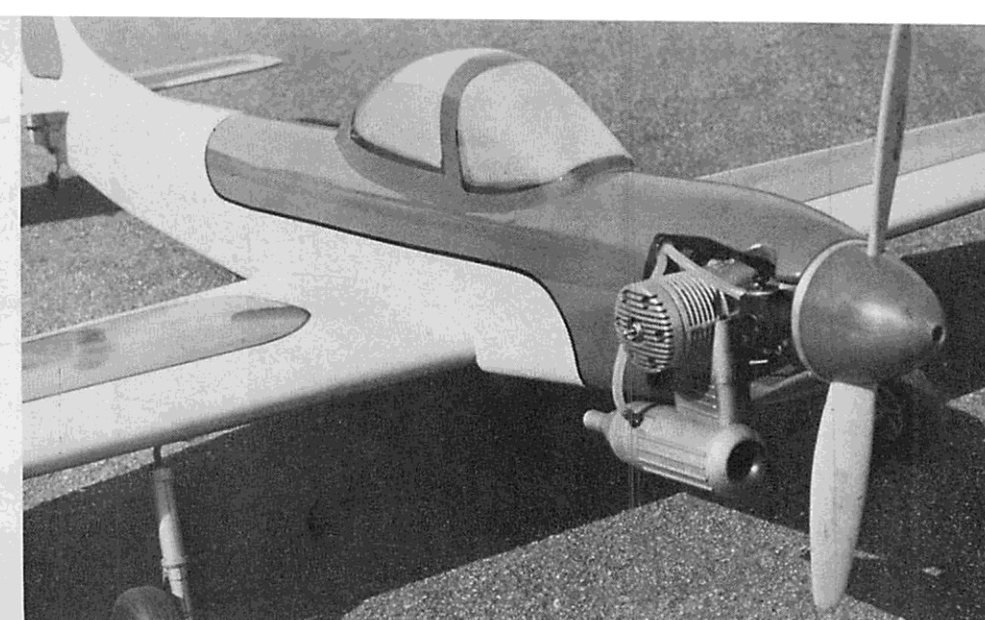
name? That was my wife's idea. While seeing the fuselage take shape she just couldn't resist tagging it "Chopsticks".

As with most sport models this one is pretty easy to put together. The empennage is cut from 1/4" sheet balsa, sanded smooth and edges rounded. The wing is foam, sheeted with 1/16" balsa. Cut the core with the templates shown on the plans. Wing tip plates were utilized for expediency and to help increase the effective wing area with no increase in drag. Being cut from 1/8" sheet plywood they also act as great skids, should the need arise.

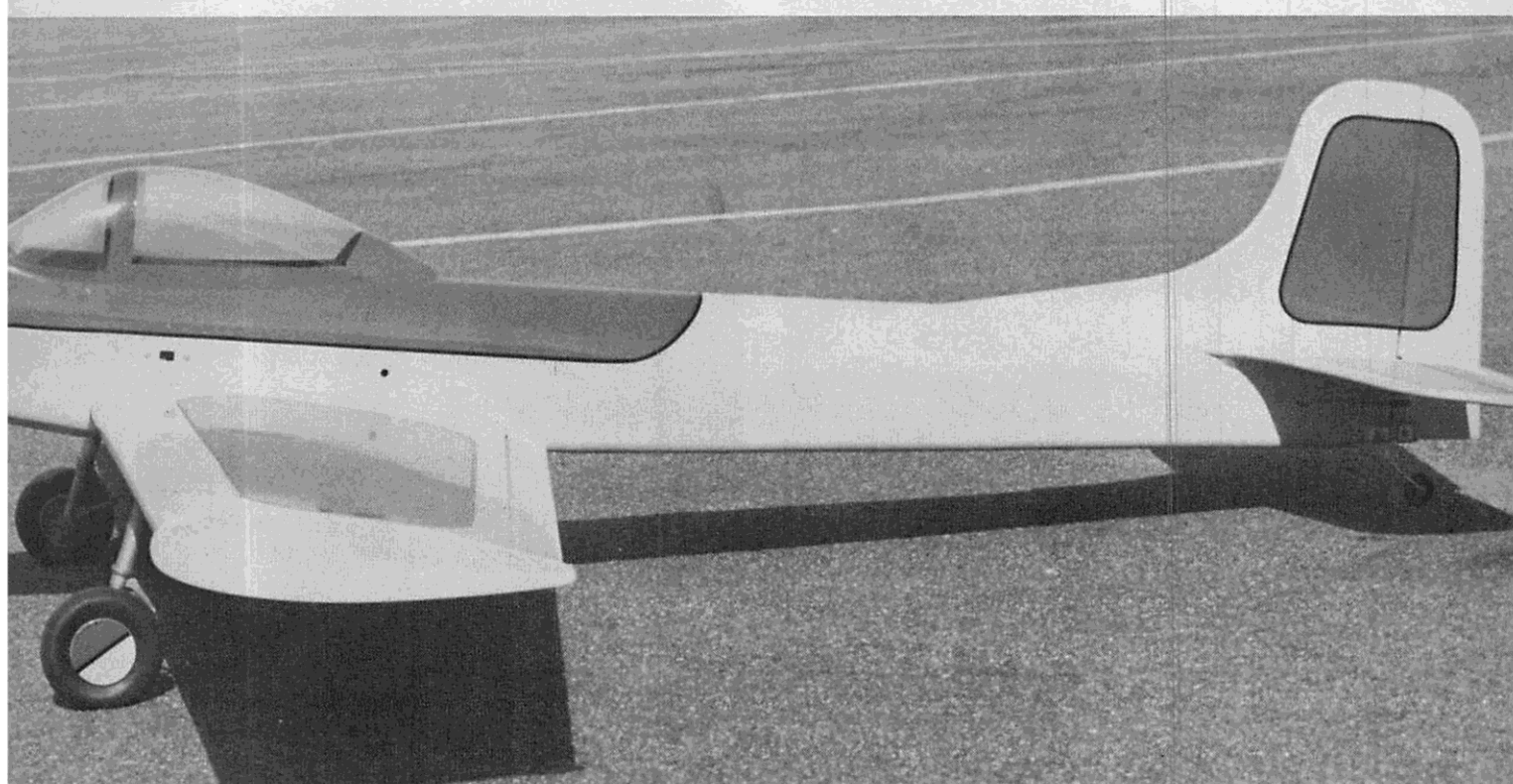
What still might seem unusual at this time is the fuselage construction. It is molded from a single sheet of 1/32" sheet plywood. I have previously employed this technique with two other models that have appeared in past issues of FLYING MODELS. The first was

a sport biplane in the May, 1977 issue and the second was a semi-scale Skyraider published in the October, 1977 issue. Although the diameter of the fuselages were different, the technique was basically identical. I won't go into such great detail here as in the previous two articles as it will only be repetitive. However, I will outline the basics just in case it's new to you.

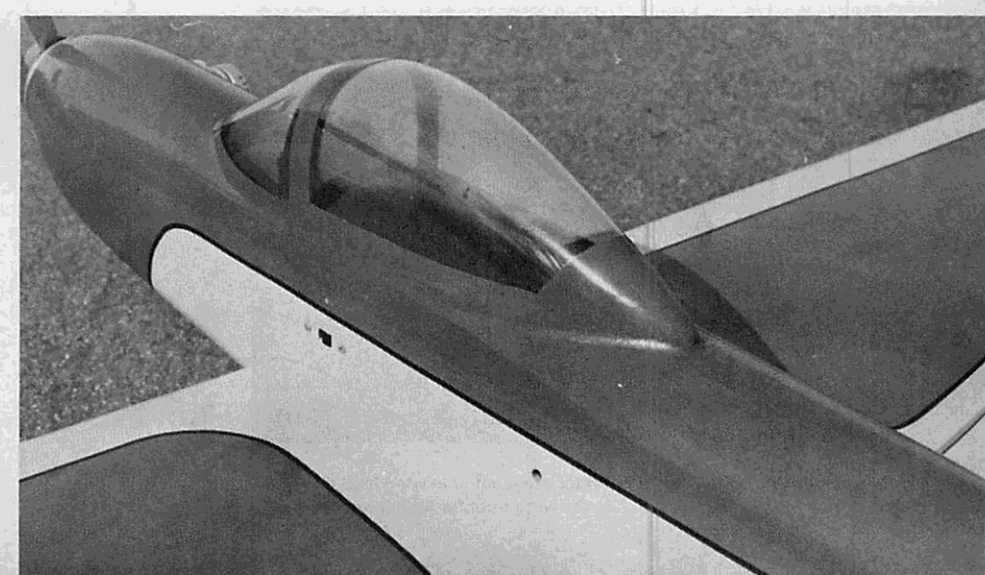
Cut out three of the "U" shaped fuselage fixtures and glue them on to a flat piece of plywood. Line them up well and place them where F-1, F-2 and F-3 will go. Leave enough room between the ones for F-2 and F-3 so that with the fuselage in the fixture you can still get the wing into its saddle. Make up the plywood fuselage skin using a good grade of epoxy for all of your joints. Wet the outside of the skin, fold it and push it into the fuselage fixture. Epoxy in F-1, F-2 and

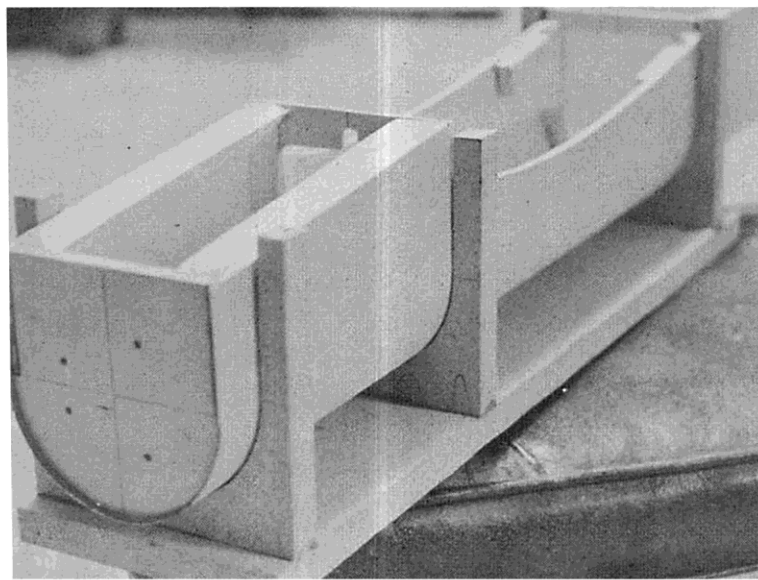


PHOTOGRAPHY: DAN REISS

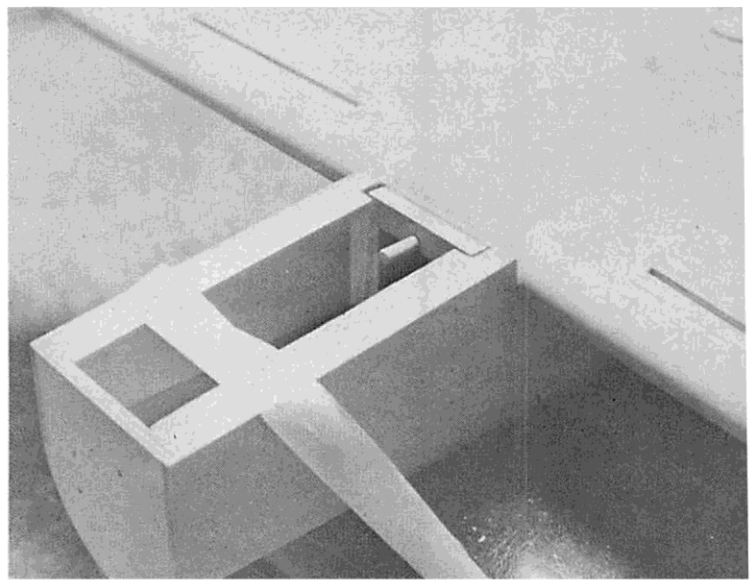


F-3. Make sure that the wing seats well into the wing saddle before the epoxy cures. When cured, epoxy the tail section together. When that's cured, you're basically done with the fuselage. Balsa blocks are used in front of the firewall, carved to a shape to conform to the spinner. When access is no longer required, the bottom of the fuselage can be glued on. Bolt the wing and the fuselage together. Put the assembly on a large flat surface and block it up until the wing lays absolutely horizontal and with no angle of incidence referenced to the table top. Mark the location of the horizontal stab parallel to the table top on both sides of the fuselage and cut out a slot 1/4" wide to accept the stab. Epoxy in the stab and the rest of the tail feathers. Microballoons and resin are used liberally around the empennage junction to the fuselage to yield a smooth contour. I

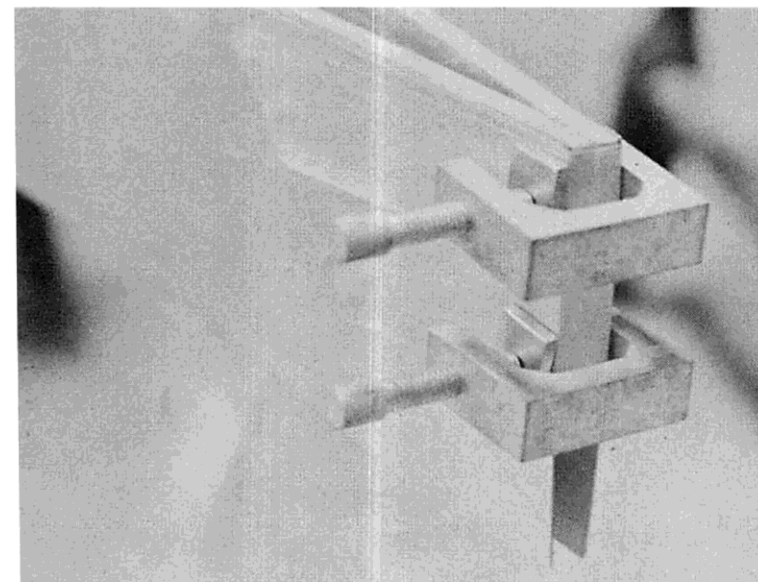




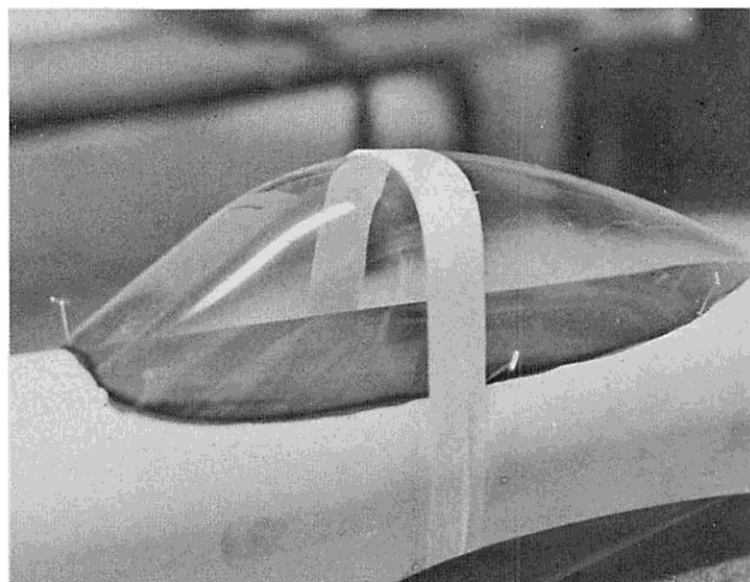
The fuselage is simply rolled out of a single sheet of 1/32" plywood, held in a rugged jig of flakeboard material from a lumber yard. Jig can build more.



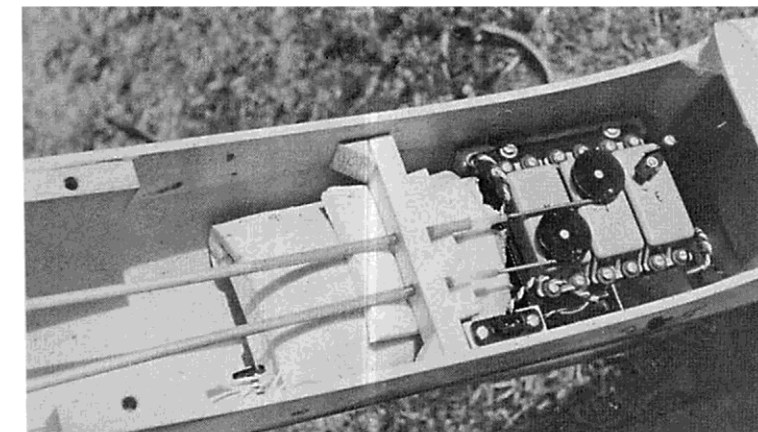
The wing hold-down details. Note the fiberglass cloth reinforcing wing joint and plywood plate discs reinforcing area beneath the nylon bolts.



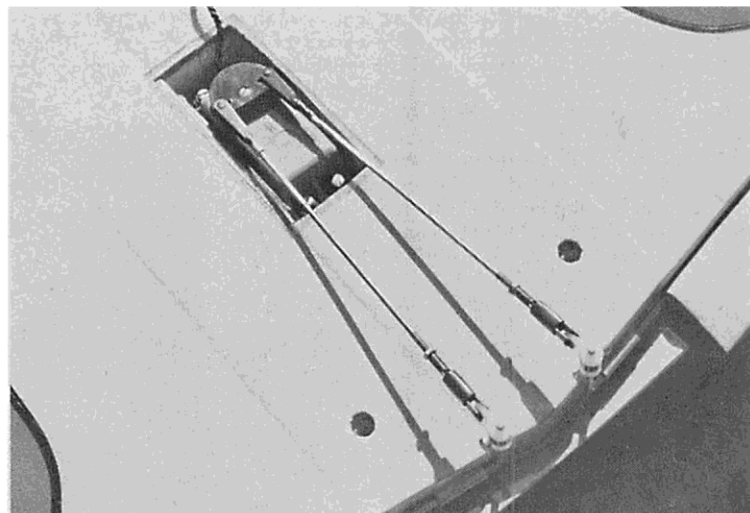
This shot explains the clamping of the fuselage sides together at rear. Note the use of the masking tape to prevent any clamp damage.

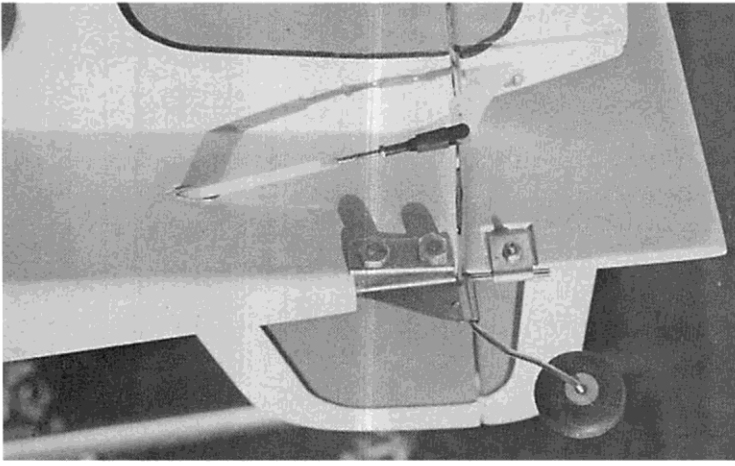


Here we see the big bubble canopy being carefully cemented in position. Trim it to meet the fuselage curvature. Fillets are added later.

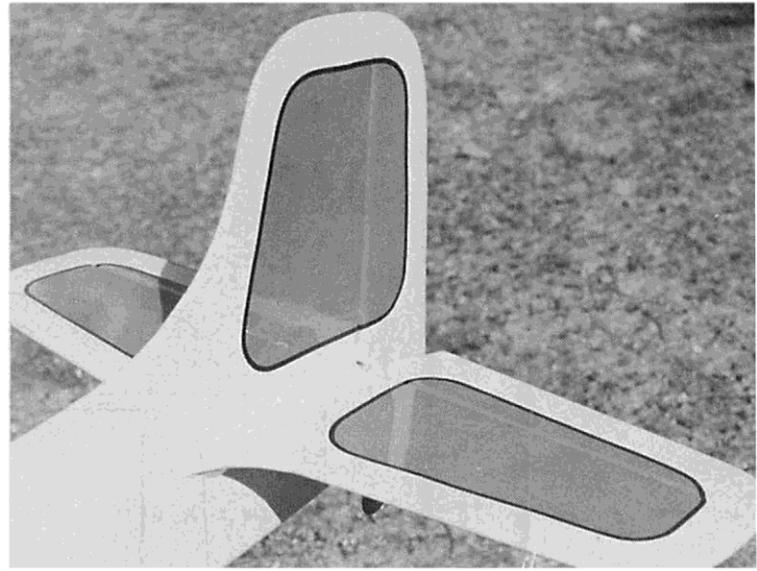


KPS-15 servos for rudder, motor, elevator are located at wing leading edge. Right: Kraft KPS-15 servo mounted in the wing's center for aileron control.





Royal produces a really rugged tail wheel bracket, stands up to hard knocks.
At right: Use lighter balsa for your tail surfaces, lessens the nose weight.
Beneath: The side mounted Veco offers good muffler clearance.



used K&B finishing materials to make the plane look respectable.

With the tail moment being so long, Chopsticks will almost invariably come out tail heavy. A good deal of this can be compensated for by placing your servos as far forward as possible. This includes the battery also. I had my battery pack under the tank between F-1 and F-2 and against the

firewall. My servos were right behind F-2 with the receiver just behind them under (or over) the pushrods. This all might seem against the norm but it was really necessary and yielded no apparent ill effects. Everything functioned fine. Even then, I still had to add a few ounces of lead to the nose to get the C.G. forward enough to the point shown on the plans.

I was pretty surprised at the attention that the plane got at the field. That long fuselage was unusual enough to attract quite a few pleasing remarks. Chopsticks look pretty good in the air and flies just as well. Although I didn't use them I'm sure that with retracts installed the length of the fuselage would be even more accentuated. Now, if I could only learn to use two of them at once! 