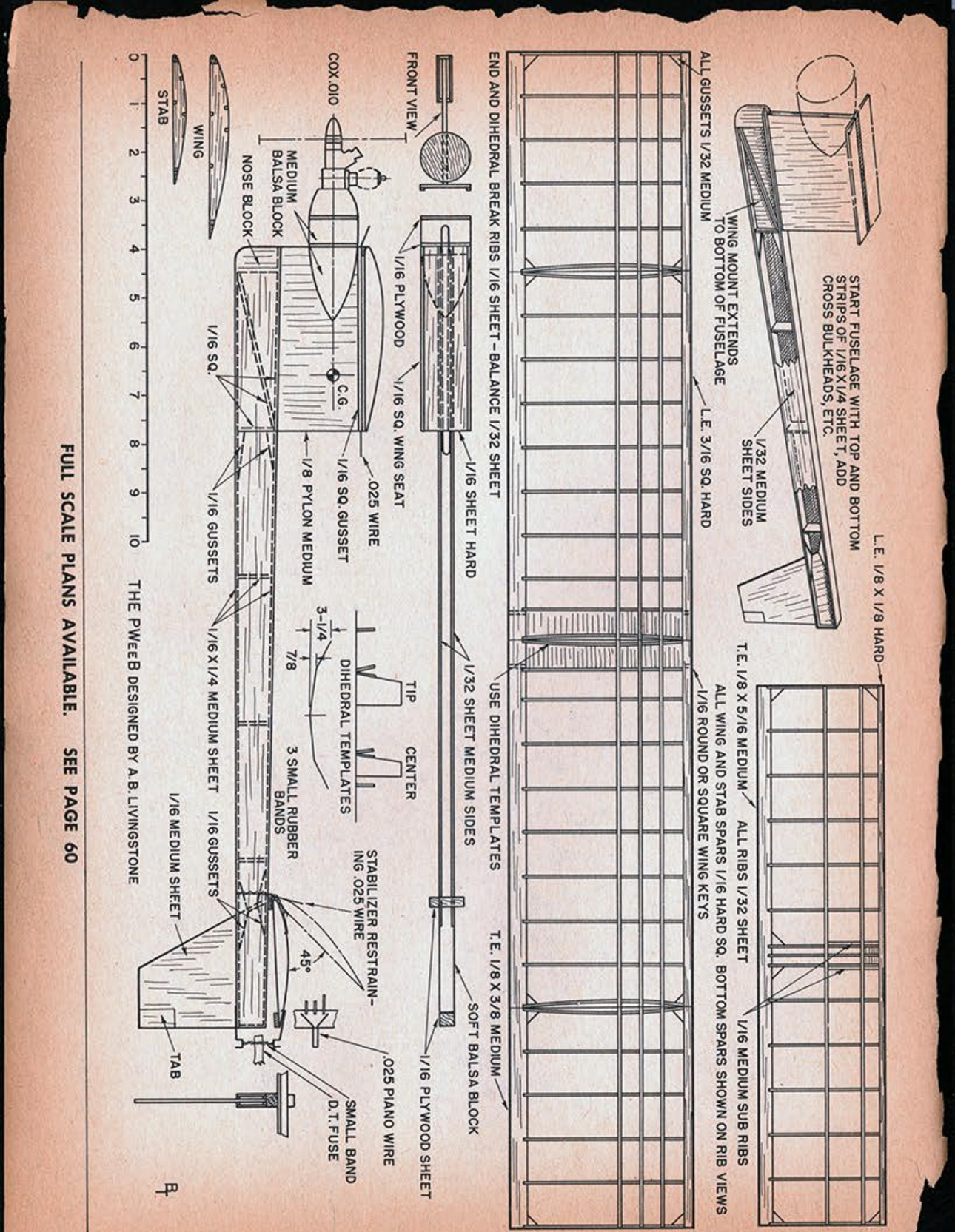


Sal Taibi, at right, who really knows, was the first to tell us of this remarkable little bird with the genuine sky-rocketing performance.

P-Wee-B

CONTROLLED ROCKET FLIGHT IS BEST WAY TO DESCRIBE THIS EXCITING .010 POWERED FREE FLIGHT MISSILE. IT IS THE LIGHTEST AND FASTEST FREE FLYING MODEL THAT OUR TIRED OLD EYES HAVE SEEN IN THEIR MANY YEARS.

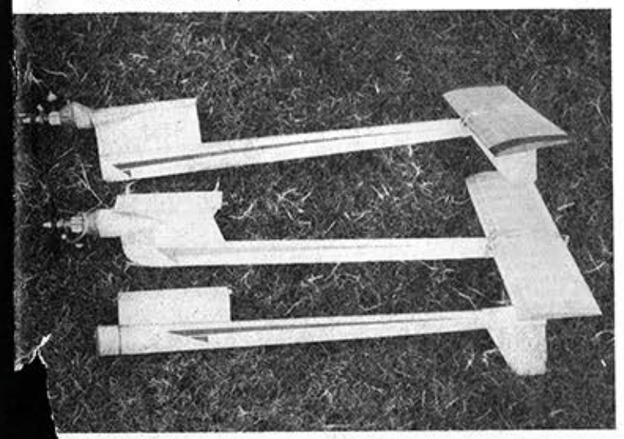
by A. B. LIVINGSTONE

► Do you want to build an airplane that has a terrifying climb, then floats like a feather after engine cut-off, and is almost indestructible? Then build this bomb. The P-Wee-B is the result of four airplanes with different thrust lines. They were identical except for thrust line location. The four planes were 1) thrust line on fuselage center line, 2) in middle of the pylon, 3) high on the pylon, and 4) on the wing root center line.

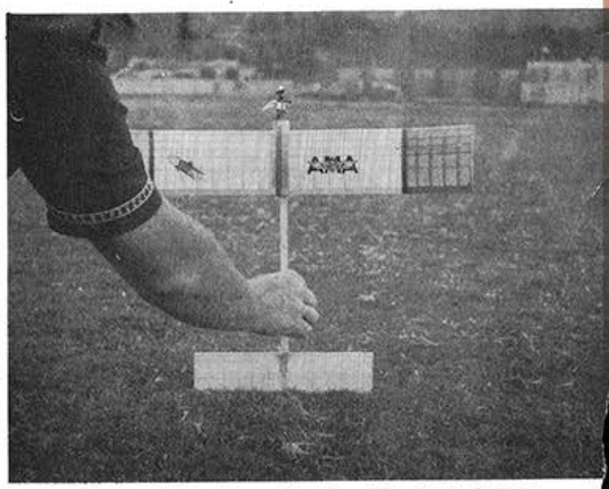
Intent was to get a ship to climb straight up as fast as possible. This required zero degree thrust line, zero degree wing incidence, minimum decalage, but yet have good recovery at engine cut-off.

Ships No. 3 and No. 4 had very similar performance therefore I decided on No. 3 as the best since No. 4 had a more complicated motor mount, half on the wing and

P-Wee-B just didn't happen it is the result of much testing. Note the low-medium and hi-thrust arrangements of the three fuselages.



Our author is a man of hobbies if we are to believe his hat. Don't let on decals wing scare you, only seems like sure death on way up.



Tiny size is best indicated by relationship of hand and forearm. VTO is standard operating procedure for maximum flight times.

half on the pylon. I like 'em simple.

The following are a few personal opinions to account for the startling performance of the P-Wee-B.

Light weight—this is the most important factor. No. 3 was 1.79 ounces, ready to fly. With this one I concentrated on keeping the weight low. Each of the other three birds were 1.9 ounces, ready to fly.

Build it strong—all joints are double cemented, i.e., rub a layer of cement on parts and allow to dry for 20 minutes. Then cement joint together and allow to dry for 24 hours. I feel this is necessary to allow joint to cure completely. On the wing, however, ribs were glued in and allowed to dry, then using a pointed stick, a neat fillet of cement was added and the assembly, while (*Continued on page* 44)

P-Wee-B

(*Continued from page 17*)

pinned flat, allowed to dry for 24 hours. Yes, 24 hours. This will give you a warp free wing. Most builders pull the wing off the plan and start sanding before the glue is dry and get a bad joint that warps when the covering starts to shrink.

Thrust—since the airplane is light and this tremendous Cox .010 puts out somewhere around 5 ounces of thrust, the result is a high speed climb which really lets the engine scream. People have asked me how I hopped up my engine. I usually do not answer and smile. They go away thinking I have some hot secret.

Sand smoothly all balsa sheet before cutting parts out and use fuel proof dope and cement.

These factors may or may not contribute to its outstanding performance, but they sure do help a model.

CONSTRUCTION

Cut a wing pylon from ¼" medium sheet. Where the firewall and the wing seat will mount be sure the faces are 90 degrees to each other, and make certain the grain is running as shown on plan.

Cut a rudder from 1/16" medium balsa.

Cut top and bottom fuselage strips from 1/16" x ¼" medium strip.

Cut fuselage bulkheads from 1/16" medium sheet, two nose strips ¾" x ½", and eight triangular gussets.

Cut wing mount from hard 1/16" balsa.

Cut a piece of 1/16" plywood for leading edge of wing mount.

Cut 4 pieces of 1/16" x 1/16" x 3¾", medium balsa for wing pylon gussets and 2 for wing seats.

Cut 2 fuselage outlines from 1/32" medium sheet.

Place pre-cemented fuselage side on plan, cement fuselage nose strip and 1/16" x 1/16" strips to secure wing pylon in place. Cement wing pylon in place. Put a scrap piece of 1/32" on a scrap piece of 1/16" sheet and place between wax paper and pylon. Place weight on pylon. Cement one edge of top and bottom fuselage strips and pin in place. Cement and insert top and bottom triangular wing pylon gussets.

Cement 3/32" x 3/32" around rudder area. Cement rudder in place. Place scrap of 1/32" and scrap of 3/32" between wax paper and rudder. Place weight on rudder. Cement 3/32" x 3/32" around rudder area.

Cement 1/16" x 1/16" strip to wing pylon. Cement nose strip triangular gussets to wing pylon. Sand fuselage side level. Cement fuselage side in place and set weights along fuselage and let dry for 24 hours.

Remove fuselage from plan. Sand clean and smooth all over. Use finger and rub thin layer of cement top, side, and front of pylon. Sand lightly when dry. Cut 2 discs 1 inch in diameter from 1/16" plywood. (I like spruce plywood, it's lighter than mahogany.) Rub a layer of cement all over both discs and set to dry. Cut cylinder ½ inch long and 1-1/32" diameter from light balsa. Apply 2 layers of cement to end grain and allow to dry thoroughly. Cement plywood firewalls to each end of cylinder. Allow to dry and sand smooth all over. Carve 2 streamlined blocks to shape shown on plan. Cement streamlined blocks to wing pylon and sand square with leading edge of pylon. Cement firewall assembly to fuselage. Cement 1/16" hard wing seat to wing pylon. Cement 1/16 plywood wing seat to leading edge of wing seat. Cement 1/16" x 1/16" pylon gussets and wing supports in place. Check alignment and allow to dry. Bend .025" piano wire for wing mounts and dethermalizer hardware and cement in place. Cement 1/16" plywood stabilizer platform in place. Type name, AMA number, address, and telephone number on piece of white jap tissue and dope on to wing pylon. Cut fuselage trim from black tissue and dope on to fuselage. Give motor mount area 3 coats of dope. Thin dope ½ thinner and ½ dope and give complete fuselage 6 coats. Sand lightly between coats.

WING

Cut out tip template and center template and cement to 1/16" sheet. Trim to shape. Cut 30 pieces 3¾" long of 1/32 x ¼ medium strip stock. Divide into 2 stacks and push 2 pins into each side. Sand flat on bottom. Trace wing outline on each stack. Trim and carefully sand rib outline. Cut stringer notches and check fit using scrap piece of 1/16" x 1/16". The trailing edge is made in one piece. Cut trailing edge ½ inch longer than required and lay trailing edge on plan allowing ¼ inch over-hang at each end and carefully mark rib locations. Cut notches using sharp razor blade. Pin trailing edge to wax paper covered plan. Lay two 1/16" x 1/16" stringer on plan. Locate rib near center and one near each tip. Pin 3/16" x 3/16" leading edge against 3 ribs, allowing ¼ inch over at each end for final trim. Take a 1/16" thick rib and put drop of cement in each bottom stringer notch, leading edge, and trailing edge. Put aft end or rib in notch and carefully push rib into place on end of wing. Use square side of template to insure vertical rib alignment. Continue to cement ribs into wing. When you reach outboard dihedral joint, use tip template to set angle in the 2 tip dihedral ribs on each side of wing. Use center template to set 2 center rib angles. Cut triangular gussets from 1/32" medium sheet scrap and cement in place. Put drop of cement in one series of stringer allowing trim on each end. Repeat for balance of the stringers. Plank center section with medium 1/32" sheet grain running as shown. Use sharp 1/16" x 1/16" to dab cement fillet on all cement joints on wing. Allow wing to dry for 24 hours. Remove wing and sand leading edge round. Sand wing all over and apply 2 coats of dope and sand with fine sand paper.

Cover bottom of wing with a piece of black jap tissue working from center out to each tip. Be sure grain runs spanwise. Apply dope to planked center section, dihedral ribs and tip ribs, and on balance of wing to leading trailing edge only. Tighten paper by using wad of cotton dipped in water and then rub chordwise on wing. Pin wing to flat surface, at four tip corners using four small ¼ inch spacer blocks to raise wet under side of flat surface. When dry, remove and wing should be flat.

Thin dope to ½ thinner and ½ dope and apply 4 coats brushing dope on chordwise. Apply 3 coats full strength dope. When wing has cured for 4 hours held flat, remove and using sharp razor, cut wing at each dihedral joint and sand rib faces smooth. Apply thin coat of cement and let set for 20 min. Apply cement to rib faces and join tip with center section and pin through leading edge to leading edge and

P-wee-B

(*Continued from page 45*)

trailing edge to trailing edge. Check for true alignment and carefully wipe off excess cement with finger.

Repeat gluing procedure at center section. Neat joints for neat alignment, huh?

Do not use decals for trim. They are too heavy. Use colored jap tissue. I like stripes, easy to apply and they look good. Hint on applying stripes: cut strips exactly the width of rib spacing and about ⅛ long in chordwise direction. Dope leading edge and align tip of strip and pull to trailing edge. Lift strip and dope area between 2 ribs. Lay strip down on dope and pull tight at trailing edge. Dope each end of strip down to bottom of wing and press flush with finger. Give top of wing two coats of dope. Cement wing keys in place as shown on plan.

STABILIZER

Repeat wing construction method on stabilizer. Install dethermalizer hooks after stabilizer is complete.

TRIMMING

Install engine using small wood screws. Use small rubber bands to hold wing and stabilizer on. Pin ¾" block under trailing edge of stabilizer. Adjust stabilizer restraining wire loop to allow stabilizer to pop up to 45 degrees.

Glide model. If model stalls, reduce block 1/64" and glide again. If model heads for the deck add 1/64" shim. Model should have a long straight flat glide. Now check CG with dethermalizer in place. CG should be close to position shown on plan.

FLYING

Get in some tall grass, knee deep if possible. Check under power and fly downwind. Hold model at about 45 degrees with dethermalizer lit and engine peaked. Wait until you see bubbles coming up intake tube on engine, release and hold your breath. Model should leap away and run for about 3 seconds going straight away. If model wants to loop, lower trailing edge of stabilizer 1/64". If model goes over hump, add 1/64" to trailing edge of stabilizer. If model falls to right and wants to circle to right, add 1/64" left rudder tab and cement in position. After adjusting, continue to make these 3 second flights until model climbs straight away.

Time engine run through a full tank of gas. Fill tank and try to get a 6 second engine run. Release model at 80 degree angle. Don't push model. This baby has enough thrust to leap away and I've found that trying to push it gets you going left or right. When model will handle 6 seconds, cut tab and move 1/64" left. If model climbs straight away and does not circle left add another 1/64". When model is flying correctly, carefully measure height of trailing edge shims and cut a triangular block and cement to fuselage. Check with a flight. Add 1/16" plywood flush with stabilizer seat and give seat four coats of dope. Give plane six second run and check performance. Model now should turn slightly left under power while climbing nearly straight up. At engine cut-off, it should float in a slight left turn. NOW try for a 12 second run. Be sure dethermalizer is lit and launch at about 80 deg. and watch this baby climb almost out of sight, warning, watch it carefully. I lost No. 3 on a 15-second VTO in a contest.

No. 4 has climbed out of sight straight up in 25 seconds. Luckily, I had a short cork on it and soon after it came floating down. Good luck.