



CHUCK ANDERSON'S

# TERN

TEXT BY DON DEWEY

**C**HUCK ANDERSON'S "Tern" is a remarkably well-designed .020 glider that will serve as the perfect introduction for the newcomer to powered flight, or as an "easy-on-the-pocketbook" sport design for the single channel Sunday Flier.

Chuck designed and built the original prototype of the Tern in three evenings, back in 1964, to meet the rules of one of the club contests of the Coffee Airfoilers of Tullahoma, Tennessee. The latter group sponsors a category for 1/2A or smaller single channel models which is a combination endurance and spot landing event. Points are awarded for the time after engine cutoff and up to a specified time limit. Landings are judged as to the distance from the specified landing spot. In order to achieve maximum points in this combined event, a design must have a good glide capability

as well as excellent controlability. The Tern excels in both of these categories.

As originally entered in RCM's Second Annual Design Contest, Chuck's glider sported a Controlaire 5 receiver, Citizen-Ship SE-2 escapement, and two nickel cadmium pencils. The model has been flown continually since its concept in 1964, and has actually worn out two Cox Pee Wee .020 engines!

Chuck's entry in the Design Contest consisted only of a set of full size plans and a single photograph of the original prototype. For this reason, and due to the fact that when we contacted him, Bill was about to leave for Southeast Asia with the Air National Guard, we decided to build up another version for the article. Suddenly, the as yet unnamed glider, became a joint project of several individuals. RCM's Editor, Don Dewey, built the version shown in the photo-

graphs. Dave Gray of Airtrol contributed one of their 4 ounce R1 proportional rudder only systems. Bill O'Brien, RCM's Special Projects Editor, supplied the name. Doug Tucker, RCM's Assistant Editor, took the photographs, and in-between picture sessions on Dewey's Hill, everyone flew it.

And there you have the background of the Tern. It's so simple to build that we won't go into any elaborate construction details. A few notes are in order, however.

First, if you use an escapement, reinforce the escapement mount bulkhead (F4) with 1/16" plywood, or if you prefer, substitute 3/32" plywood for this bulkhead, as we did.

Second, the fuselage is built upside down. Begin by installing F1 through F5. Do not glue the upper part of F3 at this time. When the glue is dry, add the remaining formers and F8. After the glue has dried, remove from the workbench and glue sides to upper half of F3. Add all remaining sheeting and blocks. By the way, RCM's prototype used 1/2" vertical grain balsa doublers on the fuselage back to the TE of the wing. This is not shown on the plans, however, and is up to the discretion of the builder. Tite-Bond glue was used throughout.

Glue a strip of sponge rubber to the top of F3 to seal gap and to prevent fuel from getting inside the model. If you use an escapement, add a ground wire from the escapement to the torque rod. The canopy we used was cut from the front of a standard small commercial canopy available at all hobby shops. A Junior Falcon canopy can be substituted or a soft balsa block can be carved to shape and painted white.

RCM's prototype used yellow silkspan stolen from an old Breezy kit finished off with several coats of clear butyrate dope and Finishing Touch decals. The fuselage had no fabric covering and was painted with AeroGloss white. The hatch was held on by gluing two small rails on the hatch, itself, and when in place, cut-off lengths of straight pins were used to secure it in place.

If you don't use an escapement, the area occupied by the 3/32" rubber can be utilized for stretching the antenna to the plywood rear skid.

Make sure that your model balances as shown on the plans. If building a powered version, remember that the thrust on a pylon mounted engine is exactly the reverse of a conventionally mounted mill — in other words, up is down, etc. Follow the plans for the proper setting and adjust from that point as trim indicates.

Trim settings can be adjusted for various wind conditions by adding shims under the trailing edge of the stab. For extremely light wind conditions, add 1/16" at a time up to a maximum of 1/8".

Good flying. You'll like the Tern!