

Little John



By ALEX McLEOD. . . Here's a reduced-size version of Bill Northrop's popular Big John biplane, designed for 40-to 48-size four stroke engines. Full-size plans are available from Model Builder's plan service.

- Having built and flown a Little Beau Bipe, a Wild Child, a Duster, a Galloping John (yes, with all of that banging and flopping at the tail), and even a friend's Big John, I was sold on Bill Northrop's all-size biplane design. There isn't, however, a size to fit the 40-48 four-stroke engines. Here then is my presentation of the Little John Bipe (with apologies to W.C. Northrop).

It flew quite gently with an O.S. 40 four-stroke and was a real winner, a pussy cat. I thought it had a lot of aerobatic potential, and I was right. With an O.S. 48 Surpass, the vertical maneuvers are a joy. Not everyone will want a fully aerobatic airplane, but on low rate at the transmitter and two-thirds throttle, it's a real Sunday flyer again. When the power is cut back to one third, it will just hang in the air with a little up elevator and almost thermal. On idle it can be landed at a very low speed. This is due to a light structure and generous wing area. At five pounds, my L.J. came out at a 16 oz/sq ft wing loading. A 48-inch wing span makes it

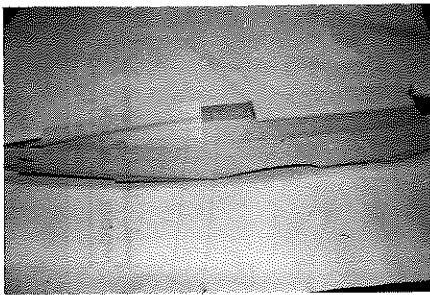


First flights were made with an O.S. 40 four-stroke, but the engine lacked the punch needed for aerobatics, so a Surpass .48 was installed, which greatly improved the plane's performance.

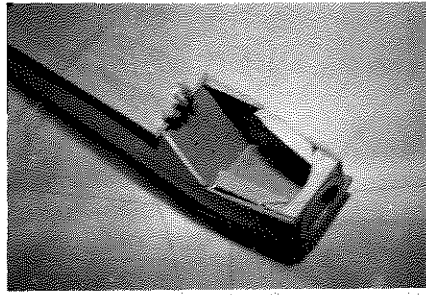
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MODEL BUILDER

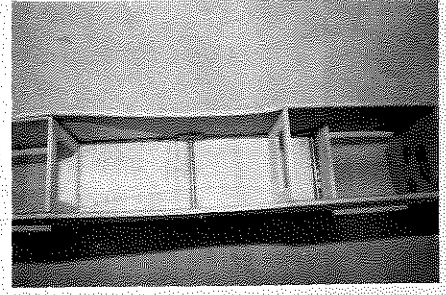
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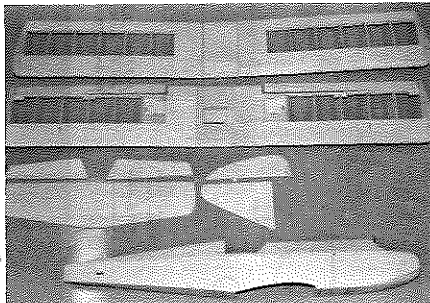
Fuselage ready for shaping and sanding. Note tubing where cabane struts plug in.



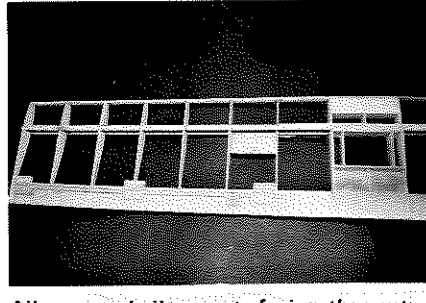
Engine compartment before shaping and painting inside with polyester resin.



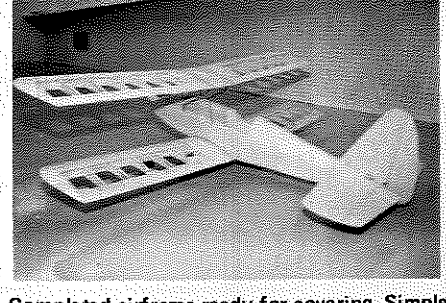
Inside of the fuselage. Note brass tubing epoxied in for cabane struts.



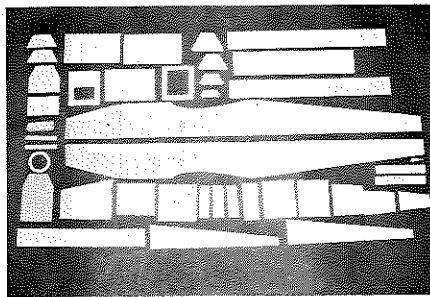
Completed assemblies ready for finishing.



Ailerons are built as part of wing, then cut apart later to assure proper fit.



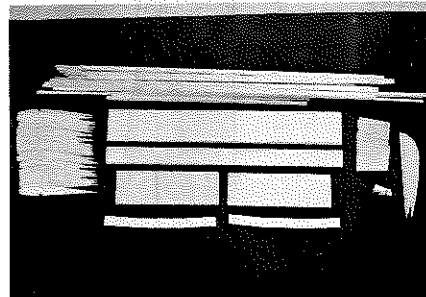
Completed airframe ready for covering. Simple sheet structure is light and strong.



Fuselage sides and parts cut out and ready for assembly.

a one-piece airplane for transporting in small cars. Perhaps you may even build it lighter by using heat shrink covering films. I used Sig Coverall and butyrate dope for a more permanent finish. The bottom line, however, is: keep it light.

The semi-symmetrical airfoil, used on the Little John is very similar to its big brothers and makes inverted maneuvers quite comfortable. The large rudder makes knife edging quite easy with a little down elevator. Slow rolls and eight-point rolls are quite axial even at low speed. The ailerons are extremely effective right up to the stall which

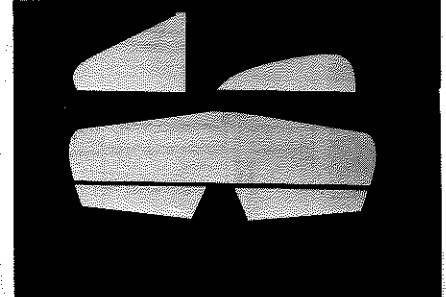


Parts kit for the wings speeds up construction. is quite gentle. With up elevator and careful application of power, it will even hang motionless in a strong breeze. It is really a fun airplane.

CONSTRUCTION

I like to take an airplane with me when I holiday in Vermont, therefore, I usually build them so they can be completely taken apart and transported in my model box, which is 47 inches long on the inside. For that reason I built the wings 47 inches long instead of the 48 shown on the plan.

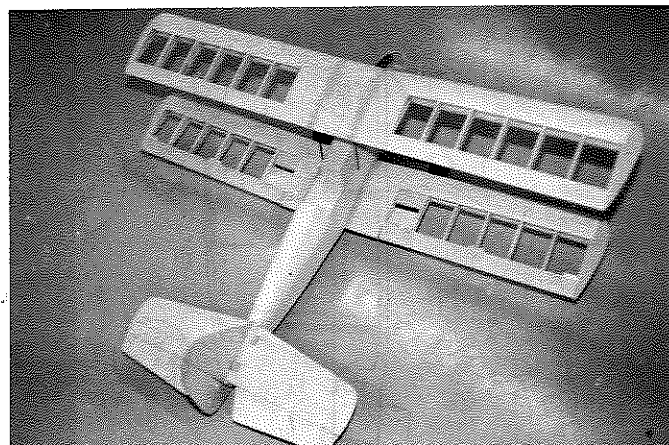
It seems to be the style now to say that I'm not going to go into detail about how to



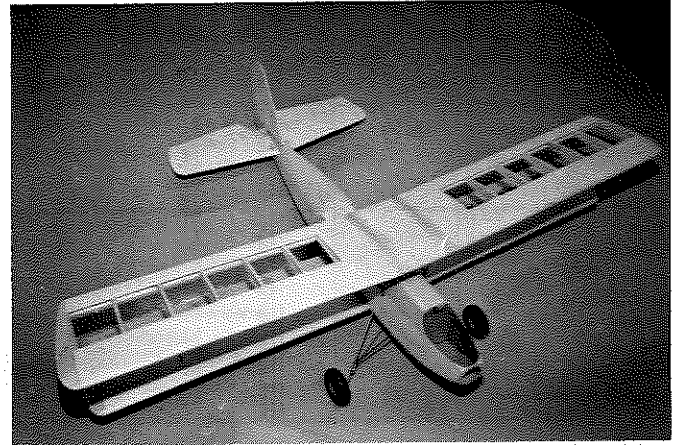
The tail surfaces are cut from sheet balsa. glue each piece to the next. I won't bore you with a piece-by-piece description then. There are, however, a number of special paints to be mentioned. The first thing I usually do is make up a kit by cutting out all the parts and collecting all the necessary hardware and accessories.

Start with the wings and cut out the 34 balsa ribs from 3/32-inch medium sheet. An easy way to do this is to make a cutting template from .035 soft aluminum siding with jagged holes punched near each end to

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The completed air frame ready for covering. Good-looking, simple model is well-built and strong.



There's nothing like a fine biplane model to get the creative juices flowing and this version of the Big John is no exception.

hold it on the balsa sheet. If you don't have any of this aluminum, find a construction site where this is being used and beg or buy as much of the scrap as you can. All of the ribs are the same size but where differences are needed. The basic rib can be doctored to suit. The 1/4 x 1/8 spruce spars top and bottom of each wing are plenty strong enough, with vertical 1/16 sheet webbing for rigidity (Don't build the wing without it!). The 1/8 sheet sub leading edge and 1/4 sheet leading edge, make it simple and strong. A smooth and consistently shaped airfoil is assured with the 1/16 sheet leading edge and trailing edge, joined by 1/16 x 1/4 cap strips on the ribs. This type of construction is one of the lightest and strongest I know.

Both top and bottom wings are built in three pieces and assembled with dihedral braces giving 1-1/2 inches of dihedral at each tip. Don't forget the 1/4 ply blocks in the top center section for the cabin struts and balsa blocks in the lower center section for the wing hold on bolts. The 1/8 ply blocks in top and bottom wings for the outboard N struts are glued in place so the right angled brackets can be bolted down.

Ailerons are built as part of the bottom wing then cut out later after sheeting. This ensures that they match the wing contour. 1/4-inch balsa is glued in before the final sheeting for hinge anchors also the ply pads for the aileron horns and right-angled bell cranks.

Fuselage sides are cut from firm 1/8-inch sheet balsa and a 1/32 ply doubler added as per plan with contact cement. Glue in the formers and the firewall with the motor mount blind nuts on the back, then join the sides at the tailpost. (Yes, that's correct, four degrees of down thrust and five degrees of right thrust.) The cabin struts plug into brass tubing epoxied across the fuselage where shown on the plans. Install the tank floor, tank, control rods and ply blocks for the landing gear. I glued extra ply on the fuselage at the trailing edge of the wing for pads to mount the rear strut of pontoons for water flying. Sheet the top and bottom of the fuse as shown.

The cowling is built up with the motor in place. A 1/16 ply disc, slightly larger than the spinner, is glued to the front of the cowling blocks. The nose is then shaped. Don't forget the cowl drain and the crankcase drain holes.

Bend up the landing gear from 1/8 and 3/32 music wire as shown. Fit the pieces to the fuselage and bind them in the proper places with iron wire then solder. I fitted 1/8 ply at the fuse rear to receive a C.B. 40 size tailwheel.

Cut the tail plane, fin, and rudder from medium quarter grain sheet. Do not round the trailing edge of the elevators and rudder. This keeps them from being sensitive to the controls near center.

I covered the entire model with Sig Cover-all and many coats of butyrate dope. Trim was done by masking the large letters and using rub-on decals for the small lettering, panel lines, and rivets. It would be less work using heat shrink film, but the dope gives a more realistic and permanent finish, especially for water flying.

FLYING

The first flight was made with an O.S. 40 four-stroke and was quite gentle. It showed no bad habits except it lacked enough steam for aerobatics. It sure was fun just floating around with growing confidence, that the little biplane wasn't going to stall out. However, it obviously wasn't going to do vertical snap rolls either. After five relaxing flights and many touch and goes, that were quite realistic, I took it home and installed a Surpass 48 with the same type of mount. The first flight with the 48 showed the airplane's potential. At full throttle it could do three snap rolls straight up before slowing down. Knife edging is fun. Inverted flight comfortable at any altitude.

For a tail dragger, it tracks amazingly straight on the ground and can handle 25- to 30-degree changes in direction on take-off. A little up is applied when giving it full throttle. No right rudder is needed because of the right thrust. It will then take off when ready with a touch of up. One last suggestion: Start out with the center of gravity well forward. Then when you get to know the Little John, move it back and enjoy aerobatics on a Sunday flyer. Happy flying! •