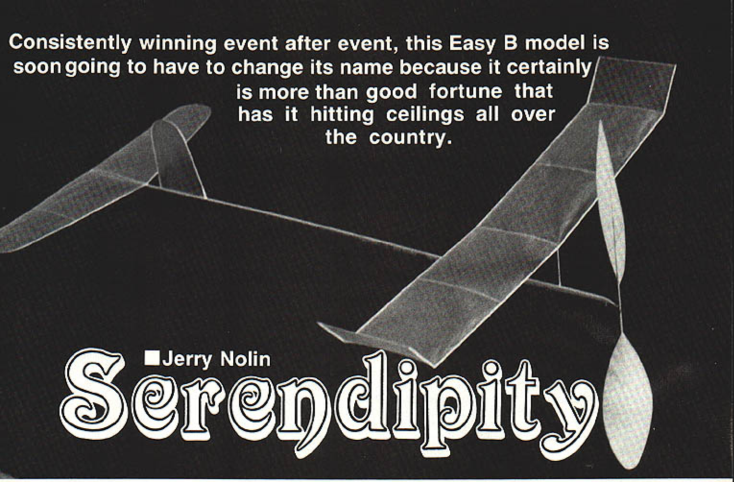


Consistently winning event after event, this Easy B model is soon going to have to change its name because it certainly is more than good fortune that has it hitting ceilings all over the country.

■Jerry Nolin

Serendipity

EASY B is supposed to be a beginner's event, and it is. It's a lot of fun, too. That is, it's fun until you get stuck at the 10 or 12-min. level and nothing you do seems to help.

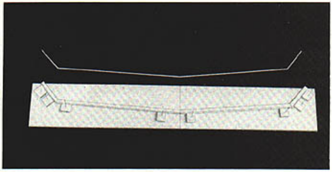
I was stuck there for two years when a series of Easy B modifications resulted in a "breakthrough model" which flew far beyond my grandest expectations. The first time out the ship did 15 min., 42 sec. in a 55-ft. ceiling at the 1985 King Orange meet in Tampa. At Santa Ana 10 weeks later, it broke the AMA Cat. IV Easy B record with a 21:23 flight in cool March weather.

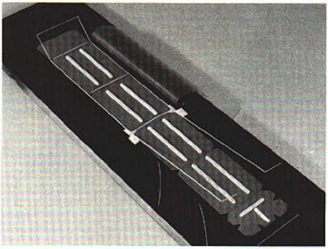
In my home state of Ohio at Akron it boosted the record to 22:01 in May. In the following month it won the Easy B event at the U.S. Indoor Champs at Niagara Falls with 16:36 in a 70-ft. ceiling. At Akron again in August it raised the record to 23:25 in a non-drift, up-and-down flight that seemed almost too easy to be true.

If you've built an Easy B or two and are looking for a way to move up, Serendipity may be the design for you, too. It's a pretty low-tech model for a record-breaker. It's not really light (.038-.042 oz.), and it is made from standard materials that can either be ordered from current Indoor suppliers or picked up in a hobby shop. The construction process is pretty easy if you use the simple jigs, templates, and tools shown on the drawing. These aids permit relaxed construction of the wing, stabilizer, and propeller without having to handle the delicate assemblies until they are virtually complete.

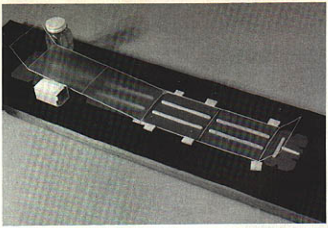
Construction. When building the model keep in mind that a good-flying Easy B must be somewhat flexible. It should twist a little under the torque of the fully-wound motor. Therefore, the wood should have a little flexibility. Soft punky wood which breaks suddenly when put under a load should not be used.

Glue joints should be secure for the same reason. Loads must transfer through the joints when the model is fully wound. I use standard Indoor cement and pre-glue the joints before joining the parts lightly. Each joint is then finally glued first on one side





Top: The completed model has a booming full-power climb and has hit ceilings that were over 180-ft high. It's also a "cruiser" flying in large 30 to 40-ft. circles. Above: The balsa wing spar jig permits quick and accurate assembly of the two main spars. Right: Once completed, the spars are moved to the wing pattern jig. Three ribs and the wing tip are added. The pre-fitted and "ironed dry" condenser paper is tack-glued to the board before the panel is covered.



Left: The required tools. The magnifying glasses and glue gun really help, as does the Jim Jones balsa stripper. Also helpful in the building and trimming are a coarse- and a fine-grit sharpening stone. Above: The completed panel is raised and the other is completed and covered. The 1/8 x 3/16 strips keep the paper smooth while covering.

and then the other to complete the job. If you glue the whole joint in one application, it will usually fall apart.

Wing spars. The wing is a modified Stan Chilton Honey B wing and is built in the Chilton style starting with the spars. The front and rear spars are assembled in the simple jig shown on the drawing. First, the main spar pieces are stripped, stacked, and sanded as shown. With this system the builder maintains control of the uniformity, size, and placement of the main spar units until they are safely assembled. Check the spar sheet for thickness. Most sheets taper some; some taper quite a lot.

The tip spars are sliced separately from .028-in., 5-lb. balsa stripped .045 wide and stacked and sanded to size. Because the wing tips will be added later "in the air," both spar tips should be trimmed in the jig—each exactly the same.

The spars should dry at least overnight in the jig. When both are complete they should be checked by placing one over the other. If the dihedral at the main spar joints is within a total of 1/16 in. of the other, the spars are usable. If not, one or the other should be adjusted.

The spar with the most dihedral (1/16 max) should be used for the wing leading edge. This will become a significant advantage when adjusting the model for flight later.

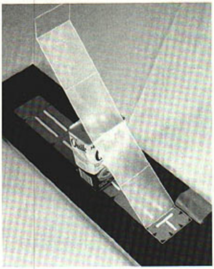
The completed spars are transferred to the wing pattern/jig, which is a dress box cardboard pattern cutout as shown. The centerline paper should be cemented on the underside and the centerline then drawn. Tack the pattern to the building board.

The wing is assembled and covered in the pattern/jig one main panel at a time. The spars are held in place with 3/32 x 1/2 x 1/2-in. balsa blocks pinned to the board. Both of the pre-marked spar center points should be carefully lined up with the jig centerline. The spars should be aligned with a square along the whole length of the pattern by making adjustments in the pinned blocks as required. The three ribs should then be cemented in place and allowed to dry. The ribs are sliced .032 in. deep from a pre-sized, pre-glued .021 C-grain sheet with use of a cardboard or metal airfoil template as shown on the drawing. The pre-sized wing tip should be added "in the air."

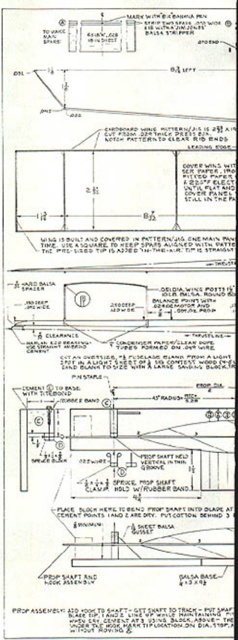
The completed panel is covered while still held in the pattern/jig. You may need to tack-glue the wing to the board here and there before removing the pins and blocks.

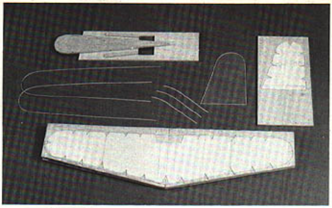
A condenser paper panel about 4 in. chordwise should be carefully trimmed with sharp scissors to overlap the end ribs at least 3/64 in. Place small pencil marks on one paper edge across onto the building board as an aid in relocating the panel.

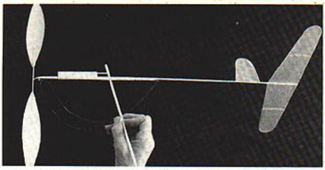
The panel should then be dried with a 220° electric iron until it stops curling under the heat. The heat drives the moisture out of the paper and shrinks it to is smallest size. When dry and flat the panel is returned to the index marks and tacked (using two or three small drops of cement) to the building board along one chordwise edge. When dry the other edge of the panel can be lifted like the page of a book, exposing the wing structure underneath.



The wing tips are covered after blocking the wing up on the pattern jig. The prepared paper panel is tack-glued (see text) to the board before gluing the tip to the wing panel.





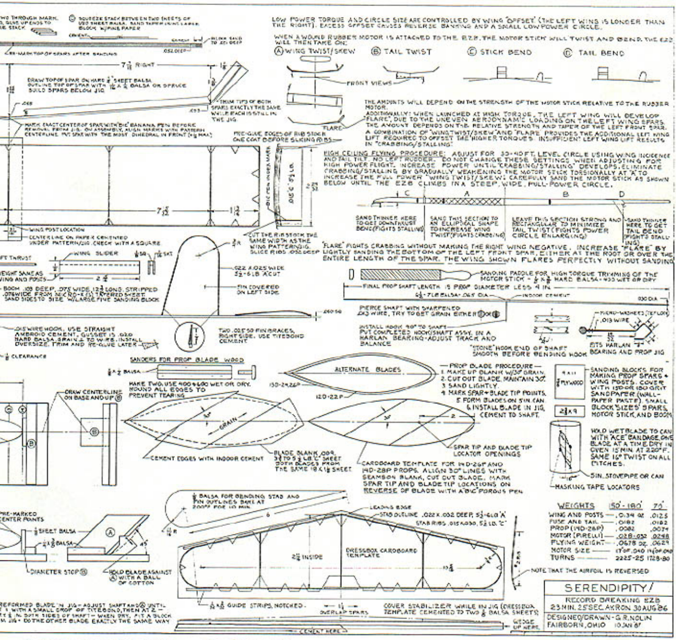


Left: Fins and stabilizers are easy to duplicate and cover once the bending form and simple stab and fin jigs are made. Right: The proper wing post locations are found by moving the wing slider until the balance point falls $^{15}/_{16}$-in. behind the slider. Note tool being used.

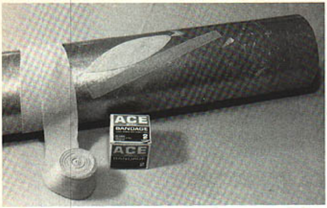
Small drops of clear dope are placed every ¾ in. along the top of the near spar. The paper is lowered into place and gently pressed down. A balsa strip weight may be useful to hold the paper down against the spar. After the dope dries the paper is lifted again; small drops of dope are placed along the ribs, and the paper is lowered again for drying in place. Finally the paper is lifted a little for placing dope drops along the remaining spar, after which the paper is lowered in place.

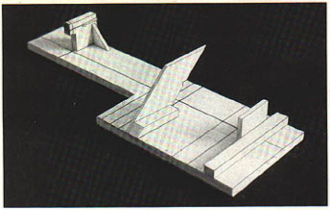
When the dope dries the paper at the leading and trailing edges is carefully trimmed even with the edge of the spars. Use a new double-edge razor blade for this.

The partially completed wing can then be removed from the pattern/jig. The paper is



Full-Size Plans Available . . . See Page 186





Left: The propeller blade twist is achieved by drying the wet blade on a section of 5-in. stovepipe (see text for more details). A 2-in. Ace bandage holds the blade in place. Right: Use this balsa prop jig to assemble sizes from 12- to 14-in. in diameter and from 22- to 28-in. in pitch.

then completely cemented down by skimming a little condenser paper cement on the point of a small brush along under the cut edge of the paper; press the paper down onto the spar.

The paper will soon begin to absorb moisture from the air. The covering will begin to get baggy in about an hour. You should get the paper completely stuck down before this happens. Hopefully the paper will stay baggy for the life of the model.

The partially-built wing is returned to the jig. Use a square to make certain that the raised (already completed) panel lines up with the pattern/jig. The second panel is then built and covered in the same way.

The wing tips are covered by blocking up the wing at the proper angle and using the same "book page" method of tacking and cementing the pre-dried paper. The seams in the paper at the dihedral joints are tacked together with small drops of condenser paper cement.

Stabilizer. The drawing shows both the stabilizer and the jig it is built in. The jig is designed to permit a little dihedral to be introduced as an aid to covering with one piece of paper.

The stabilizer is built flat. The outlines are .032 wide, stripped from an .022-in. sheet of 5½ to 6-lb. balsa. The wet strips are pulled around the form shown on the drawing and held with silkspan strips. Bake 10 minutes in a 200°F oven. The resulting bows should be over-bent and require opening to install in the jig.

The rest of the stabilizer is constructed in the same as the wing. The overlap at the rear spar makes the rear spar stronger than the front. This, coupled with the reverse airfoil, makes the model very resistant to diving-out after a rafter bump.

When covering, place a 1/8 to 3/16-in. strip at the wedge point shown on the drawing. The frame will probably be stuck to the base at the center rib and will not pop up. Cut out a piece of condenser paper about ½ in. wider than the frame all around. Dry it with a 220° iron until it lies flat and smooth. Then tack it to the stabilizer tips with small drops of clear dope. The paper is then tacked to the front spar.

The many small notches in the jig permit the dope to be placed on the outline without sticking the whole frame to the jig. Finish by tacking the paper to the trailing edge.

After the dope has dried, trim the outline with a new double-edge razor blade. Gently ease the stabilizer out of the jig, and finish cementing the paper down using condenser paper cement applied with a fine brush.

Fin. The fin is made from a bow made on the stabilizer bow form. The easiest way to cover it is in a small jig made like the right end of the stabilizer jig. The fin is covered in the jig on the left side. It will hold its shape once it is covered.

Motor stick. Find a hobby shop that sells 4- to 6-lb. Sig Contest Wood. Select the lightest sheet of 1/8-in. C-grain stock you can find. When held up to a light you should see light streaks in the wood at least ¼ in. wide. Cut out an oversize motor stick from one of the light spots, making it about 3/16 in. wide and 9½ in. long. It will spring, bend, and twist when you cut it out, so it must be oversize to start with. Gradually trim it down to size with a large sanding block covered with 150 to 180-grit paper. By sighting down the length of it, you will be able to see where it should be sanded to get it straight. Keep track of the size with micrometers as you sand. Once down to size you can give it a final sanding with the fine sanders shown on the drawing.

Trim the stick to 9¼ in. long. The stick should be straight at this point, not bowed or bent. Leave the edges square for now.

The rear hook is bent from .015 piano wire. Smooth the end of the wire with a sharpening stone before bending the hook. The hook shape is important. Copy the shape on the drawing as closely as possible. Pierce the stick for the hook with a sharpened piece of .015 wire. Force a little Ambroid cement into the hole, and insert the cement-covered hook at the correct angle. It should also line up when viewed from the rear.

When the hook is dry, add the oversize gusset shown on the drawing. It should be a

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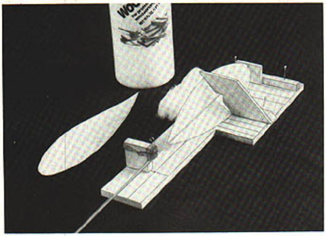

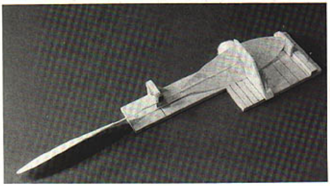

Left: The prop shaft and one pre-twisted blade are installed in the jig and tacked together with warp-free Titebond wood glue. Above: After the first blade dries, the prop shaft is turned around in the jig and the remaining blade is added, keeping all jig settings the same.

Glider (but it will cost you another $1.25, postpaid). In my opinion, the latter will become the favorite design of the OT HLG fliers once it becomes more widely known.

Old-Timer Wakefield is increasingly popular. The ships can be flown in "large Cabin Rubber" under the new rules, and there are, more and more frequently, special events for them. A "new" design you might want to consider is Ernie Linn's Kansas State Champion Wakefield. Two versions are shown—1938 (freewheeler) and 1939 (folder). You can get the full-sized plan from Ernie for $4.50. The address is 3505 East Mt. Vernon, Wichita, KS 67218.

The 1988 SAM Champs will be the week of July 18 at Lawrenceville, IL. There will be a MECA Grand National Collecto July 18, flying will start July 19 with the traditional bean feed that evening, and the awards banquet will be Friday evening, July 22. I am writing this in late September for an October 1 deadline, and you will read it in December (in your January issue).

In the meanwhile, I will go to the Mid-America FF Champs October 17-18 at Lawrenceville, check out the site for you, and report in my next column, which should be the March issue (which you will get in February and which I will write in November for a December 1 deadline . . . Pay attention, there may be a quiz!).

In addition to this, future columns will include a rundown on what is now available in replica engines and parts, glow-to-ignition conversions, and sources of other items needed by the Old-Timer flier. I need your help to locate the cottage industries involved. Please send all information, news, photos, queries, etc. to me at the address below.

William L. Baker, P.O. Box 249, Norman, OK 73070-0249.

Serendipity/Nolin

Continued from page 70

firm support for the hook. When dry, trim the gusset to size and add a final light coat of Ambroid.

The only trouble-free front bearing, in my opinion, is the Harlan EZB, which is the one I recommend. To get the required $\frac{3}{32}$ shaft clearance, it must be mounted on the $\frac{1}{32}$ hard balsa spacer shown. An oversize spacer is glued to the front of the stick with undiluted Ambroid cement. When dry it is trimmed flush with the front and sides of the stick. As the thrust line is parallel to the bottom of the stick, trimming of the bottom will not be necessary.

The Harlan bearing should be carefully trimmed of edge burrs with a fine file. The mating side is roughened a little with #400 sandpaper. The bearing is glued in position on the spacer with Ambroid cement. It is aligned by holding it up to a light bulb and sighting through the bearing holes from the hook end of the stick. A small balsa aiming point can be attached to the hook to help in setting the proper thrust line.

When dry, trim the stick to conform to the drawing. Reglue the bearing with a thin coat of Ambroid. The entire base of the bearing should be encased in cement. No other fastening is required.

The boom is stripped, small end first, to .075 in. width from a Micro-X (S) tapered sheet using a Jim Jones balsa stripper. It is brought down to size with a large block covered with fine sandpaper. It takes only a swipe or two on each side to get it down to size. Trim it to $12\frac{3}{16}$ in. length, and carefully sand it smooth with the small sanders. Don't try to save weight by cheating on the boom. A floppy boom undoes all of the advantages you get with a good, stiff, long boom.

The round propeller spar is made from $\frac{3}{32}$ sq. balsa stripped from a $6\frac{1}{2}$-lb. sheet 12 in. long. First, hold the sheet up to a bright light to determine the grain line. Cut the first edge parallel to the grain using a steel rule as a guide. Strip off a few $\frac{3}{32}$ sq. blanks with your balsa stripper. The corners of the strips are trimmed off with a razor blade, making them roughly octagonal.

The spar blanks are then rounded, three or four at a time, using the large sanding blocks shown on the drawing. Three or four blanks are placed on the larger block and scrubbed with the smaller one, using a slashing/rolling motion, until they are round and .067 in. in diameter. This takes practice and patience until you get the hang of it. It never gets neat.

The taper is put on in the same way—by sanding one end of the spar at a time, using the edge area of the large block so that the smaller block does not strike the larger. The tips should be brought down to .030 in. dia.

Find the actual high point of the spar with the micrometer, and measure an equal distance toward either end. Trim to the desired length (prop diameter less 4 in.). Some touching up on the blocks will be required after trimming.

Propeller shaft. Bend it from .013 music wire. Before bending you should smooth the end of the wire with a coarse and fine sharpening stone. This keeps the hook from tearing the rubber motor. The diamond-shaped hook is bent with four well-placed bends using good, small, needle-nose pliers. The hook will require some adjustment to get it to spin true and free of wobbles. Stone the newly-cut prop end to a point. Make a few extras while your skill level is up.

The balsa prop shaft is pierced with a piece of sharpened .013 wire. Try to get the grain as shown on the drawing. The sharp end of the hook is carefully inserted and bent over so that: 1) A proper shaft length is left as shown on the drawing; and 2) The hook is positioned 90° to the shaft. These two precautions ensure that the hook will fit the Harlan bearing and that the prop can be installed in it. Any extra wire can then be cut off. The little finger-bend at the end should be adjusted to fit smoothly against the shaft on the side where the motor torque will press it down. Cement the shaft with Indoor cement.

After the cement is thoroughly dry, the hook/spar assembly should be placed in a Harlan bearing (fastened to a board or stick) and checked for radius, track, and balance. Bend the shaft wire carefully until the spar tracks perfectly.

Prop blades. The 30° angle in the prop blade material permits the use of much thinner blades—and is the key to making large, lightweight props. The material is .009-in. C-grain-cut balsa sheet usually used for forming tail boom tubes on big microfilm ships. For lower ceilings, 3¾ to 4-lb. stock can be used; if you plan to go full blast at Akron, 5 to 5½-lb. stock should be used. Both blade blanks should be made from the same 1⅞ x 18-in. sheet. Regular Indoor cement is used to join the edges of the sheets. Lightly sand the blanks with the sanders shown. Reversed dress box cardboard under the blade helps here.

Make a prop blade template from dress box material as shown on the drawing. Maintain the 30° alignment while cutting out the blades. The blades are lightly sanded at the edges to about .007 in. Put the spar and blade tip locator marks on the back side of the blades at this time.

Forming the blades. The drawing explains how to put the required twist in the wet blades using a 5-in. stovepipe or can as a form. The 16° angle can be laid out on a flat piece of paper which is then wrapped around the can. The 16° line should be permanently marked on the can.

The prop assembly jig is required to attach the formed blades to the completed shaft and hook assembly. The jig is easy to make out of ¼-in. and ⅛-in. sheet balsa. Once built a variety of excellent props can be assembled with very little effort.

This jig is reversed from the usual Indoor prop jig, as it provides access to the underside of the blade during assembly, rather than the upper side. Key points to check during assembly: 1) That the prop hook is properly installed in the clamping fixture; 2) The blade tip is against the centerline of the diameter stop; 3) The blade is against the selected 45° station; 4) The balsa shaft lines up with both the pre-marked center point and the point of the blade. You will have to jockey the shaft height and the fore and aft locations of the 45° station until it will all line up.

When all is in order, place a small drop of Titebond wood glue at the shaft tip (1) and let it dry. (Don't try to glue the whole shaft at once.) Then cement the inboard end of the blade at (2), and let it dry. Because the shaft is straight and the blade centerline is curved, the shaft must be forced against the blade and cemented at (3) using the block shown on the drawing. Small drops of Titebond cement are then applied to "stitch" the formed blade to the shaft every ¼ in. or so along both sides of the shaft. Titebond is used because it does not shrink or warp over time. It is applied with a thin, sharp sliver of bamboo or spruce.

After the first blade has dried completely, the assembly is removed from the jig, turned around, and the other blade cemented on, making every effort to keep all settings the same for both blades. A poor attempt can be corrected by soaking off the blades and trying again.

You should be prepared to build a variety of propellers for Serendipity. They are easy to make, but you may have to build a few before you are satisfied. I've used the 14-in.-dia., 28-in.-pitch prop on all of the record breaking flights to far, but that's a lot of prop to start with. A 13 x 26 or 14 x 26 will do over 20 min. in a 150-ft. ceiling even in quite cool weather. A 13 x 24 is a good starting prop, able to turn in a 17 to 18-min. flight with a 150-ft. ceiling. The 12 x 24 prop is for "trouble"; it's like low gear in a car—good when you're stuck. A set of prop blades has been provided so that a suitable prop for your particular situation can be made.

Assembly. The fin should be fastened to the tail boom and be braced as shown. Use Titebond cement to avoid warps later. Use condenser paper cement to stick the paper to the boom.

The boom is cemented to the motor stick with straight Ambroid. It should be laid out flat on the board and shimmed up to match the motor stick. Both parts should be lightly pre-glued. The resultant stick should be perfectly straight along the upper side.

Cement the stabilizer to the boom with small drops of Titebond, preferably over a simple plan view to keep everything straight. Keep the motor stick vertical with small square blocks.

The wing slider shown on the drawing should be made up and trimmed to equal the weight of the completed wing and separate wing posts. The prop weight and motor specified on the drawing are installed on the motor stick together with the wing slider. The slider is moved fore or aft until the stick balances 1$\frac{5}{16}$ in. behind the slider. The left side of the motor stick is then lightly marked at both ends of the slider. These are the future locations of the paper tubes which will form the wing attachment points.

The wing posts are slid to the bottom of the ¼-in.-long paper tubes. The tubes (with posts) are cemented with Titebond to the stick at the pre-marked locations. The posts should be perpendicular to the stick and stab—and parallel to each other in the front view. You may have to lightly sand the stick at one mounting point to get things straight.

When the tubes are dry, lightly notch both posts as shown on the drawing, without removing them from the tubes. The rear post is then removed and cemented to the rear spar with the $\frac{3}{16}$ offset shown on the

drawing. Use Titebond cement to prevent warps later. Matching the assembly to a simple front view of the wing and post, drawn on the board, will ensure that the post is installed correctly with even dihedral on both sides.

After the rear post is completely dry, the wing should be attached to the fuselage—rear post to the bottom of the tube. The front post is then cemented to the front spar, making certain that: 1) The wing is 90° to the motor stick (top view); and 2) The right wing has aboauat $\frac{1}{32}$ in. more incidence than the left one. When the Titebond dries, the ship should be ready to fly. Don't be surprised if it is a little overweight. Quite a bit of material will be removed from the motor stick during flight testing.

Flying. Install your prop and a rubber motor made according to the schedule on the drawing. Put enough winds in the motor to achieve level flight. Adjust the incidence as required to get a smooth level flight. If the left wing sags down and the ship resists turning, increase the left wing incidence about $\frac{1}{32}$ in. by readjusting the glue joint at the front wing post. The Titebond can be softened with water and the joint reglued if necessary.

A left circle of 30 ft. or more in diameter is desired. Do not use left rudder. A little left tail tilt (left side high, viewed from the rear) may be added by twisting the tail boom as necessary.

At this point you'll be able to put in about 1,000 turns on the motor before crabbing/stalling begins to assert itself. Crabbing/stalling is caused by insufficient left wing lift to offset the increasing motor torque. The left wing sags down and moves ahead in a left slip, which opens up the left circle. A flopping, ungraceful stall occurs; on recovery the process repeats itself until the torque drops down to a sustainable level. At this point most fliers crank in left rudder or go to a lower-pitch prop or both. Don't do either!

Note that the wing twist is governed by the torsional strength of the motor stick between the wing posts. A stick which is too strong torsionally between the posts will resist twisting and bring on crabbing/stalling. By carefully sanding the stick between the wing posts toward an elliptical shape, you can gradually increase the full power wing twist and eventually eliminate crabbing/stalling. After each sanding you will note that the ship will accept a little more torque until, finally, it will take full winds and go up like a Mulvihill model. Also note that a motor stick which is too weak to start with will be worthless.

I also find it useful to sand a little at the front and rear of the stick as shown on the drawing. The extra downthrust bend and tail bend will help to keep the flying speed up, thus minimizing the need for wing twist.

When fully wound the tail will usually be tilted in the wrong direction (right side slightly high). This causes a somewhat larger full-power circle which must be offset by downthrust bend, stick bend, and tail bend if a stall is to be avoided. Eventually some additional left stab tilt may turn out to be the only solution for this.

Another feature which enables the Serendipity to offset torque is left wing "flare." In a steep full-power climb the center of lift is much closer to the leading edge of the wing. This characteristic causes the left leading edge to bend upward, causing flare. This helps the left wing balance the torque.

The amount of flare depends on the strength and taper of the left front spar. A sharp taper causes the flare to appear out near the tip (not so good). A less tapered spar, weaker near the wing center, will flare evenly over the half-span of the wing and will add considerable torque control without causing the right wing to have a negative angle of attack. The flaring characteristics of this model's wing are built into the spar dimensions. Keep in mind, however, that additional left wing flare can be obtained by reducing the spar depth near the left front wing post by successive light sandings with a sanding paddle or curved block.

Rubber motor. I have been using old Pirelli Wakefield motors which I strip down with a rotary rubber cutter. Check around among your Free Flight friends to see if you can find some of this. If not, you'll have to use the American-made rubber sold today by our Indoor suppliers.

Under low ceilings, where most Easy Bs are flown, U.S.-made rubber should be useful because of its flatter torque curve. Low-ceiling motors should be shorter and quite a lot wider than the usual high-ceiling motor. Level flight should almost be achieved on the last full row of knots. Such a motor should be backed off 30 or 40% until the model barely climbs.

Keep in mind that a completed Easy B is not really finished. After flying it, anything that is not right can be corrected by softening the glue joints with water or solvent, removing the offending part, and replacing it with something better. Fly the model until you get the best performance out of it that you can. Then build a better model, keeping in mind that structural integrity and aerodynamic harmony are every bit as important as low weight.

Finally, the real high-ceiling secret of this design is its ability to climb to 180 ft. on the full burst of a long, thin motor and then spin off nearly all of the winds on a slow, open letdown. Under Category II and III ceilings it has the ability to fly with the prop running at 85 rpm on a very low rubber weight.

Suppliers

Sig Manufacturing Co., Inc., Montezuma, IA 50171
Ray Harlan, 15 Happy Hollow Rd., Wayland, MA 01778
Micro-X-Products, P.O. Box 1063, Lorain, OH 44055
Indoor Model Supply, Box C, Garberville, CA 95440
Jim Jones, 36631 Ledgestone Dr., Mt. Clemens, MI 48043
Franklin Chemical Industries, Columbus, OH 43207

CL Scale/Boss

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operated with a nine-volt battery supply.

Of course, a set of insulated flying lines is required. Instead of using plastic-covered steel fishing leader material for insulated lines, Jerry coated a standard set of flying lines with butyrate dope. He says that he has used them for a couple of years without any problems.

While Jerry may have been successful in insulating his lines in the manner described, I believe the use of fishing leader material to be safer, in the long run, from the standpoint of preventing electric shorts. Jerry also noted that the two batteries and relays mounted in the fuselage (as seen in the photo) serve as a balancing weight for the model.

Operation of the system is rather simple. All that is required is for you to push the switch han-

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