

■ John Oldenkamp

Most everybody loves West Coast Bostonian—and no wonder. With no Scale rules to follow, designers get to try out some new riffs. Lightweight and sturdy, these little Free Flighters are always fun to compete with. Here's one that performs with the best.

BEAN BOX 5

WHEN the late Walt Mooney wrote his rules for West Coast Bostonian, he innovated an event that suits just about everybody. The models designed for this Free Flight category tend to be robust, semirealistic, could-be-Scale types that fly well and provide great fun in competition.

Bean Box 5 meets the West Coast Bostonian regulations to a tee and performs with the best. Some say it has a lot of *cute*, too.

I build a couple of Bostonians every summer just before the Mooney Fourth of July contest and picnic held at a beautiful field just a half mile or so from the U.S.-Mexico border. Two Bean Boxes were completed for the 1990 meet. Carin Howard flew the prototype pictured in the photos and plan, averaging over two minutes per flight and taking third place on an official duration of about 4:29. Off the record, a spectator had the diminutive ship in his binoculars for over 10 minutes. That's fine performance for any Free Flight model.

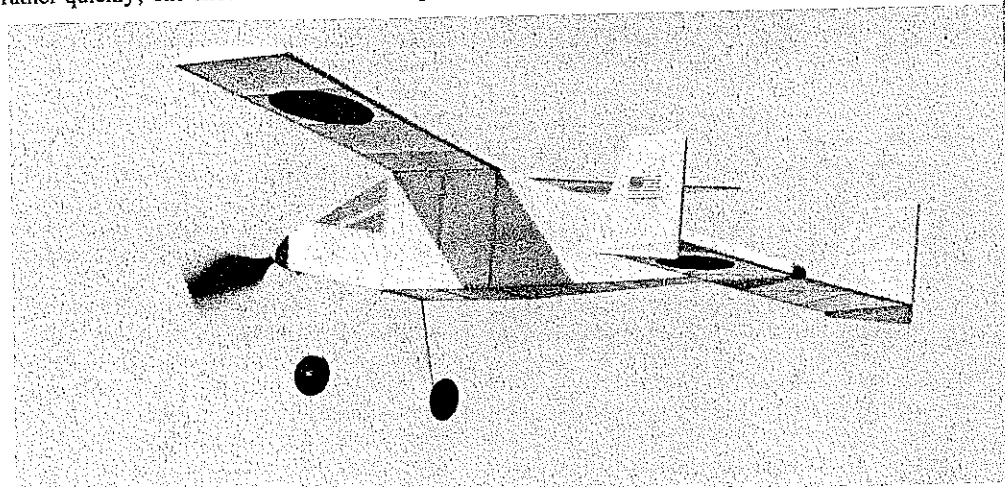
Despite the use of outsized strip wood for easy handling, both Bean Boxes weighed in at 14.5 grams not counting the rubber, or just over the 14-gram minimum. Obviously, all balsa selected should be quite light, and the sheet stock should be of #4 to

#6 Indoor quality. Sig contest grade sheet stock is a good choice; it's usually quarter-grain and therefore quite stiff.

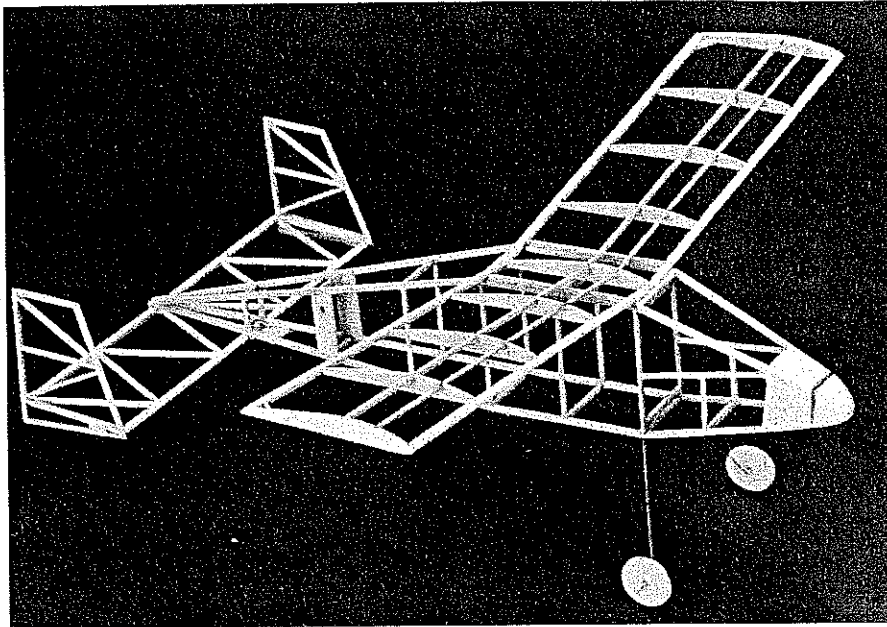
Construction. Though Bostonians build rather quickly, one should take care to keep

things straight and true from the beginning; any anomalies will cause frustrating flight behavior in such small planes. For that reason I recommend starting with the easy stuff, such as the fins and stabilizer.

Continued



Top picture: Exemplifying the fine art of stick-and-tissue building in all its airy glory, Bean Box 5 sits for a portrait atop the author's car. Note the U.S.A. flag decals, required at the Walt Mooney July Fourth commemorative event. Above: Bean Box clearing the runway on an early test flight. The twin fins assist stability. A small clay weight added to the tail to correct the prototype's nose-heavy condition looks like a dark blob in the photo.



The open framework ready for covering. Note the generous wood dimensions, hefty nose area to prevent damage during handling, and simple design lines.

Fins and stabilizer. Use the softest wood available for these components. Begin by inserting pins around the outlines with the help of a straightedge, then fit and attach the major elements using Hot Stuff or a similar thin CyA (cyanoacrylate) glue. Carefully cut and fit the diagonals, which should be finger tight but no more, lest warps develop later.

Does it get much faster than that?

Wing. Prepare a thin plywood rib template with notches and registration pins as shown on the plan. To produce rib sets, simply press the template on the balsa stock, run a single-edged razor blade around the outline, then nick off the ends and notches with a chopping action. Cut the tip and center ribs from medium $\frac{1}{16}$ sheet, the remainder from either $\frac{1}{20}$ or $\frac{1}{32}$ sheet.

Pin down the leading edge, then trap the ribs in place along the trailing edge stock. Raise the ribs in the washout area as indicated, and angle the center ribs for dihedral. Use the template shown on the plan.

When you're satisfied with the alignment, glue each rib station with CyA. Add the top spars and tip braces from $\frac{1}{16} \times \frac{1}{32}$ strip wood.

At this point the flying surfaces can be finished and prepared for covering. With a sanding block and 220-grit paper, smooth all flat areas and round the edges of the fin and the stabilizer at the front and rear. Be sure to create the gentle upsweep on the leading edge bottom, since it's a necessary part of the design.

Carefully cut the wing panel, then smooth out the center bevel. Prop each tip up 1 $\frac{1}{4}$ in., pin the center ribs together, and glue them firmly with a few drops of thin CyA.

Fuselage. Build two identical sides one atop the other to make the box-style fuselage. Though this might be a bit of a chore the first time around, you can ease it by us-

ing the following procedure:

Cut the nose and motor peg support pieces from soft $\frac{1}{32}$ sheet, and test fit them to the plan. Set pins around the perimeter.

Select the $\frac{1}{32}$ -sq. longerons from light strip wood. With your thumb and forefinger, crack each pair where the outlines bend, crushing the wood slightly to conform it.

Pin the top and bottom lengths in place. Using a pointed stick, dab a little Titebond glue wherever the uprights and sheet pieces meet and at the tail joint.

Working from front to back, cut and test fit the $\frac{1}{16} \times \frac{1}{32}$ soft balsa uprights. Give each piece a dab of adhesive, then allow about 10 minutes' drying time before regluing and installing them as shown in the plan. Cut and install the angled cockpit outline and its short upright.

Let everything dry four hours or overnight. Remove the sandwich from the board, then flat sand both sides and all edges until smooth. Carefully separate the two side frames with a single-edged razor blade, and sand the inner surfaces smooth.

The first step in joining the sides is to crack them both to form the angles from the wing mount area forward and towards the tail (again use thumb and forefinger for this operation). Prepare the three upper crosspieces that form the dihedral angle, and three of matching length for the bottom bays.

Pin one side vertically over the top view, and glue in the center crosspieces. When these are dry, glue the second side to them the same way. Add the top dihedralized pieces with small drops of CyA.

Install the nose sheet spreaders, and join the fuselage halves together at the rear. Check for squareness, and then take your time fitting in the remaining crosspieces. Block sand to square off and smooth the edges.

Line the forward nose cabin with either



The completed fuselage box frame. Box construction is fast and strong. Note that the upper crossmembers are notched to accept the wing dihedral angle. The landing gear attachment can be seen on a reinforced crosspiece.

$\frac{1}{64}$ or $\frac{1}{32}$ plywood for durability. Accurately sand in the right thrust and down-thrust angles.

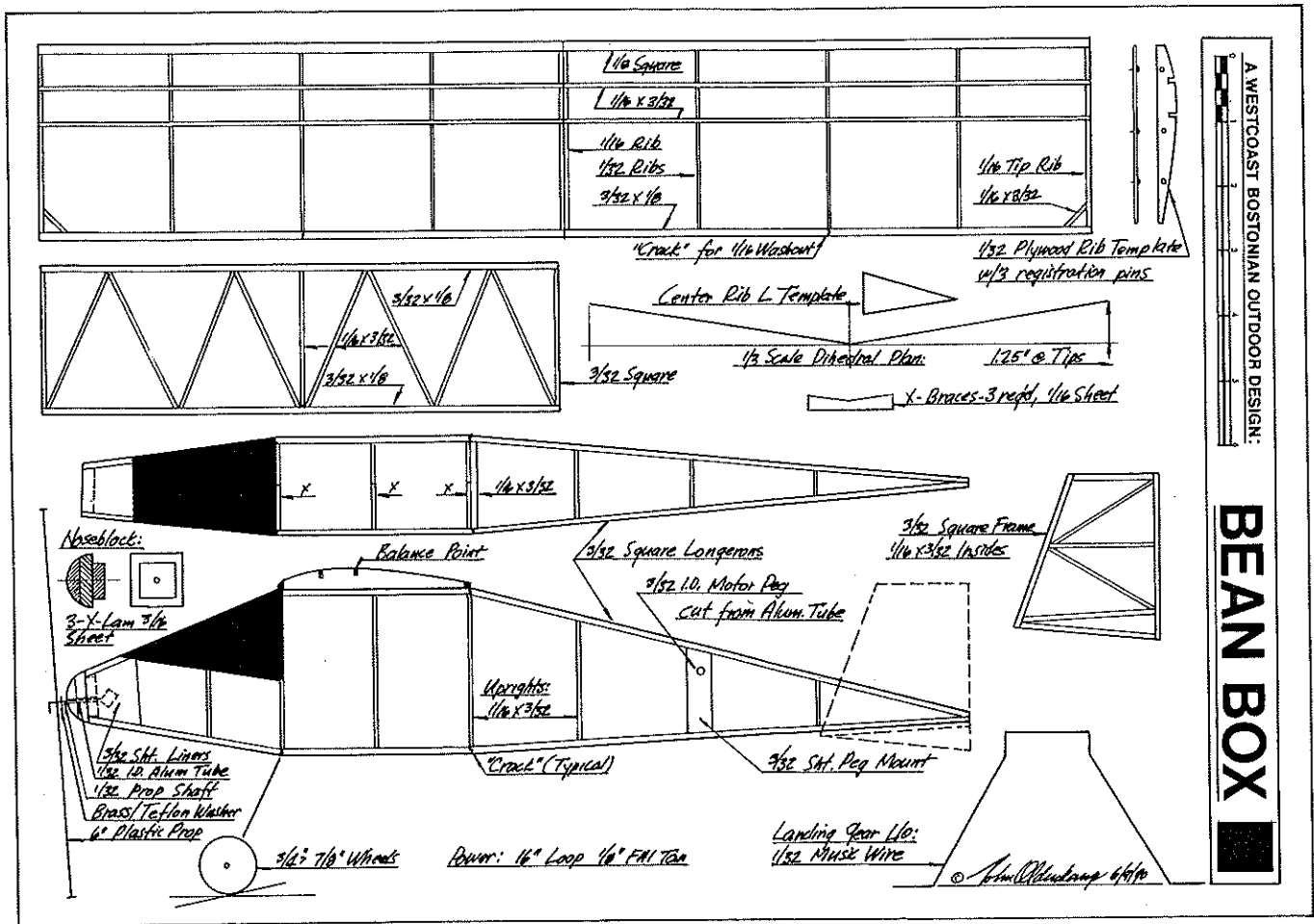
Bend up the landing gear from clean $\frac{1}{32}$ music wire, leaving the axle portions about an inch or longer so that later they can be bent back 90° to retain the wheels. To install the gear, tack glue the unit between the bottom and side uprights, add an extra internal crosspiece on top and another at the fuselage bottom, and then reglue.

The nose block is a simple cross-grain lamination of scrap $\frac{3}{16}$ lightweight sheet balsa using medium-thick Hot Stuff Super T. Cut and fit the rear piece to fill the nose cavity tightly, then glue it to the other two laminates.

Wrap the nose with drafting tape. Punch or drill the nose block squarely to accept the thrust bearing tube, then place it on the fuselage and sand it to the proper outline. Final sand to a smooth finish. Spray with Deft Interior Wood Finish as a sealer followed by two coats of Krylon spray paint; cherry red is a good choice.

The $\frac{1}{32}$ -dia. aluminum thrust bearing can now be fed through the hole and secured with thin CyA. Smooth the tubing ends with a file or emery board. To that assembly add the required 6-in. propeller, a ready-made Peck prop shaft and at least one brass or Teflon washer. A 7-in. Peck gray plastic propeller cut down to 6 in. and reprofiled will do nicely.

Covering and finishing. I covered the Bean Box with Peck tissue and nitrate dope. Brush two full-strength coats of dope on all surfaces, allow it to dry, and sand it out. Attach the covering with dope thinner on a $\frac{1}{4}$ -in. brush, always with the grain running lengthwise. A fairly smooth covering is best, so take your time pulling and tightening the material until you're satisfied.



A WESTCOAST BOSTONIAN OUTDOOR DESIGN: **BEAN BOX**

Cover the fuselage in its entirety, cutting out the window openings after the doping is completed.

Razor slice off all excess tissue, then spray on rubbing alcohol to shrink the covering. Respray any dimples that remain. Follow with a thin coat of finishing nitrate.

Adhere any decoration with thinner, then go over the entire model lightly with well-worn 360-grit sandpaper, finishing with one or two coats of nitrate to suit. Give the craft a final sanding.

To glaze the cockpit areas, I cut colored plastic report covers from the stationery

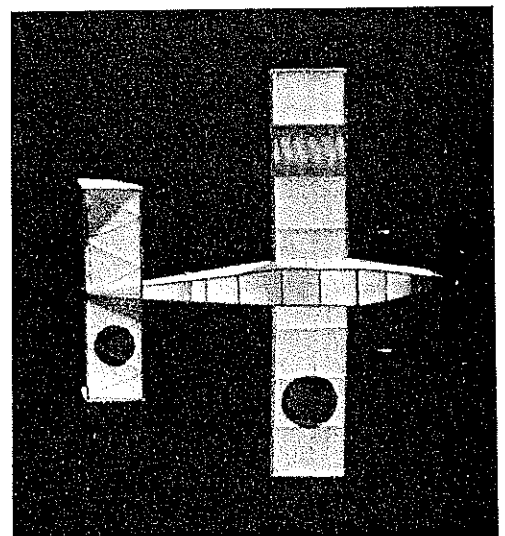
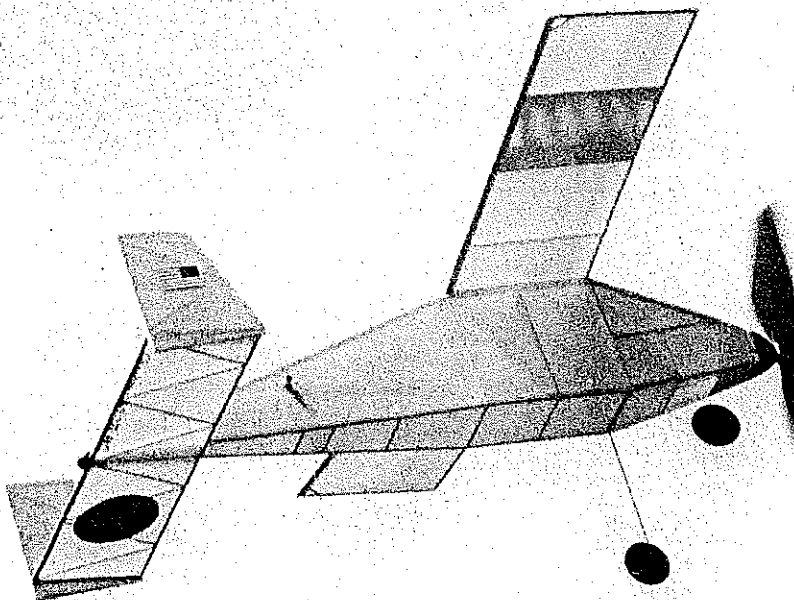
store into three pieces to size. A very thin bead of PIC Plasti-Stic holds the windshields in place. It's a nice effect.

The wheels were made from discs of 1/16 balsa laminated cross-grain, then filled and painted black. The 1/32 tube hub was retained by bending the axle ends back parallel to flight direction and snipping them off.

The AMA number, flag decal, and name and address identification are added before final assembly.

Final assembly. After carefully scraping

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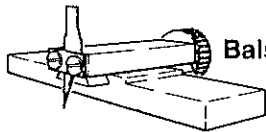


Left: Adios to a good friend as Bean Box 5 heads off over Mexico on a 10-minute OOS (out of sight) mission. The model's trim scheme on a yellow ground is the author's favorite for visibility. He's also fond of the stylized AMA number 22222. Right: This overhead view almost flattens the Box to one dimension, pointing up the clean lines, pleasingly asymmetrical trim. Clay tail weight is visible here, too.

Modeling Accessories

FROM

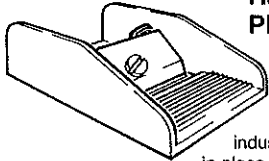
MASTER AIRSCREW®



Balsa Stripper

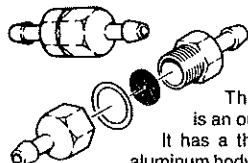
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Razor Plane



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new Astroflight Cobalt electric motors.

One of the photos shows a large Rearwin Speedster rubber model built from Burd plans, a lovely thing. You can get plans from Danny Sheelds, himself a lovely thing. It will cost you \$7.50, and that does include postage. He has a couple of other plans that you may be interested in, the Kind Burd at \$7.50 postage paid (a gas model), and the Korff Professor, a seven foot Gassie for \$9.50. I am sure he will show you copies of photos of the latter two if you ask and send a SASE, but you need plans for the Rearwin, right? Send money to Danny Sheelds, 2318 Noonham Rd., Woodlawn, MD 21207.

If you are looking for someone to clean, restore and in general work on your old ignition engine, I suggest you contact Don Blackburn, P.O. Box 15143, Amarillo, TX 79143; tel. 1-806/622-1657. I'm interested in hearing about others who work on, restore and fix engines, so I can spread the word. ■

Bean Box 5/Oldenkamp

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away tissue wherever parts are meant to join, trial fit and CyA the rudders to the stabilizer and the wing to the fuselage. Since this is a locked-in machine, I deliberately skewed the stabilizer/rudder unit to give a left glide turn, making the offset about 1/16 in. through the stabilizer span. No tilt was used.

Before adding full beads of CyA, be certain that all alignments are as precise as you can get them, whether by eyeballing or measuring. Take your time!

At this point the model should be almost ready for flight. All that remains is to drill out the motor peg hole—a bamboo skewer makes a fine tool for this purpose—and to double-check (and admire!) your work.

Early in the flight testing segment, it was clear that Bean Box had a sound pedigree and more than a little potential. Flight times climbed from scant seconds to well over five minutes' duration, and the model showed an uncanny ability to ride out light morning thermals.

Meanwhile, some initial disappointments had to be counteracted. When the plane didn't climb as high as expected, I put a small wad of clay on the tail. When it went straight under power, I shimmed in more

right thrust. When it occasionally stalled under full winds, I used more downthrust. Those are the only adjustments available on a locked-in airplane, so it makes sense to know them well.

No glide tests were done. Since it's nearly impossible to predict a small model's behavior until it's up there amongst 'em, there's little sense in risking a bent prop shaft before that first flight.

Both Bean Boxes ran on two strands of FAI 1/8 x 1/16 tan rubber, using a maximum of about 1,100 turns. A blast tube is highly recommended, as is a nonsplash rubber lube to help keep your masterpiece clean. I've found that an STP spray product called Son of a Gun works really well and use it exclusively. Saturate the motor and leave it out overnight. Pat off the excess with a paper towel, and your motor's ready to go. Great stuff!

Epilogue. Because both prototypes eventually rode away in strong (but undetected) lift, I'm considering including dethermalizing hardware in the next batch. But I'd have to shave off some weight elsewhere in the model to work it in.

I'll probably also separate the wing for positive action. ■

FF Indoor/Tenny

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yond. List of site contacts below. Be safe: check contest status by phone before leaving home!

Connecticut *Glastonbury:* Indoor flying at Glastonbury has been cancelled until further notice.
Norwich: Flying sessions Nov. 17, Dec. 15, 1990 and Jan. 19, Feb. 23, Mar. 16, Apr. 27, 1991. Jerry Bockius, 48 Division St., Norwich, CT 06360; tel. 1-203/442-8003.

Florida *Miami:* Dr. John Martin, 2180 Tigertail Ave., Miami, FL 33133; tel. 1-305/858-6363. Cat. I Record Trials, Miami Youth Fair, Nov. 24, 25, 1990; Miami Dade South

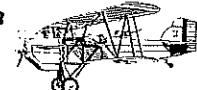
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Bill Effinger* says: Only Plan 'n Pattern™ Sets give you the assorted designs you want. I have selected the best classic designs of all time for you to choose from. The patterns for each part are an important exclusive feature.

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Quarter Scale - WW I

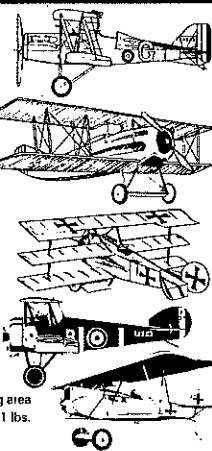
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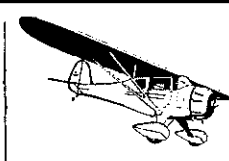
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