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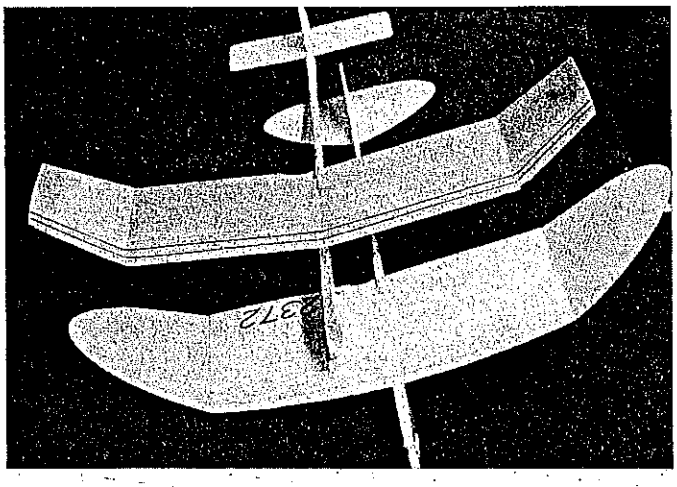
Two HL Gliders:

STOMPER and ROSCOE

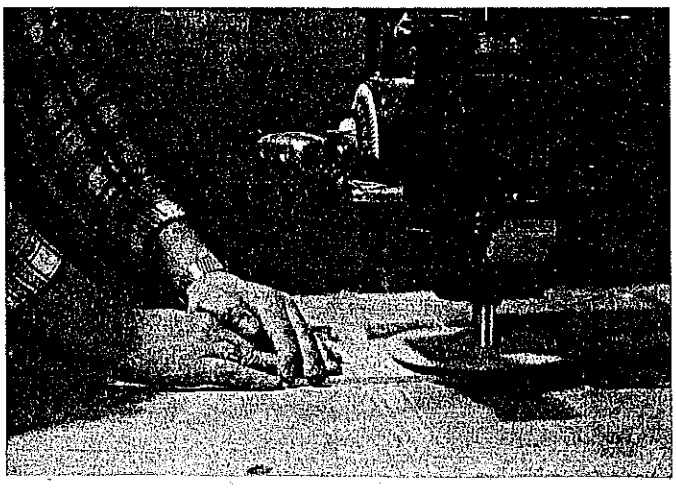
Authors Jahnke (L) and Lorbiecki (R) display their respective models, Roscoe and Stomper.

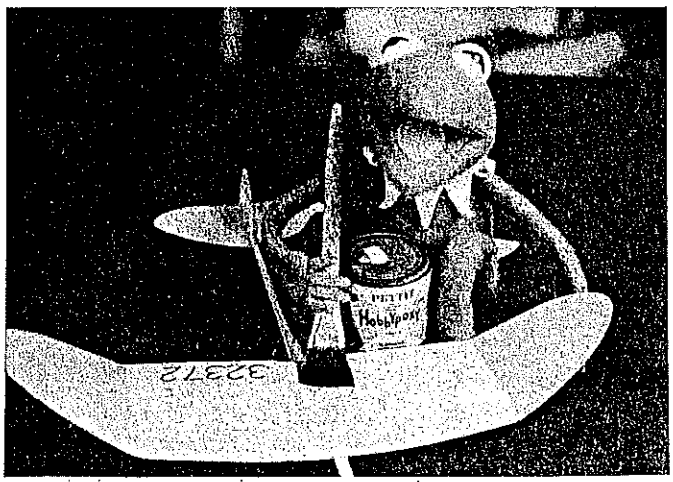
Here are a pair of Outdoor HL Gliders that reflect two designers' individual concepts—but with some similarities. Each has a pop-up wing for positive dethermalizing.

■ John Lorbiecki and Ross Jahnke



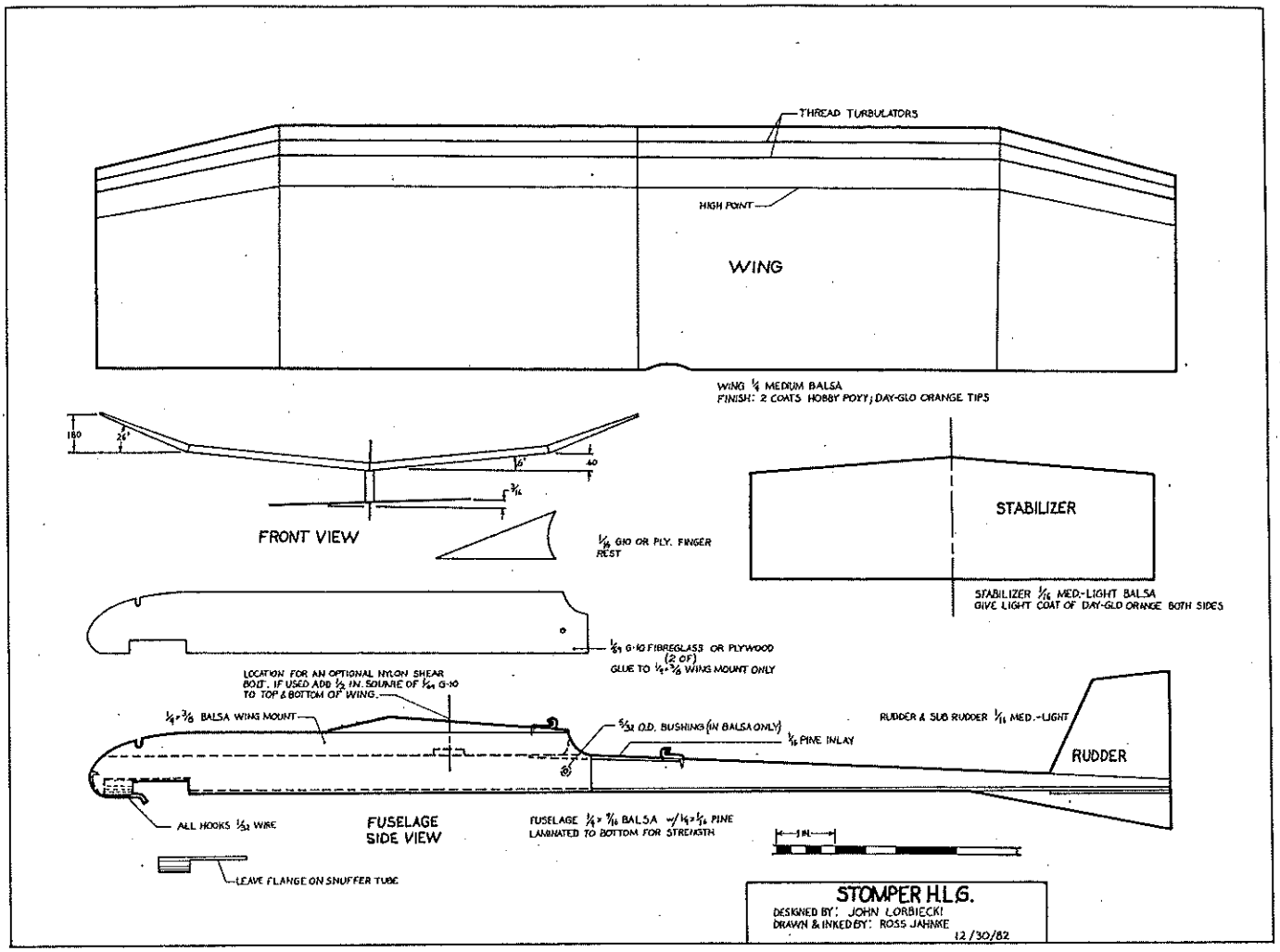
Left: While both our HL Gliders share the same dethermalizing (DT) hardware, it is easy to see that they are two totally different designs. Right: The first step for wing construction (on both of the models) is to mark all critical dimensions with a pen or felt-tipped marker.





Left: Using a sanding disk mounted in a radial arm saw (if you are fortunate enough to have one) greatly simplifies wing shaping and sanding. See text for details. Right: Hobbypoxy is brushed over the entire model (but not beneath the DT mechanism) for a very light, strong finish.

Full-Size Plans Available . . . See Page 180



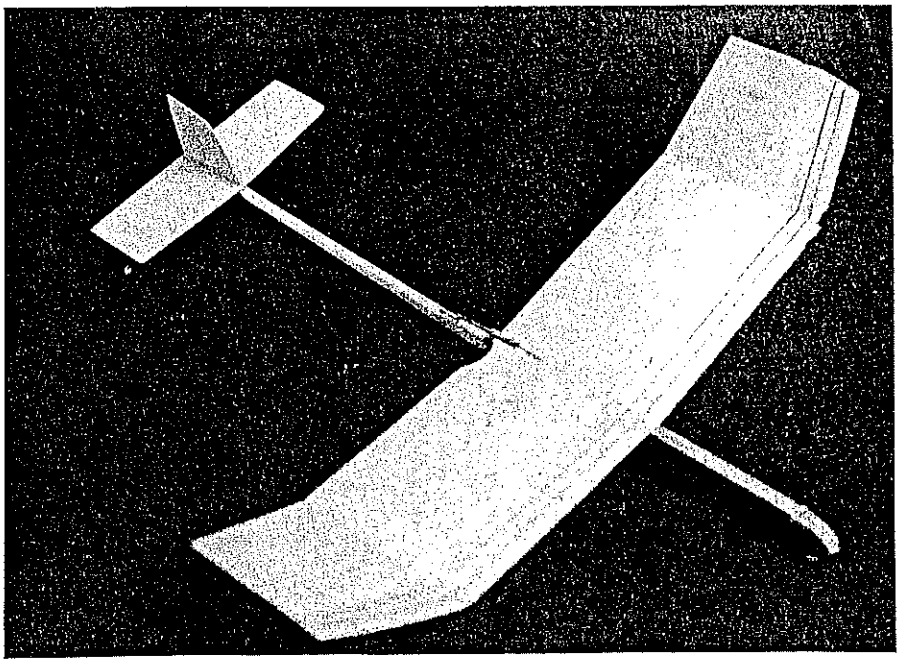
Stomper

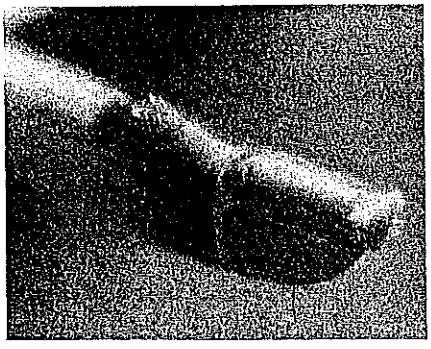
Design by John Lorbiecki

SIMPLY PUT, I designed this plane to fly well in windy and turbulent weather. While I normally fly a larger model when the weather is calm, I found the need for a very stable one for adverse weather. The end product, this design, sacrifices some gliding ability for better altitude and consistency.

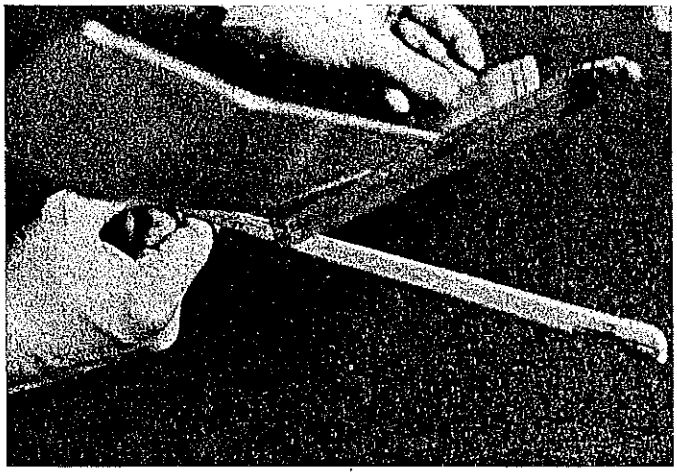
An efficient dethermalizing (DT) system using a pop-up wing was devised. In the past I have used swinging weights on many of my HL Gliders, but I don't have enough fingers and toes to count all the ones I have lost in thermals while they stalled away merrily. I tried pop-up stabs, but I had inconsistent launches with them, and I also had many stabs tear off from the blast at the release snap.

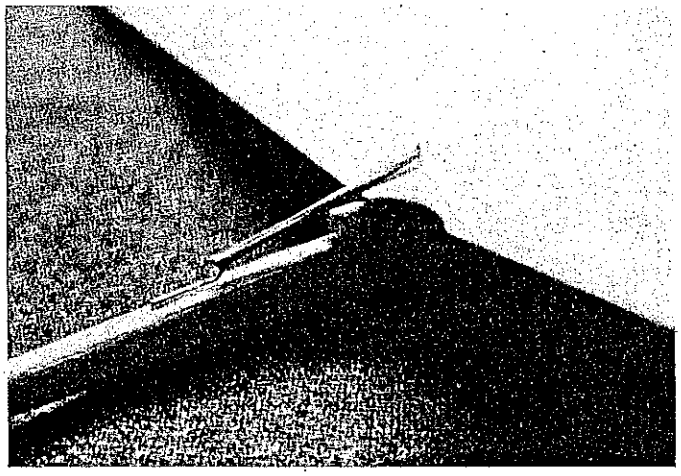
Because of the DT construction, the fuselage is perhaps the weakest part of the Stomper, and it must be built with a 1/16 x ¼-in. spruce or pine stiffener. The sides of the fuselage can be either plywood or, as on the prototype, 1/64-in. fiberglass G-10. This latter material is commonly used for printed-circuit boards. It is very strong and easily glued with ordinary cements or cyanoacrylate (CyA). In fact, the entire glider is assembled using Hot Stuff or some other kind of CyA glue. I have built many models over a long time span entirely with CyA and



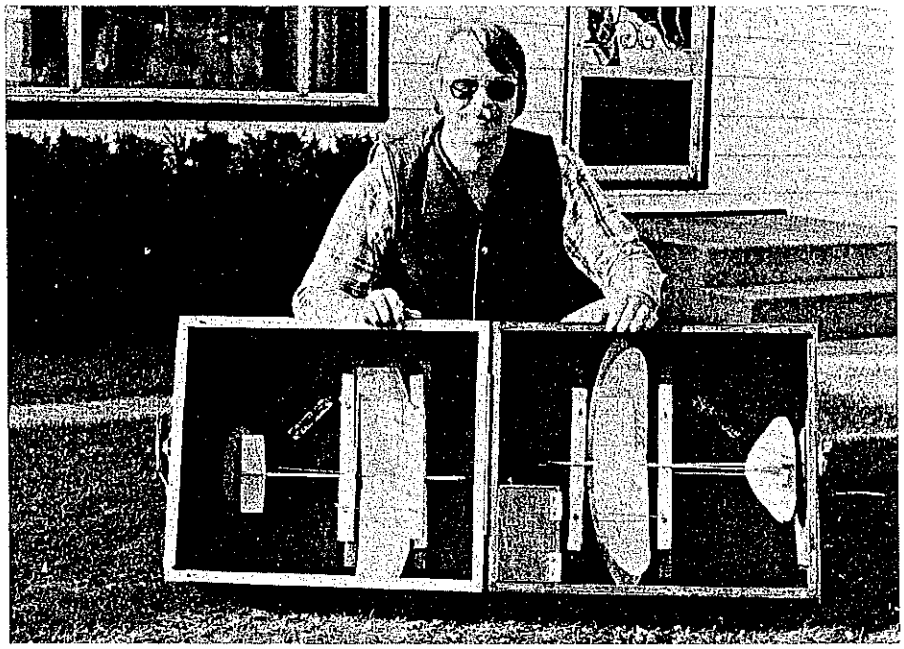


Left: Stomper overall view shows the DT band on top of the wing and the turbulator strings which help retard stalling and aid in recovery. Right: The Stomper's DT fuse and snuffer tube. Fuse is recessed into the fuselage; follow text instructions for protecting the model.





Left: Stomper DT'd. Angle should be 45° or more. Author finds this method of DTing more reliable than others (such as a swing weight) and a very effective means of getting out of even the biggest thermals. Right: Here we see the Stomper DT wing tension band and finger rest.



A good transporting box helps to reduce damage and trim changes—and adds a bit of class.

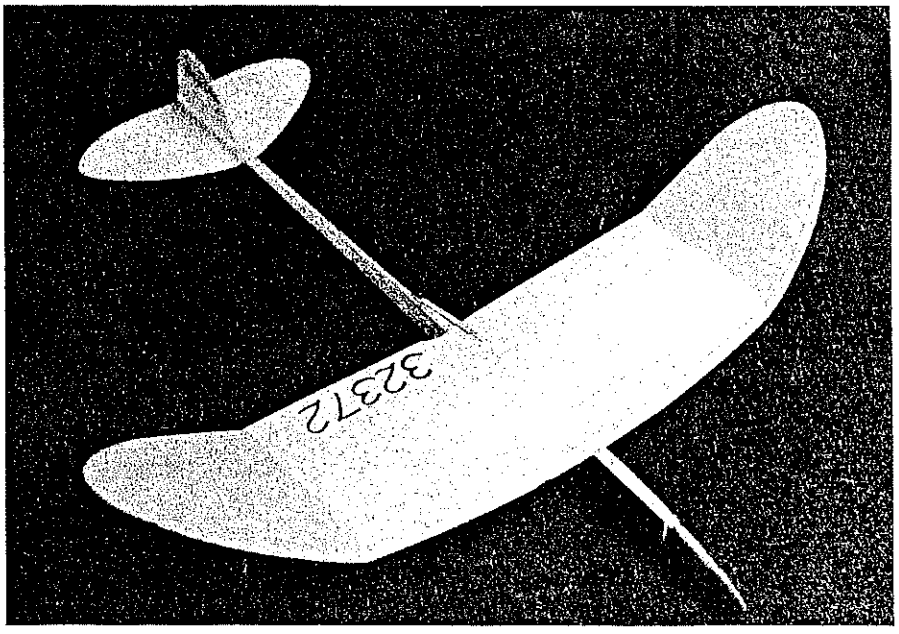
have been highly satisfied with the results. This kind of glue is light, strong, and fast.

By the way, if you have not seen the videotape put out by Bill and Bob Hunter of Satellite City on the use of Hot Stuff, please get it for your club. The ideas and techniques are excellent, and the time you can save by using them will be tremendous.

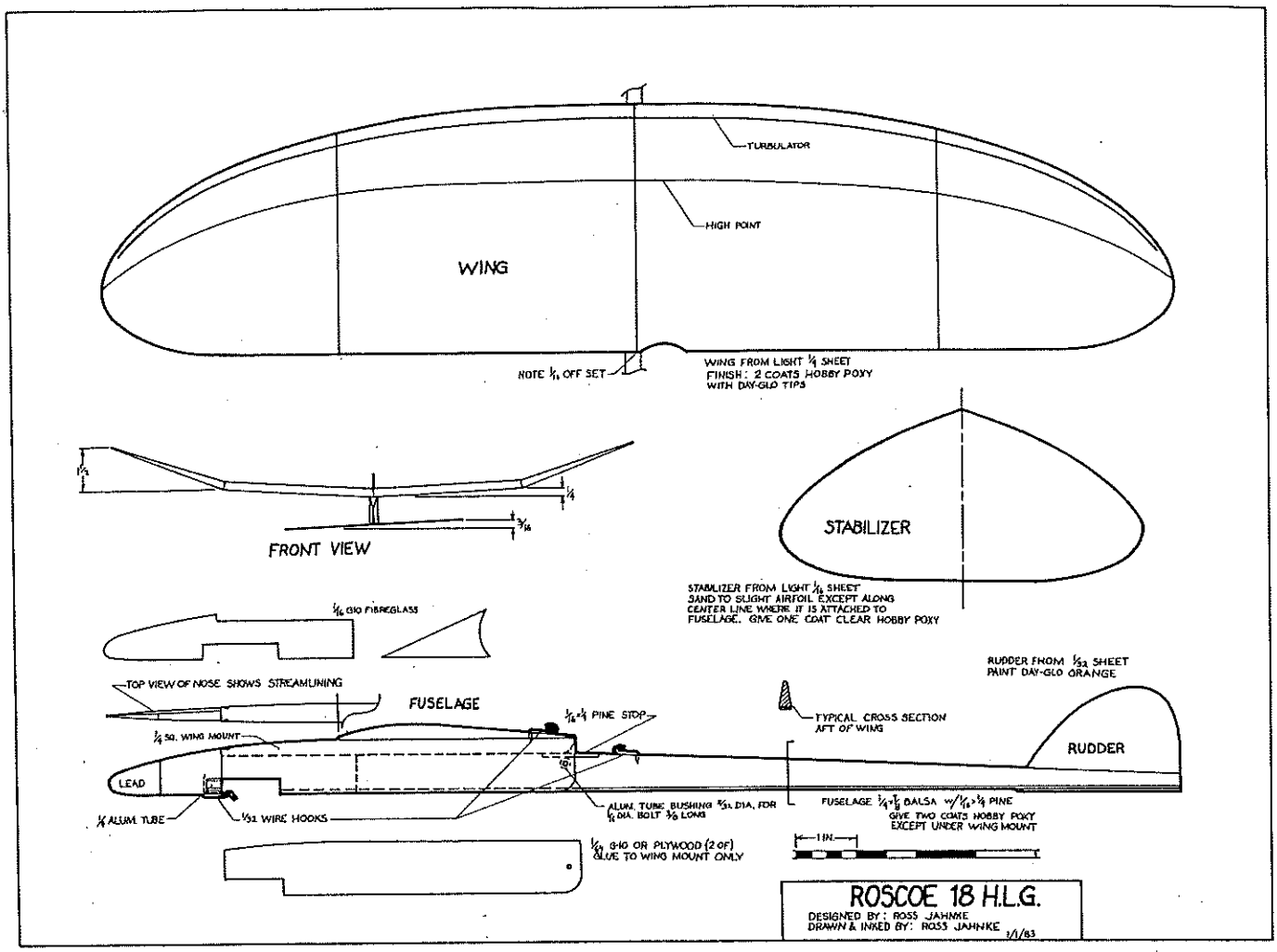
Construction. The wing has an 18-in. span and 4-in. chord; two wings can be produced from one sheet of balsa. I usually build the wings first so that the finish can be curing while the rest of the construction is in process.

Believe it or not, it is possible to build an accurate wing in just 10 minutes. I do this in the easiest and most accurate way—by sanding. However, I don't sand in the normal way. I use a radial arm saw with a sanding disc mounted to the accessory drive. By rotating the head of the saw and experimenting slightly with the angle, the proper high point and trailing edge thicknesses can be found. The balsa must be sanded off in steps, not all at once. By slowly working at this, the entire wing can be sanded in less than 10 minutes. In fact, I have completely sanded 10 wings and put in the dihedral in less than two hours!

The disc that I use is about 8 in. in diameter and takes #100 sandpaper. By increasing the angle of the disc, the leading edge portion of the wing can be similarly shaped. (Note that this process can also be



Left: An overall view of the Roscoe. Roscoe's DT fuse is positioned slightly different from the Stomper's, and lead weight is used on the nose.



used on wings having elliptical outlines.) After the shaping process has been completed, the only other sanding needed is to round the leading edge and smooth the complete wing with #220 paper.

The radial arm saw also provides the easiest way to cut the dihedral angles. By carefully setting the head at half of the dihedral angle required and using a saw blade intended for plywood, an accurate joint can be made that requires no sanding. Just cut, glue with thick CyA, lightly sand, and it's done.

I like to completely finish a wing before going to other construction steps. I have used dope, lacquer, MonoKote (extensively for years, including a second place at the Nats), and epoxy. Of all these, I have found Hobbypoxy to be the best because of its light weight, strength, resistance to cracking—and grasshoppers don't like it! It is imperative that Day-Glo orange be applied to the tips for visibility.

After the two coats of epoxy have cured, the turbulators are glued in place with a thick CyA. Remember, I use CyA for *everything*. Use a Magic Marker for your name and AMA numbers. Set the completed wing aside.

There are no special tricks for the stab and rudder. Round the leading edge, and taper the last 3/8 in. at the trailing edges (to allow the surfaces to be bent for trim adjustments). Put on one coat of epoxy, and put them aside.

Select a straight A-grained piece of balsa for the fuselage. Please note that I use balsa, not spruce. (I have had pictures

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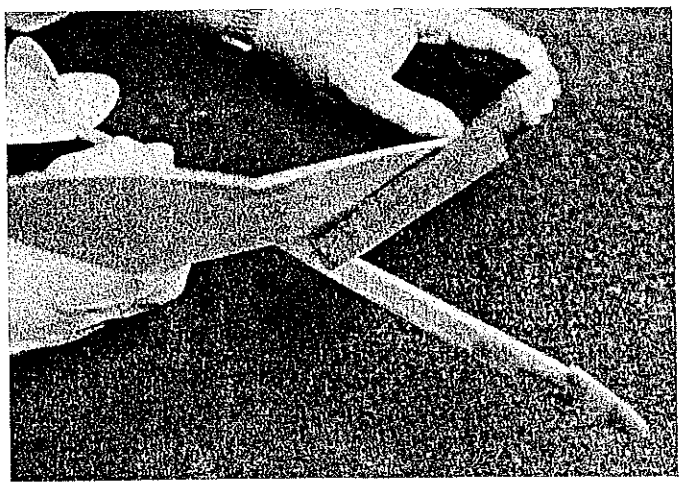

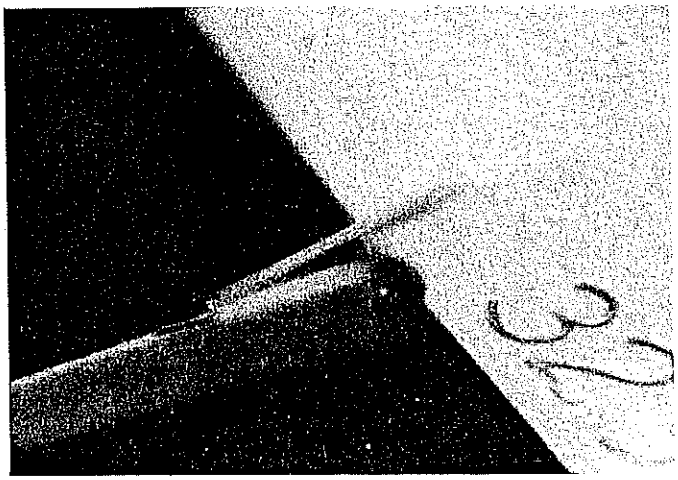

Left: This DT'd view of the Roscoe shows the plywood sides that are used for alignment. Right: Again the wing tension band, this time on the Roscoe. Try this DT method. It may seem more difficult than others, but it is more apt to keep your best HLG from flying away in a big thermal.

RC Electrics/Kopski

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pears behind the pointer itself. When the image disappears, you know you're looking at the pointer and scale markings directly in line.

That's the end of another column, folks. I hesitate to say what we'll cover next—the Electric activity is too dynamic. But whatever, I'll do my best to "keep it commin." Please appreciate the fact that columns are, of necessity, of limited length. Perhaps in the not-too-distant future Electric will grow to sufficient size to have its own magazine. Till next time...

Please forward comment and query (with SASE, please) to Bob Kopski, 25 West End Dr., Lansdale, PA 19446.

Do be careful NOT to hit the switch while holding your Electric in your lap!

RC Pylon Racing/Hager

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.25) were competitive with the OS .25 FSRs. In fact, the first three places in the two combined contests held in the late fall of 1984 were taken by non-Schnurle engines.

"With this encouragement, we decided to try to set up another two-club racing circuit for 1985. We have had seven races (one a month) so far this year and hope to get in two more (November and December), weather permitting. We have 19 different people who have participated in at least one race with 12 to 17 showing up for most races. We also have about a half-dozen or so who appear ready to get involved. So, it looks like we may finally have gotten something started here which could lead to some real Pylon Racing activity in this area.

"It should be noted that these Q-25 aircraft are a real blast. We fly the standard Quarter Midget short course (9,000 ft.). Winning times are usually in the 1:30 range, which means that the aircraft average about 60 to 65 mph over the course. This, of course, doesn't consider the fact that the aircraft fly a longer path. I suspect that most of these planes are flying at 80 to 85 mph down the straightaways. Unlike the Quickee 500 aircraft, most RC pilots can handle aircraft like this. They are fast enough to make for interesting racing, quiet enough that we have no concern over complaints about the noise, and aerobatic enough to make a great sport aircraft for weekend flying.

"I'm really not convinced that this apparently-successful beginning will lead to any of the more sophisticated forms of racing (i.e. Q-500, Quarter Midget or Formula One) in this area. Most of the guys currently flying in our Q-25 contests enjoy what we have and don't believe that faster speeds are necessary to have fun. In fact, some are suggesting that we should tighten up on our rules for next year to try to slow things down. (As with most competitive events, some of the guys are starting to modify engines and run very-high-nitro fuel.)

"How this goes remains to be seen. We are trying to get some of the other clubs in this area interested in racing with us. The problem is that almost all the clubs in this area are relatively small (20 to 30 members) and widely scattered (a 60- to 80-mile trip through the mountains on lousy WV highways isn't any fun). I will try to keep you apprised of how things are progressing in the future."

This letter is somewhat typical of the several hundred I have seen over the past few years. You take it from here.

See you next month.

Bill Hager, 706 Glen Haven Dr., Conroe, TX 77385.

Auction/Suding

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The program makes a few assumptions that may not be appropriate for your auction. First, a maximum of 79 sellers each with a maximum of 25 items are allowed by the dimension statement in Line 20 of the program. We normally are well under these maximums except for a few enthusiasts with a bunch of small grab bags of goodies. To cover these, I assign them a second upper dummy number which I utilize when their item count nears 25. At settlement time, I just add the real and dummy assignment amounts. If a computer with more memory is used, then the dimension statement could be increased to avoid this difficulty, or a different table system could be used.

The system could be modified to off-load periodically to a disk to avoid the risk of a power failure. Another improvement might be the inclusion of a "Tab" system whereby the sellers could charge their bids against their projected earnings.

HLG/Lorbiecki-Jahnke

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taken of me during launch, and even with a thick balsa fuselage, the bending it does at the launch point is nearly unbelievable. The bending can be up to ¾ in. with a springy spruce fuselage; it can't help but make the launch inconsistent.)

Select a straight piece of pine or spruce for the support, and CyA-glue it in place. It is important to accurately cut the small support piece and the fuselage cutout. Glue these two together. Mark the wing location with a ball-point pen; also mark the stab and rudder areas. Carve and sand the fuselage to shape, taking special care around the stab, rudder, and wing mounting

areas to keep them straight.

Cut out the piece of aluminum tubing for the DT fuse snuffer tube. Note the flange left on the tube to protect the fuselage from the smoldering fuse. Notch the nose, and install the unit as shown. Five-minute epoxy can be used here if you don't trust the thick CyA.

Make the wing mounts as the plans show, and sand the fuselage so that the wing will easily pivot for the pop-up DT.

Mount the stabilizer and rudder. Put on the rudder as straight as possible. The stab should be put on with some left stab tilt (left side high when viewed from the rear); approximately 3/16 in. is required.

Give the fuselage assembly a coat of epoxy. When this has cured, the wing pivot point can be mounted and all hooks can be added. Fit the wing assembly, put in the pivot screws, and try the DT a couple of times. See to it that the wing pivots freely and the DT action is reliable.

Flying. Make your first few flights from an area with tall grass. Test-glide the model, looking for a slight left circle. If it doesn't glide to the left, look for a crooked rudder; that's usually the cause. Trim the model slightly tail-heavy, and launch it slightly to the right of the wind with the nose quite high; this should be a medium-power launch. If it loops or turns hard to the right, the problem usually is that there is too much negative incidence in the stab (up-elevator). If the model goes "over the top," put in more up-elevator. I use the rudder and stab to trim the power portion of the flight and clay (or lead) and wing twist (washin or washout) to control the glide.

If your arm is strong, you will find that more down-elevator is needed to control the launch. If your arm isn't so strong, there is a possibility that up-elevator will be required. With up-elevator, the model will tend to roll on the way up and recover easily into the glide.

Always use a DT! Many gliders have been lost with a light toss and the erroneous thought, "There's no lift today." The message: light the DT fuse every time!

All that's left is to pick good lift and win that big one!

Roscoe 18

Design by Ross Jahnke

THIS DESIGN came about for several reasons. First and foremost was the desire to create a model well-suited to the pop-up wing dethermalizer (DT) concept which John Lorbiecki and I had been working on. Second, I prefer to fly my own designs. My early HL Glider flying had been with Blanchard's Polly; I was satisfied with the size of this model but wasn't altogether happy with its appearance. I have been very comfortable building and flying the resulting Roscoe 18.

Construction of the model is well documented on the plans, so I will explain much of the reasoning behind the design instead of providing step-by-step building instructions.

The fuselage is the most complex part of the model, and much thought has been given to streamlining it for efficiency. Frontal area has been kept to a minimum by recessing the DT fuse, keeping the hinge bolt small, and making the nose rather sharp.

To strengthen the fuselage, fiberglass was built into the nose. G-10 printed-circuit-board material is very strong and rigid while being surprisingly easy to sand; it can be adhered with epoxy or CyA.

For added strength, a strip of 1/16 x 1/4-in. pine was laminated to the bottom of the fuselage. This was chosen over use of a hardwood fuselage for two reasons. First, hardwood fuselages are heavy. Second, the seemingly popular spruce fuselage is too flexible, and it tends to flutter during the launch. Result: very inconsistent launches. The balsa fuselage is very rigid (compared to spruce), and the added pine strip provides the extra strength necessary to withstand a hard landing.

Epoxy glue and paint add the final touch to the fuselage. Epoxy fillets are placed around the wing, finger grip, and the front of the snuffer tube. The rest of the model is painted with two coats of Hobbypoxy (but don't paint the section of the fuselage under the wing mount to assure smooth working of the DT).

The wing is constructed in a conventional manner. Wood selection, however, is very important. The wing is the largest component of the model, making it critical in determining the model's final weight.

Perhaps you noticed that the center wing panels are joined with very little dihedral. Reason: most of the wing's lift is generated in the center section, and excessive dihedral would lose some of it. Most of the dihedral is in the tip panels, and no loss of stability has been noticed even with very windy conditions.

The leading edge turbulator was added to minimize drag through the changes in velocity the model experiences during the transition from the power launch to the glide. A study done in Germany several years ago indicated that at low Reynolds numbers many high-performance airfoils had a drastic increase in induced drag at medium-range velocities such as a HL Glider experiences. The addition of turbulators at various points near the leading edge reduces this drag. Although simple airfoils as used on HL Gliders were not tested, it seems to follow that they might be aided in the same way.

Wood selection is also very critical for the tail surfaces. The lighter the tail, the less lead weight will be required for the model to balance properly. Also for weight reasons, the tail is given only one coat of Hobbypoxy.

The model should fly "right off the

board" if built according to the plans. The only adjustment you are apt to need, except for some fine-tuning, is to set the center of gravity (CG) for a smooth glide. For adjustments, keep in mind that warps in the wing and tail surfaces have the most effect when the model is under power; CG location and stab tilt are more important in the glide.

Rudder adjustments are particularly sensitive during the launch. With the recommended amount of stab tilt and the wing askew as shown on the plans, the model should have a good glide circle. Little if any rudder adjustment should be needed.

On some of my models, I have found that a bit of washin in the left wing helps in both the power and glide phases. A little negative incidence in the stab aids in recovery from bad launches—but it won't let your model get as high as it would otherwise, so avoid using negative stab if at all possible.

I hope that you enjoy this model as I do. If the complex DT puts you off, build the model without it. A friend of mine learned to fly HL Gliders with a Roscoe having a swinging-weight DT, and he is still flying the same model after a year. If you have any questions or comments, please write to Ross Jahnke, W65 N727 St. John Ave., Cedarburg, WI 53012.

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FF Old-Timers/Haught

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events: Power Scale, Rubber Scale, Texaco, Towline Glider, Post '42 events, Old Ruler, Replica .020 Power, Half-Scale Old-Timer, Compressed Air, and Twin Rubber. Power events are broken down into Cabin and Pylon models. The cabin models were first on the scene and were made to resemble full-size lightplanes.

Cabin models are recognized by virtue of having windows in appropriate locations. This may sound like an oversimplification, but some models have neither windows nor a pylon and thus brought about lengthy discussions as to the appropriate class for competition purposes. Hence the rule of thumb: if it doesn't have windows it must fly in the Pylon class.

Basically a Pylon model has the wing mounted above the fuselage on a pylon structure not to be confused with struts which, if utilized, categorize the model as a parasol model—but it must still fly in the Pylon class. Pylons were developed to enable higher-powered engines to be used, thus enhancing the climb performance and resulting in (it was hoped) the attaining of higher altitudes, for the allowable engine run, and thus longer gliding time. The pylon effectively adds vertical stabilizing area forward and improves directional control during the climb. Complicated as it all may seem, a trip to an Old-Timer contest will help sort out the various types and competitions.

While it may seem endless, there is a limit of sorts to Old-Timer modeling as the activity is limited to preexisting designs, and some may feel that this stifles their creativity. Well, that's almost the case, but the founders of SAM even provided an option for your creativity: a special event, Old-Ruler. This category allows original designs conforming to the 1941 AMA rules (i.e. minimum cross-sectional area of length squared divided by 100, a wing loading of eight ounces per square foot, and a power loading of 80 ounces per cubic inch of engine displacement). However, in my many years of Old-Timer activity, I don't think I've seen more than three such models.

Another area allowing—and even encouraging—creativity is the special event for compressed-air engines. Any model may be used as long as it is powered by a Twenties-type compressed-air engine (no CO-2 motors allowed) utilizing a maximum air pressure not to exceed 150 pounds per square inch. These motors are usually homemade from available plans and are soldered up from brass tubing and what have you. John Pond's brother Bert is an authority on these engines. As you can see, there is nearly something for