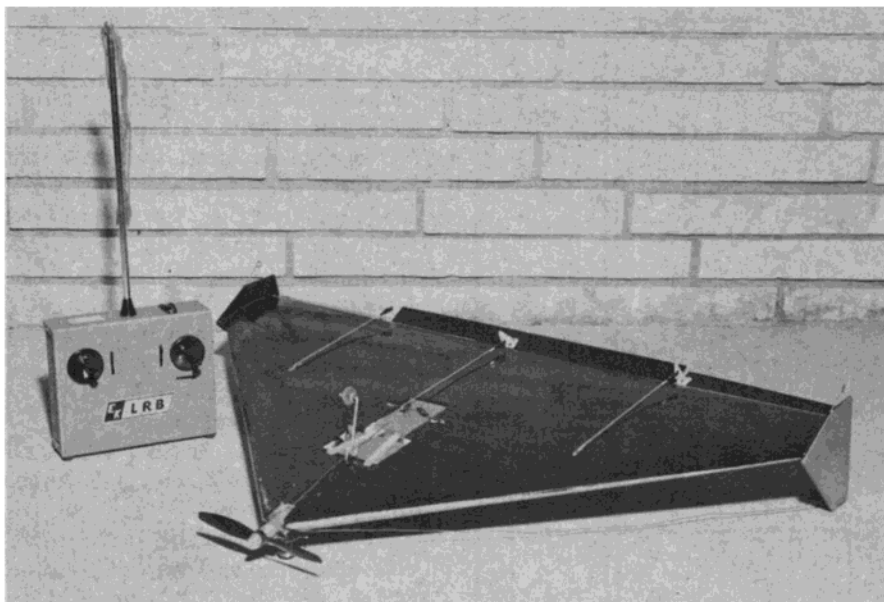


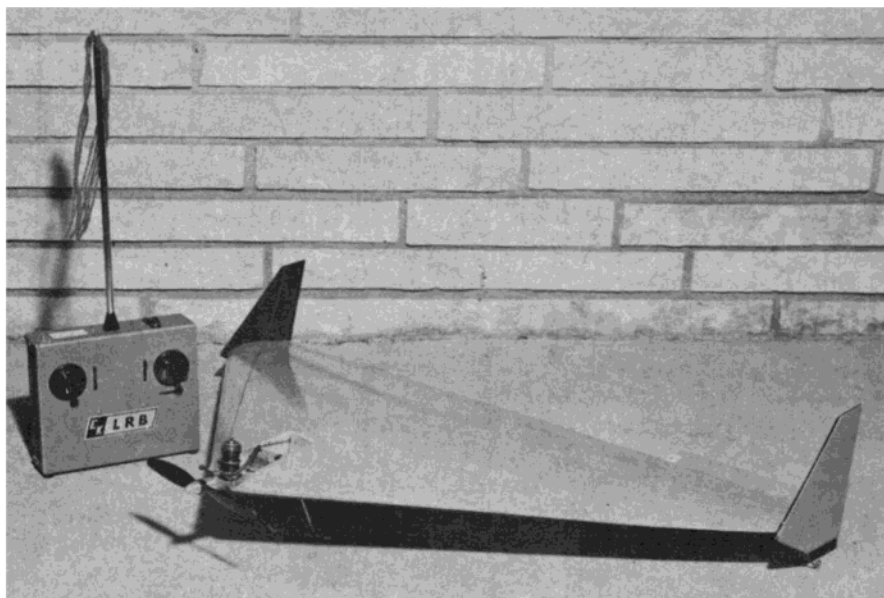
YOU TAKE A BLOCK OF STYROFOAM,
SOME 5-MINUTE EPOXY;
A FEW SCRAPS OF Balsa, PLYWOOD
AND WIRE; A SHEET OF SOLARFILM,
A COX .049 AND YOU HAVE THE

THUNDERBIRD

BY JIM SIMPSON
RCM Contributing Editor

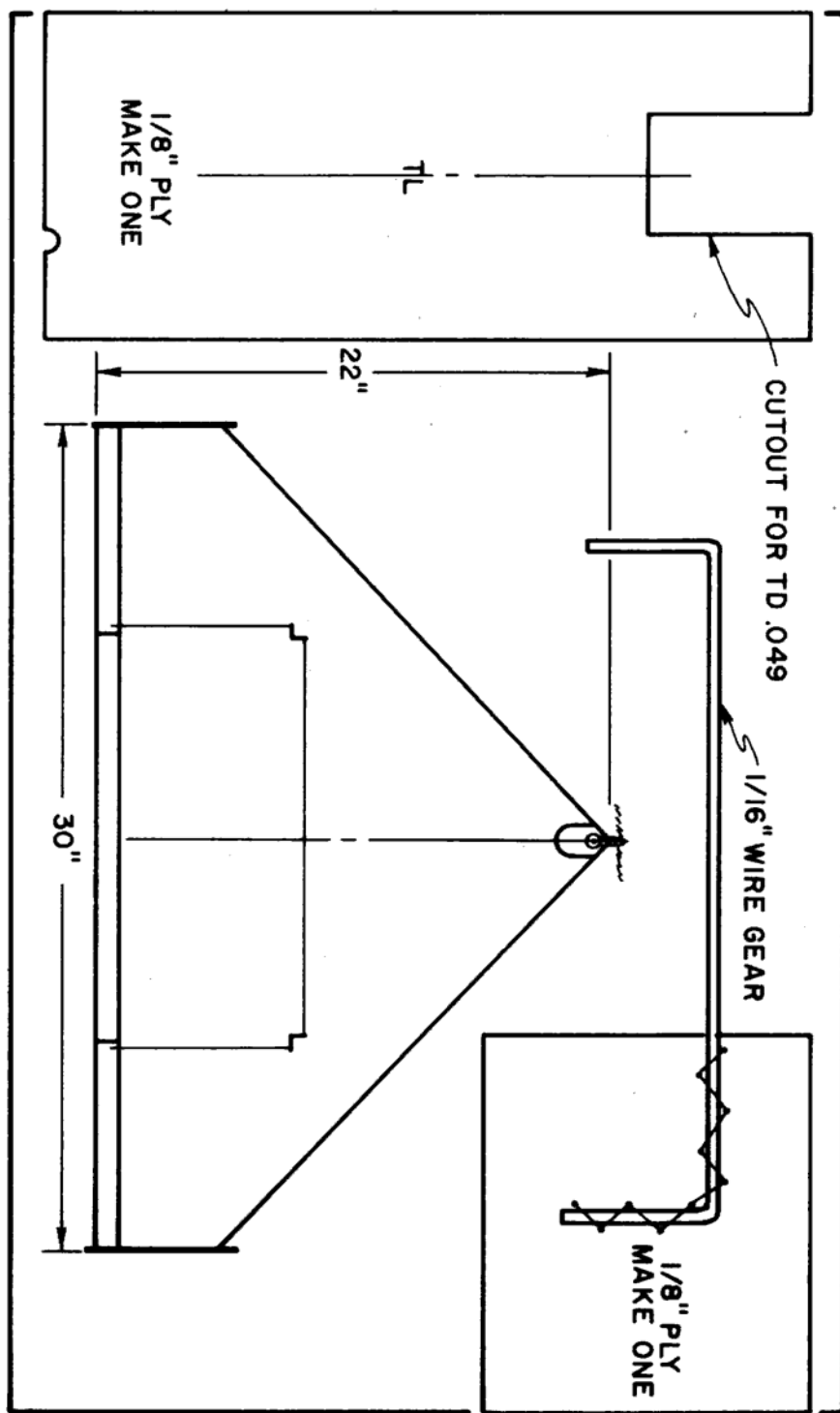


This neat little delta was conceived by me about 2½ minutes after I saw the claim by the silly editor of this rag regarding his airplane being the "world's smallest full house radio controlled model." Such a statement indicates to all that he has very little experience regarding statements in print. (*Right! - Ed*) For instance, he once claimed the Chigger (RCM April 1970) could do such and such in the C-141 which I "THOUGHT" was the world's largest plane at the time. Boy, did I get the mail about that and, when the last envelope fluttered to earth, I had tables, graphs and statistics which proved the C-141 was generally no closer than 7th from the biggest. So -- no fancy claims. All I say is this one is smaller than Dewey's Dilly or whatever he called his plane! Matter of fact, I'm sure there are several smaller! And more to come. (*Right! - Ed.*)



My very good friend and close neighbor, Mr. Ed Rankin, was most instrumental in this airplane being what it is. Years ago both he and I had deltas when they were all the rage. In addition, he has considerable experience on real deltas having been involved in aircraft design at the home of the B-58, F-102 and F-106. Anyway, Ed whipped out the airfoil to match the planform I drew and then we cut the two wing panels in the conventional manner. We made the rib templates of 1/8" ply and purposely made the tip rib a bit larger than it had to be because the hot cutting wire moves very slowly around it and causes the foam to "sink" a tad. (*'Tad' . . . Texas colloquialism. - Ed.*)

I sanded the individual panels



smooth and fitted a piece of 1/8" sheet balsa 1 1/4" wide to the trailing edge. Next, I glued the two panels together with 5-Minute Epoxy, then also glued the 1/8" x 1 1/4" piece to the trailing edge while the delta was flat on the workbench, right side up, and cocked back on the reflex (tilted up) portion of the airfoil. When dry, I cut 1" off the trailing edge then cut two

pieces, 7/8" long off each end which becomes the ailerons. The remaining piece is the elevator. Sand them and put them aside till ready to cover.

Carefully cut a 1/8" ply engine mount plate and a 1/8" ply firewall. Attach the engine of your choice with wood screws and the landing gear strut (I used a Jr. Falcon gear on the prototype). Remove an X-Acto saw-

blade from its back holder and use it (or a suitable substitute) to make the engine compartment cutout. Save the cutout. Epoxy in the firewall and the engine mount plate then add the 1/8" balsa tank compartment sides. Now trim down the cutout you saved and fit it under the engine mount plate. Remove the engine and sand the installation down smooth.

Ed Rankin showed me the correct way to determine (geometrically) the location of the Center of Gravity. I did as he said and mine flew hands off, first flight. So do as we say and locate your CG where it is shown. To do this turn the delta upside down, mark the CG points, then place your radio such that it balances with engine removed. Then make cutouts to accept your radio and the related linkage.

I used an LRB (*Lil' Red Brick - Ed.*) by EK Products in the prototype so to locate it I used a soldering iron to melt out foam until it was a force fit. Then I melted a little trench for the aileron pushrods and little wells for the aileron bellcranks. Once installed, I covered over the linkage with bond paper preparatory to covering the model.

Solarfilm is wonderful, tough, light, neat, easy to use, and most of all its application heat allows one to apply it directly to the foam which is what I did. Once the delta is covered (leave the tips uncovered), cut two fins out of 1/16" sheet balsa with grain parallel to the trailing edge. Then cut two more with grain parallel to the leading edge and "sandwich" one of each with epoxy. Add the 1/16" wire skid and cloth reinforcement and, when dry, cover the inside of each fin, then cut away covering to epoxy wood to foam and attach them to the delta. Use toothpicks to reinforce by pushing into the wing from the outside of the fin. Finally cover the outside of the fins and the control surfaces. Attach the surfaces and install the pushrods and horns. Coat the engine compartment with epoxy then mount the engine and tank. That's all there is to building it!

Before flight, adjust the CG to be right on, tank empty. Adjust all three control surfaces to follow the reflex curve of the airfoil and check for warps.

Fill the tank, start the engine and after a radio check (on, works; left is left; up is up and so on) head her into the wind (if any) and let 'er rip. Mine flies very easy, lands slow and weighs only 18 ounces. Hope yours is better!