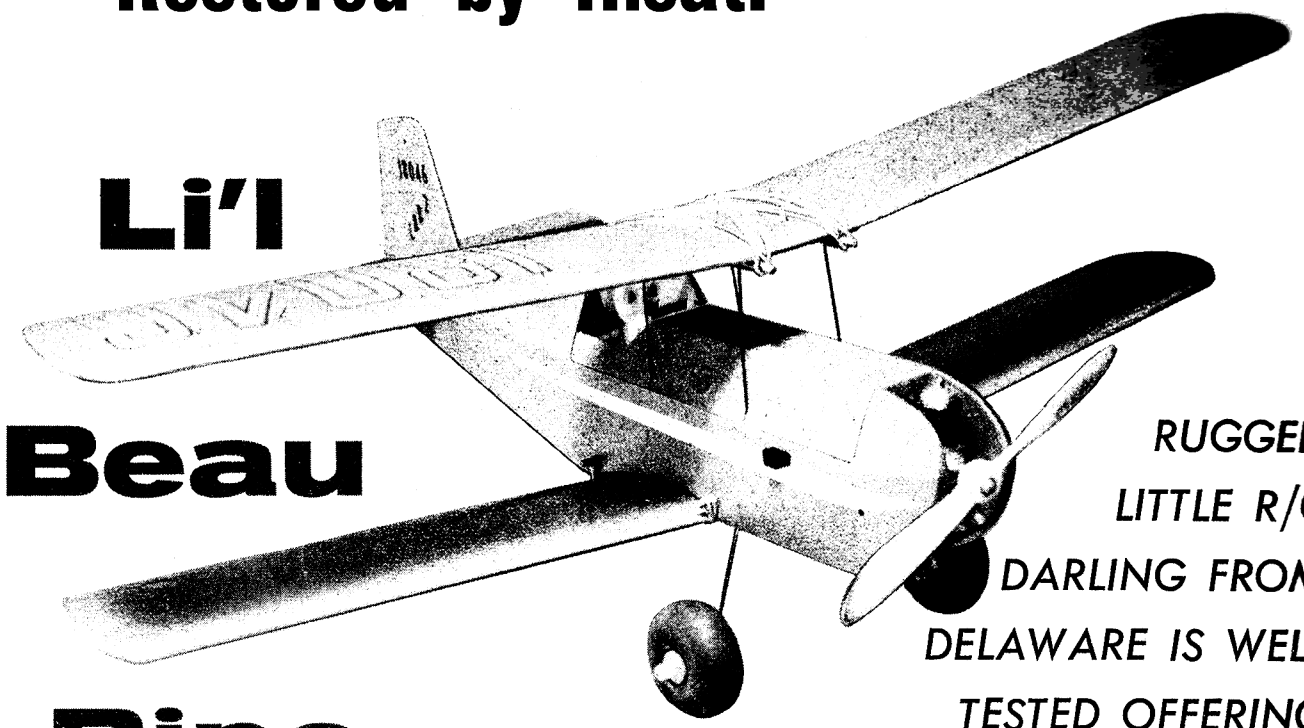
Restored by Hlsat.

Li'l Beau Bipe



RUGGED LITTLE R/C DARLING FROM DELAWARE IS WELL TESTED OFFERING

■ So you come home from a long, tiring day at work, shower, change clothes, and eat dinner. Then you step out the front door and observe a clear evening sky, just a touch of a breeze, the air has lost its heat, and you think to yourself, "What terrific R/C weather! Why can't it be like this on the weekend? Darned field is so far away it's not worth the trouble packing all the gear . . . wish that bomb of mine wasn't so big, noisy, and wild; I could go down to the school football field, or that vacant lot back of the farmers' market . . . oh, well, what's the use? Guess I might as well stay home and try to do something useful around the house. Phooey!"

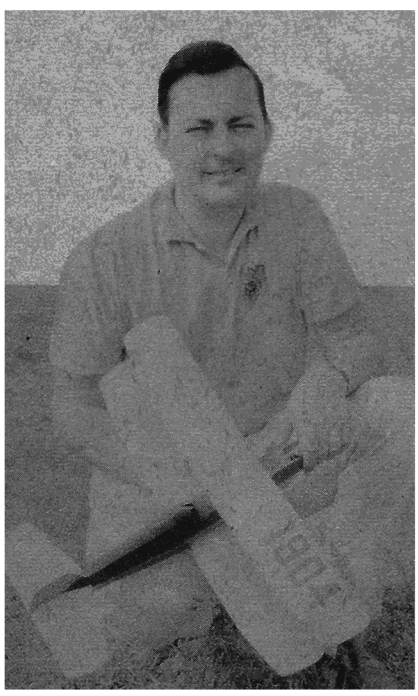
Did your thoughts ever run along this pattern? And does that seven pound, 200 dollar monster* have to sit idle between weekends? Tell you what we're going to glue, er, do. We'd like to introduce Li'l Beau Bipe—Mark II, yet. (Jaguar really started something.)

This little one-square-footer was designed around the Cox .020 Pee Wee engine and any of the latest calling card sized, single channel, all transistor, tone receivers. Our ship, while awaiting delivery of a C.G. Pioneer, was test flown with Jack Port's SM-1 operating on 45 or 60 volts "B" with an early Bonner SN escapement powered by two miniature pencells. "A" voltage was tapped off of one escapement battery. Total radio and equipment weight was a heavy (for this size) 5¼ ounces. The total weight of the Pioneer set-up, including two pencells and the escapement is only 2⅞ ounces. The ship, less R/C equipment, weighs in at around 5½ to 6½ ounces, and since the wing area is one square foot, it's easy to see that the wing loading is equal to the actual weight, somewhere around 9 ounces per square foot.

** Don't go humph! Jot down everything that went into that multi-ship, add it up, take back the "humph," then destroy those calculations before your wife sees them.*

If a pulse system is preferred, refer back to the articles by Howard McEntee in the July and August 1958 issues of *American Modeler*. The pulse rudder arrangement shown in the accompanying sketch was developed by Tony Wilford and Kern Bowyer, fellow members of the Delaware R/C Club. Tony and Kern run a Dacron thread directly from the rudder to an extension arm on the receiver relay. A small coil spring mounted vertically in the fin pushes the rudder to one side, the relay pulls it to the other. Tony and Kern have successfully flown Pee Wee powered miniature (24" span) deBolt L. W. Trainers this way for almost a year, using Ace's TR 4.5 and Babcock's Magic Carpet receivers.

While you send your son, daughter, or hired hand, down to the hobby shop for a few materials we'd like to . . . what? . . . send your wife? . . . man, you've got it made! . . . we'd like to give you a brief background on L.B.B. Mark II. The first L.B.B. was designed and built over a year ago. It was of 24" span and weighed 15 to 16 ounces. In addition to the original, three others were turned out by fellow club members. All four were remarkably consistent—overweight. Two main reasons for this: 1) it's difficult to "think small" after building big clunkers that have reinforced "reinforcement," and 2) the scarcity of sub-lightweight equipment. The only one that did better than making powered landings was a ¾ sized version spanning 18 inches. This bomb led its owner, Bob Scott, many a merry chase across the field as he attempted to keep the hand-held transmitter within the limited range of the troubled radio. This ship has been demoted to what it obviously preferred—free flight.



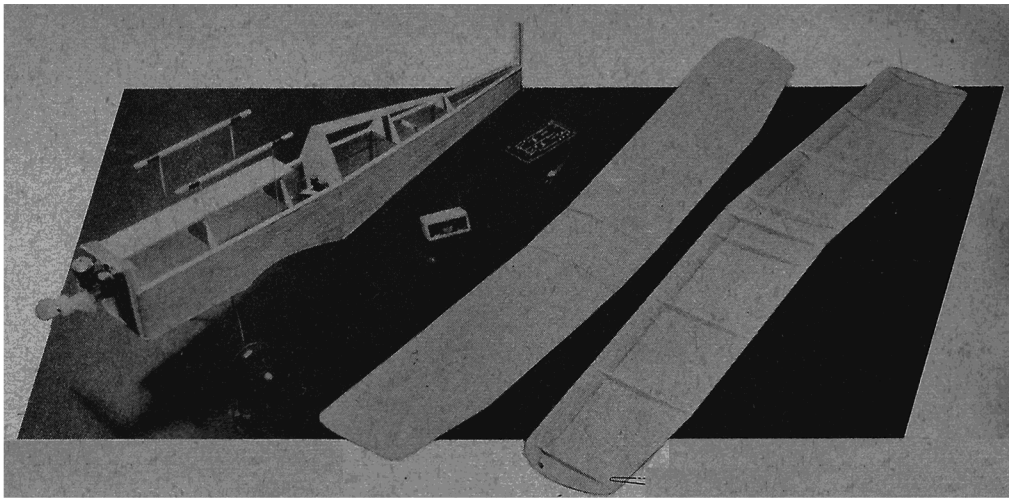
Author-designer William C. Northrop, Jr. (left) with LBB. Full size drawings are part of Group Plan #860 from Hobby Helpers, 1543 Stillwell Avenue, New York 61, N.Y. (85c).

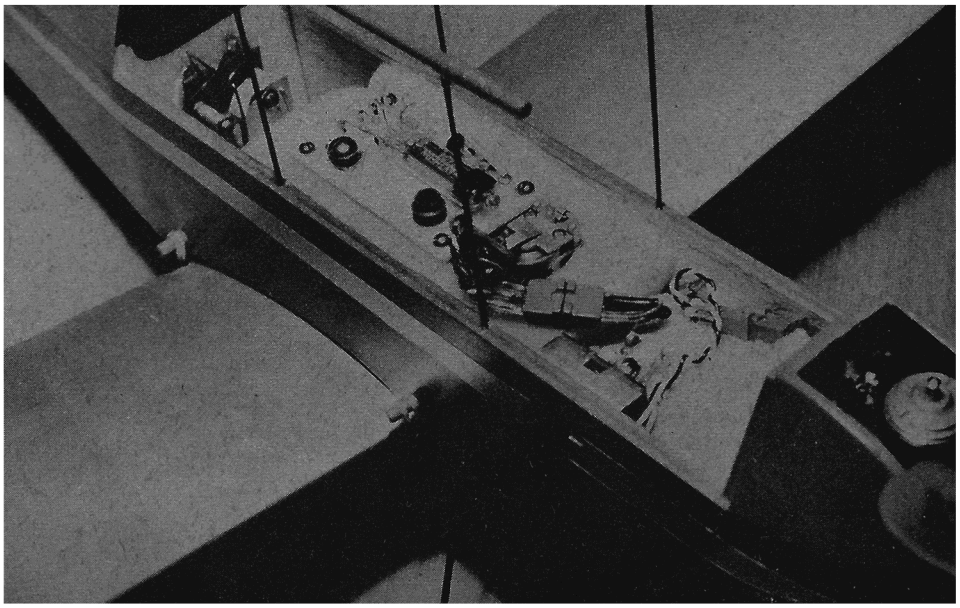
Not until early this spring did we begin to see the real potential in L.B.B. when our past club president, Graham Lomax, installed a Deltron receiver in our prototype ship and started pylon flying around the fruit trees in his back yard. Coincident with this, Bill Davis ('nother member) installed a TR 4.5 in his using the pulse system previously mentioned and having knocked off about 3 ounces found he had a spare airplane to fly when his Multi-Bug was in the shop. Incidentally, anyone who was at the Sellersville "Getogther" in 1959 can testify that a stiff breeze doesn't ground L.B.B.

Just recently it has been found that L.B.B. Mark I flies just a little better (this old biplane lover hates to admit it) without the bottom wing. Several more have been built as parasol jobs with the notch for the bottom wing left out entirely. By staying on the key the owners are able to keep their ships within twenty feet of the ground throughout the flight. You're tempted to take a swat at them as they go by. Look very

much like Fokker D-VIIIs. They've been dubbed "Li'l Beau Bipe Minus One."

Mark II was designed to eliminate this awful trend toward removing the bottom wing. It is actually a ⅞ reduction of the original craft and appears to be a happy medium between the ¾ bomb and the original size. Flights are lively, but stable, with a good rate of climb from the launch. When kicked into a turn, the bipe has a tendency to stay in the groove until a touch of opposite rudder is given. Building time can be as little as a week. One more thing: These oversized horseflies are rugged. The original Mark I's are still actively flying. Our Mark II spun in with a locked rudder four times in a row and outside of one dent on the bottom wing's leading edge the ship looks no different than when the preflight pictures were taken.





Construction: So simple it comes into the "even-a-child-with-one-of-its-three-hands-tied-behind-its-back-can-do-it" category.

The 1/16" sheet balsa fuselage sides with the 3/32" sq. longerons and uprights and the 1/32" vertical grained, intermediate liners attached are first scored lightly at "X" and then joined with bulkheads A and B. Scoring permits pulling sides together, joining with Bulkhead E, and inserting 3/32" sq. crosspieces followed by bulkheads C and D. At this point stop for a complete alignment check. Next, plank the bottom with 3/32", 1/16" and 1/32" balsa, grain running crosswise, and insert the 3/32" plywood landing gear plate. Form the .045 music wire cabane struts, glue in place in the grooves formed by the 3-piece intermediate liner, and then add the horizontal grained 1/16" inner liner. Inner liner must be grooved out slightly in order to clear the struts which are slightly thicker than the intermediate liner.

Build the removable hatch directly on the body, filing notches in the sloping side pieces to make a snug fit around the cabane struts, and inserting scraps of wax paper where necessary to prevent glue seepage from making an unremovable removable hatch. The front A-1 bulkhead will have to be notched to clear the engine mounting bolts.

If at this point you feel you will want to make longer flights than the Pee Wee integral tank permits, a larger tank can be installed directly back of the engine firewall. Arrange it so the fuel line comes out the bottom of the tank or out one side near the bottom. Drill a hole in the Pee Wee tank so that a new fuel line (using existing coil spring kink preventer) can be run from the needle valve, through the hole in the tank, through the firewall and connected to the new tank. An extra fuel-proofing bulkhead between the tank and the radio compartment is also in order.

Unless you drive something smaller than an Isetta, it's not necessary or advisable to make the tail surfaces removable. (Extra weight of the peg and rubber bands . . . don'tcha know.) Be sure not to forget the ⅛" negative incidence wedges glued flush with the 1/16" sides. A few extra minutes taken to add the stiffening inserts are well worth it. The original Mark II stab has no warps after a coat of filler, a coat of thinned dope, tissue paper, a coat of thinned dope, and three coats of thinned color. Incidentally, the whole airplane was given the same finishing treatment. Two coats of Comet fuel proofer were also added to the body when it was noted that the red butyrate was being eaten by racing fuel.

After making the actuator installation the turtle deck can be planked with 3/32" and 1/32" balsa as shown. If an escapement is used, drill ⅛" hole in bulkhead E to clear winding hook, press skid against bulkhead, rout out bulkhead until skid fits flush and then glue top and bottom pieces of 1/16" ply tail plate in place. Center piece is left loose and forms locking key for winding hook.

A balsa wedge is used to give your Pee Wee the required offset. Although washers could be used, the lugs of the engine are better protected by obtaining a solid, flush mounting. For a start, figure about 2 to 3 degrees down and about 4 degrees right. Finish up body by adding the ½" nose cheeks, the wing mounting dowels, and the landing gear. Gear is stitched to the 3/32 plywood insert using soft wire thru pre-drilled holes.

Wings are built in four separate panels. When gluing on the ⅛ x ⅝ leading edges, be extra alert to avoid making four lefts or four rights. After cutting out the required ribs, use the template (Good grief . . . you did use a template, didn't you?) as a guide to shape the leading edge. Next, apply a coat of filler and two coats of clear dope to the underside of each panel, sanding between coats. The ribs can now be glued and pinned in place. If the panels didn't curve enough from the filler and dope, brush water on top surfaces, but better do them one at a time or you will find yourself with balsa tubes if you wait too long. We built the wings "in the air" keeping an eye out for warps as drying took place.

Bevel and glue wings together in hand-launch glider fashion. (Will somebody tell that guy who started this modeling life trying to build an R/C B-17 Superfort complete with rudder, elevator, ailerons, retracting landing gear, flaps and de-icers what a hand-launch glider is!) Next, cut a piece of 1/16 sheet to form the top of the flat center-section, bevel the sides to a feather edge and glue and pin across center of wing. When this is thoroughly dry, place wing on a flat board over a piece of face-up sandpaper and scrub back and forth until underside of wing is flat from L.E. to T.E. and between ribs marked "R." (You didn't need those finger nails anyway.) Finally, glue on the 1/32 sheet bottom of the center section and you'll find yourself with a very rugged wing joint. Trimming excess from outer ribs should finish the wings outside of filling, doping, and paper covering.

Let your conscience be your guide about covering the bottom of the wings. Original was covered directly on the wood for smooth finish only, leaving a so-called single-surfaced wing section.

Though it has not been tried, drag would probably be cut down and performance improved by covering bottom so that a Clark Y section would evolve. Maybe an unnecessary hint, but when covering the top surface, treat wing as an open structure, putting dope only around the edge. Spray with water and dope entire surface after paper has tightened up.

Flying: The most difficult part of flying Li'l Beau Bipe is in the hand launching. Our technique is to grip the bottom wing center section between thumb and fingers and launch with a sweeping stiff arm motion. The smart thing to do is take the model out in the tall grass and make a half-dozen or so test glides for trimming purposes. This should acquaint you with the approximate flying speed and launching attitude to get the plane through that first critical moment. Now when you're ready to show off Beau Bipe, you can dazzle the boys with a nonchalant, devil-may-care, flick-of-the-wrist launch that will have them all wondering—like if you're so smart, how come you didn't turn on the receiver?