

Bostonian "T" Craft

A scale-like gumbander for the popular new freeflight event.



By Larry Kruse

PHOTOGRAPHY: LARRY KRUSE

The Bostonian Event, which originated on the east coast and then migrated to the west coast, has proven to be the most exciting concept to come along in freeflight since the advent of Peanut Scale. Reports from contests literally across the country speak of the popularity of the event. A Bostonian is simple, easy to build, and uses readily available materials. Typically, a Bostonian model can be built using $\frac{1}{16}$ " square balsa, a plastic propeller, and Japanese tissue covering - all usually needed to reach the 14 gram minimum weight of the Bostonian West rules.

One of the most attractive things about the Bostonian Event is that there is some small element of nostalgia built into it. Very few of us can look at a Bostonian model without thinking back to the 10¢ Comet kits or the Joe Ott scale job that introduced us to the wonders of flight years ago.

The Boston "Tea-Craft" presented here is the product of just such whimsical remembrances on my part. One of the first planes I ever caused to fly in any sort of respectable manner was a little Megow Taylorcraft that spanned about 15 or 16 inches and flew into the very top branches of a neighbor's apricot tree on its first voyage aloft. That flight couldn't have been over 10 seconds long, but at that moment I knew just how Orville and Wilbur felt. And, because I've never quite recovered from that experience, this little ship is offered in the hopes that some other young person may partake of that magic through the Bostonian Event.

While construction is quite typical of any stick and tissue plane and should pose no problems for anyone who has built such model types before, some time will be spent on each facet of building in the hopes of answering any questions a novice builder might have. For those of you who feel confident of

your building skills, skip the construction notes and go right to the building board. You can always come back if you get into trouble.

Fuselage

Pin the plans down to a flat building surface and cover them with Saran Wrap or waxed paper. Select (as nearly as possible) matching strips of $\frac{1}{16}$ " sq. balsa for the fuselage longerons, both top and bottom, and pin all of the pieces for one side down and glue them in place. Try to cut joints as squarely as possible using a sharp single edged razor blade. Do not stick pins through the $\frac{1}{16}$ " balsa; rather, hold the pieces in place with two pins at each hold-down location by making an X with the pins over the top of each piece of balsa. I recommend the use of Hot Stuff's new gap-filling formula of cyanoacrylate for quicker building time.

After one side is complete, remove the pins and cover that side with Saran wrap. Now build the second side directly over it. One useful tip in an effort to get identical sides is to place the hold-down pins for the new side in the same pin holes you made in building the first side. If you look carefully at your plans, you can find them quite easily.

Once the fuselage sides are dry, install the crosspieces in the cabin area and bring the fuselage to a box shape. Check to make sure everything is square and then draw the nose and tail sections together, cementing in place the remaining crosspieces. The nose sheeting and bottom cowl blocks can then be glued in place and finally the noseblock can be carved and sanded to shape. Try for a good friction fit of the noseblock into the basic fuselage framework.

The landing gear is bent from music wire and laminated between two pieces of $\frac{1}{16}$ " balsa before being installed. The wheels are simple laminations of cross-grained sheet

balsa with an aluminum tube bearing in the center. When the fuselage is complete, sand it carefully and dope it with at least three coats of thinned nitrate dope.

Flying surfaces

You have a choice of construction techniques in building the wing and the tail surfaces. I personally prefer the laminated method, but if you prefer, you may use the built-up method. Both are shown on the plan.

The built-up method is pretty much self-explanatory, but laminating requires some detailed instruction. Start by cutting templates for the wing tip rudder from $\frac{1}{8}$ " scrap balsa, and stabilizer and cover them with Saran Wrap or a similar kitchen plastic. Cut several $\frac{3}{32}$ " strips from a sheet of $\frac{1}{32}$ " "A" grain balsa. "A" grain is distinguished by its long grain marks and somewhat "stringy" texture. I cut the strips $\frac{3}{32}$ " rather than the finished size $\frac{1}{16}$ " to allow for some final sanding to size. Soak the strips in hot tap water laced with about $\frac{1}{2}$ cup ammonia per gallon until they are pliable. The ammonia will both make the strips less subject to breaking during the laminating process and will cause the cellulose fibers to firm up considerably when the lamination is dry. Now brush a thin coating of white glue or Sig-Bond between two of the strips and draw them around whichever form you are working with. Use pins at about $\frac{1}{4}$ " intervals to hold the strips in place until they are dry. Generally, I give balsa laminations at least 24 hours to dry before unpinning them.

The wing and tail assemblies themselves should be built flat on the building board in time honored and typical fashion, sanded smooth, and doped as the fuselage was. Construction begins with pinning the outline pieces in place for all three structures and then cementing in the crosspieces and ribs as

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required. The rudder and stabilizer are hinged for easy flight trimming, but inasmuch as the prototype needed only a small amount of left rudder and a small trim tab on the left wing, you could probably omit the extra center spars in both structures. The wing dihedral is installed via the center-section ribs. Small center-section gussets help strengthen the wing, since no wing struts were used.

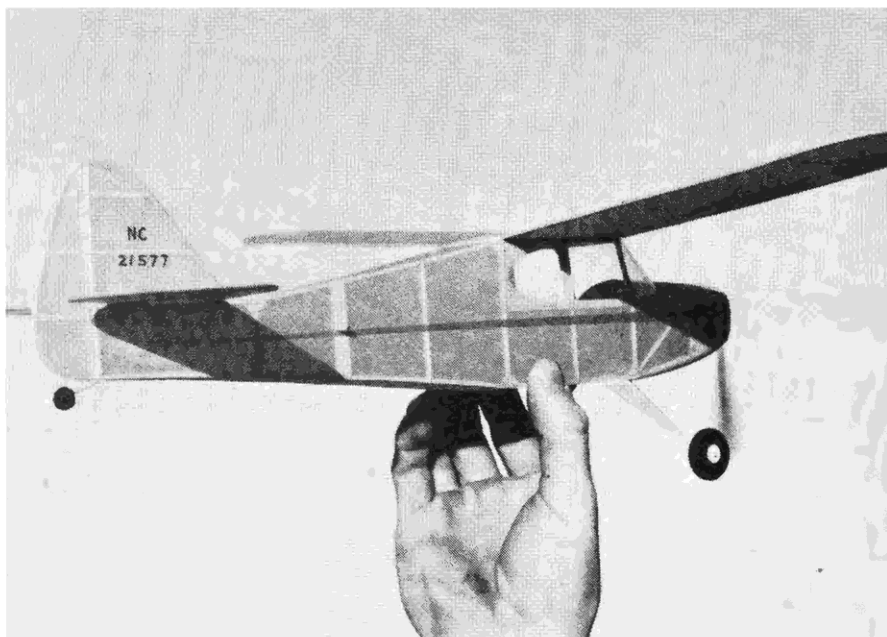
Covering

Cover the entire craft with light-weight tissue. Peck-Polymers has a very nice grade of tissue called "New Japanese Tissue" which weighs .032 oz. per 100 sq. inches. They also have an "Old Style Japanese Tissue" which weighs .030 oz. per 100 sq. inches. The newer style comes in several more colors and is somewhat less expensive, although its shrinking properties are a little bit difficult to control. Attach the tissue to the frame by using white glue (Elmer's is fine) thinned about 70% with water and brushed onto the framework. Shrink the tissue with rubbing alcohol applied with a cotton swab or cotton ball. Watch the shrinking process very carefully. In fact, it's probably useful to pin the flying surfaces down to the building board until they're dry in order to avoid warps.

When the tissue is dry, give the wing and tail surfaces two coats of nitrate dope, thinned about 60-40. The fuselage needs three or four coats.


Flying

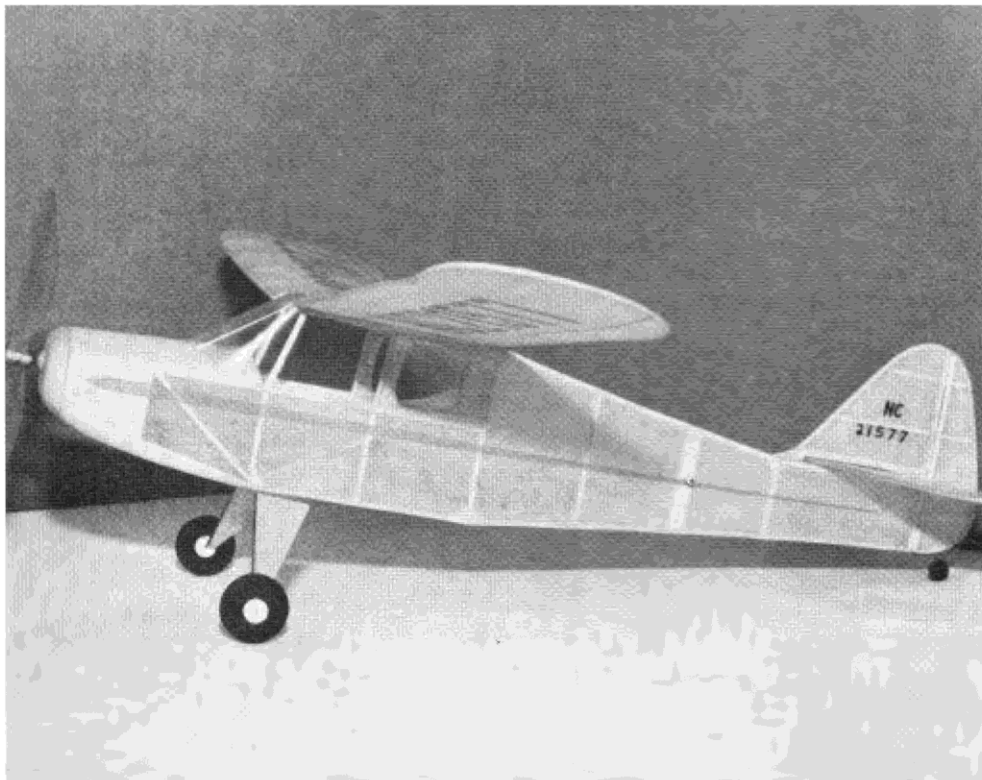
The prototype balanced as shown with no additional weight added to the nose or tail. It weighed 15 grams, excluding the rubber motor, and flew in a left hand power pattern. I



Bostonians are supposed to resemble full-size aircraft and Larry decided to pattern his after a Taylor Craft. The prototype uses laminated rudder and stab construction. Larry tells how to do it in construction article.

used a 15" loop of $\frac{3}{32}$ " FAI rubber for initial flights. It was necessary to add about $\frac{1}{16}$ " left rudder deflection, and, in order to keep the left wing up, a small bond paper tab on the bottom surface of the left wing. If you need to add weight to the nose or tail in order to reach the indicated balance point, by all means do so. Begin powered flights with

about 200 hand wound turns and work up from there. The "Tea-Craft" is capable of flights a bit over a minute on 1280 turns indoors. I'm not certain what its ultimate potential is due to the confines of the indoor site where I fly, nor has it been adequately tested outdoors. Build one and let me know how it does for you. 



Walt Mooney's Bostonian West rules

1. Wing span - maximum 16 inches
2. Propeller - maximum 6 inches diameter
3. Wing chord - maximum of 3 inches.
4. Fuselage length - maximum of 14 inches from the thrust bearing to the opposite extremity
5. Windshield - minimum of one square inch of projected visibility
6. Side visibility - minimum of one square inch visibility to each side
7. Volume - the aircraft must be able to contain a theoretical box measuring $1\frac{1}{2}$ " by $2\frac{1}{2}$ " by 3" in any orientation.
8. Landing gear - a landing gear must be provided using at least two $\frac{3}{4}$ " diameter wheels
9. Weight - minimum weight must be at least 14 grams excluding the rubber motor
10. ROG - all flights must begin with an unassisted rise-off-ground (or floor) takeoff.

The "T"-Craft combines simple, scale-like appearance with good flight characteristics (left). Bostonian is another one of the "fun" F/F events. Rules are basic (above). The top priority is enjoyment.