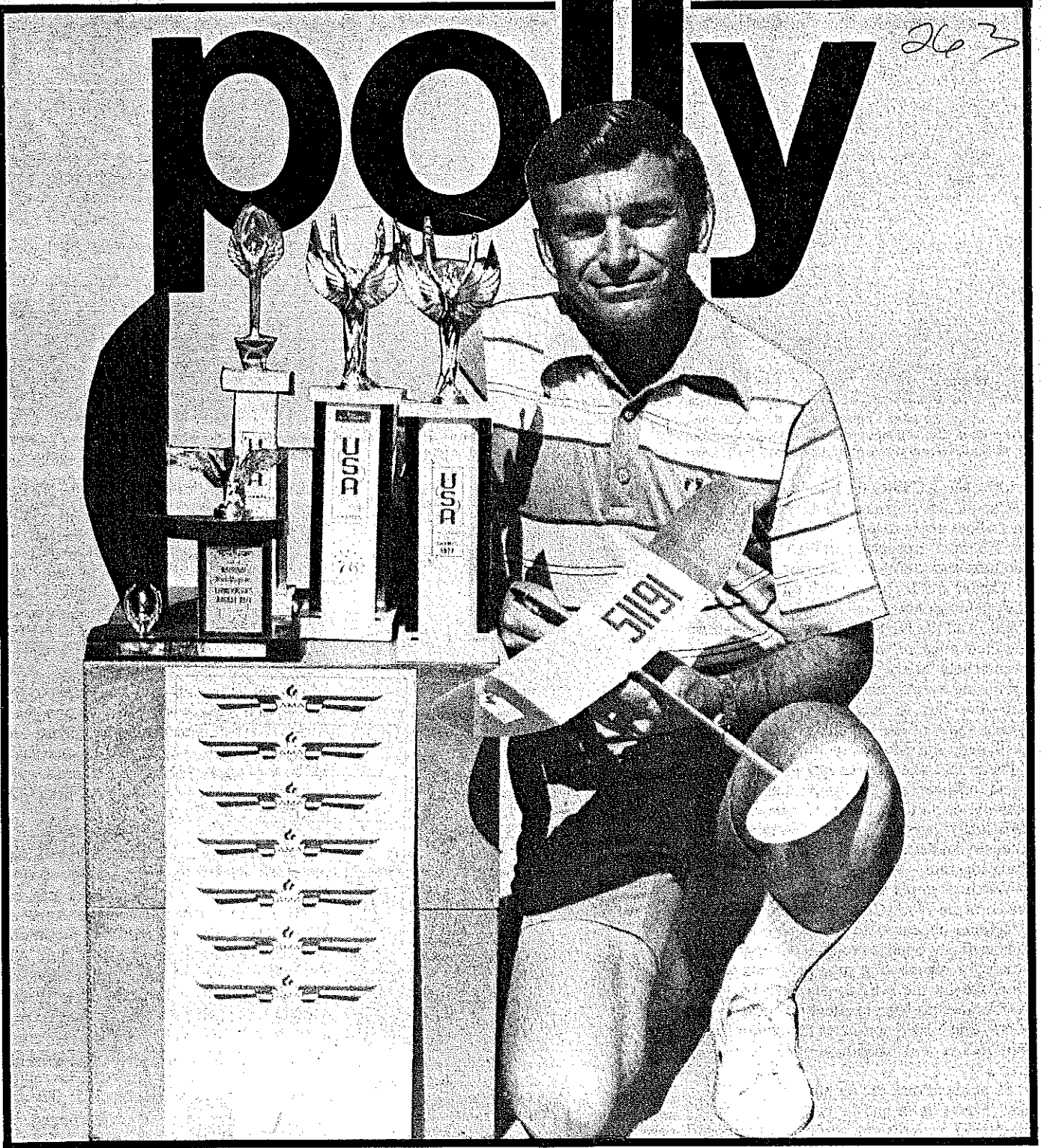


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Polly



THE original Polly (named after my first daughter) was flown early in 1967, maxing out in two local annuals (4 min. max) and placing third at the Nationals. The first gliders were designed with a 20-in. span and swinging weight D/T. Later developments, using 100 or so gliders, included flap D/T, rear fin/pop-up stab version, longer tail moment, and different airfoils and weights. Some flew great, some were deep-sixed.

In 1970 I decided to concentrate my modeling on hand launch glider. Working full time, going to college and raising a family didn't leave room for much else. Anyway, hand launch was always one of

Happy couple: Bill and Polly. Article was prepared before the last Nats; Bill won 1977 Nats, 1977 USFF Champs (for fourth time). He is a 7-time record holder, 9 other times with others.

my favorite events because it's pure free flight with no towline, winder or greasy kid stuff. And, many enjoyable evening hours have been spent flying at the local baseball field. 1970 started with no record in hand launch due to a rule change, going from four-to-two-minute maxes. My first record (10:20) was set in January at Sepulveda Basin. "Fast Richard" Mathis, in the Spring, broke the record in Texas. In September, I got the record back (11:17) only to have it

taken away in October by Bob Isaacson, the former U.S.C. football star, flying a Polly. Bob later was forced to give up glider because of shoulder trouble. Lucky for me (in more ways than one) because he since has donated many well appreciated hours of contest help and coaching—not to mention the Gatorade! Bob has a no-cut contract.

Now with a fly-off flight of over seven minutes required to break Bob's record I realized it would take great weather or a large glider. (It took both.) I went back to the drafting table to create the "Super Polly!" Engineering expertise was supplied by Tom "Round Man" Hutchinson who

calculated it would take a 24-in. wing span, 5-in. chord, 59.31 sq. in. of black tissue on the wing, orange tips, and I can't remember what else.

Everything went exactly as planned. It was a great October day at Taft and the Super Polly made its one and only official flight. It was one of those soft, non-drifting thermals which held Polly directly overhead for an O.O.S. 18-minute flight!

The 22-minute record held only through the end of the year since the rules were again changed, doing away with the unlimited fly-off in favor of continuous 2-minute fly-off flights. Polly has been consistent under the new rules. I set records in 1971 (13:43), 1972 (14:34), 1973 (18:42) and 1974 (20:00).

At last, the version presented here sums up the effort to best meet my demands for competition flying. The hefty balsa fuselage gives rigidity for maximum launch altitude and also provides necessary finger grip surface for consistent launches. The planform of the flying surfaces, when not sanded too thin, is not prone to warping (I have never been able to keep square cornered balsa surfaces flat). The designed-in durability coupled with the reliable D/T allow for many "full-grunt" launches in thermal conditions while adjusting or practice flying.

Now I build Polly by the numbers, with no design changes in mind. But, I do wonder. Does Lee Hines still believe the wing shape is backwards? (Hines professed that at the victory dinner after I had just

We'd like to call this the greatest HL glider ever designed—it could be. And we are tempted to call its designer the best ever—he might be. But one thing is for sure—this is the greatest hand-launch glider article we've ever published. ■ Bill Blanchard

raised my National Record to 22 minutes in 1970.) Anyway, the secret is out! Consistency is the name of the game, Polly is the name of the plane—and a cannon for a right arm helps!

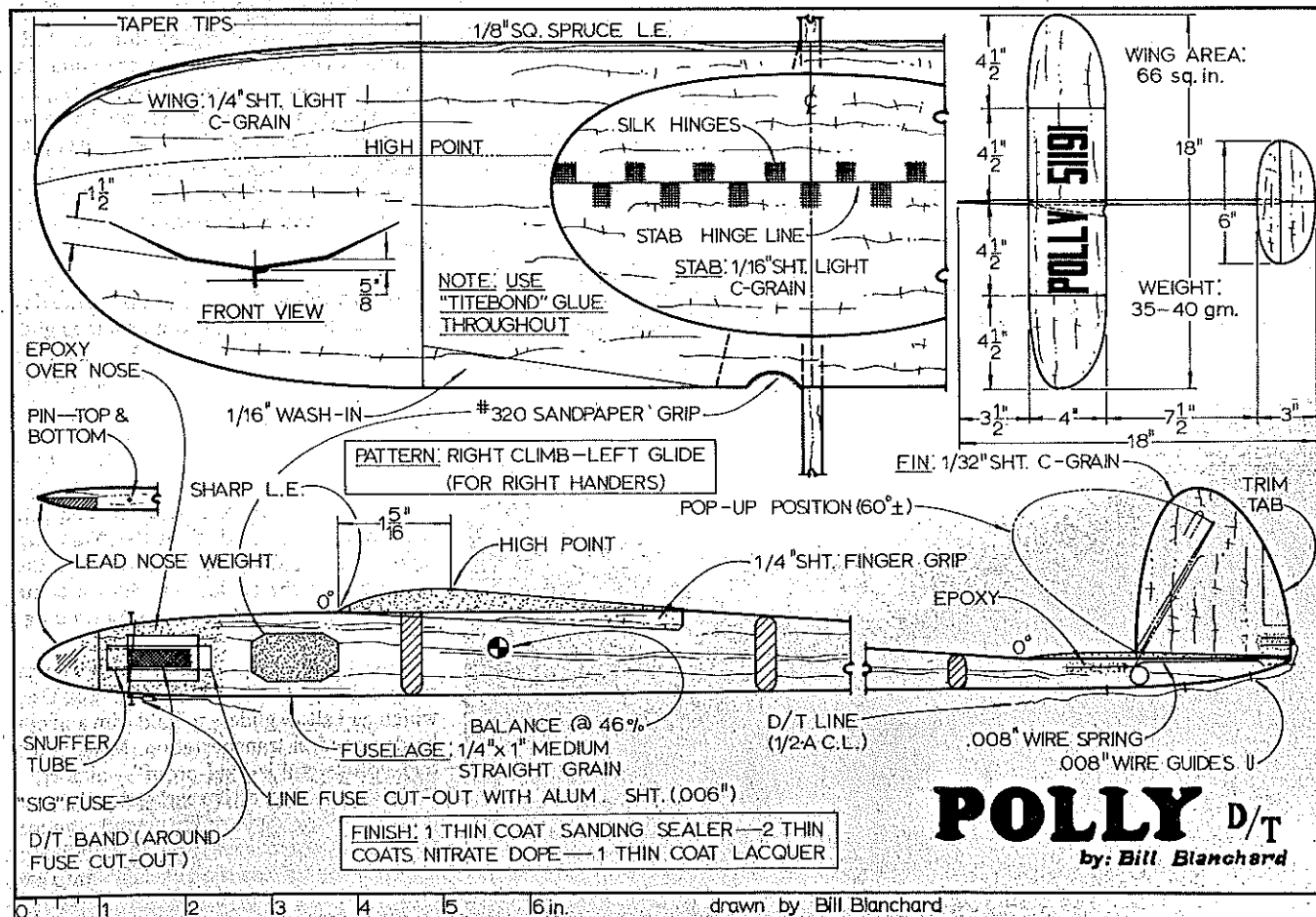
Construction: Building the Polly is not difficult so I won't go into the step-by-step boredom. Rather, I'll hit the high points which are important. You can get full instructions as well as all the goodies (cast lead nose weight, spring wire, hinge material, etc.) in a good kit from Aero Modeling Enterprises.

Begin with warp-free straight wood, as noted on the drawing. Shape things as symmetrical as possible. I don't use airfoil templates or a mike. Rather, I prefer to rely on my calibrated eyeballs and a well refined

sense of feel (after 20 years of glider carving!). Make sure the bottom of the wing and stab are parallel. Use a metal straight-edge (18 inches long, minimum), held parallel to the wing, for cutting the stab platform. A drafting triangle or square should be used to cut the dihedral breaks as well as to align the wing on the fuselage. Everything should be set straight except the fin. Build in left rudder such that when viewed, the line of sight should fall on the right side of the fuselage at the L.E. of the wing. This is only $\frac{1}{8}$ " offset in $14\frac{1}{2}$ " ($1/2^\circ$) and no more unless flying requires it later. Note that no stab tilt is used.

For glue I recommend Titebond except to align the fin. For alignment (only) of the fin I use Testors so I don't have to hold it in place all day (I don't use pins on the fin). Wet your finger and rub the Titebond into the wood. Apply in three thin coats to obtain a fillet, allowing to dry between coats. It is strong! So don't be fooled by get-dry-fast types. I couldn't fool my arm.

For the finish you can take your sanding sealer, rubbing compound and Glasswax and feed it to the neighbor's cat who walked on your drying wing. I know what you have read about high gloss finishes and how you dream about the extra ten feet of height you'll get if you could only get every last pore filled. Forget it! It's too damn much work, adds weight, makes the wood brittle, and doesn't glide! Besides, Bob White (the Godfather) said so. And if you're hung-up on the extra altitude then eat Wheaties and



FULL-SIZE PLANS AVAILABLE... SEE PAGE 120

lift weights!

Flight Adjustment: Comments on the trim have the right-hander in mind, with Polly set up to launch to the right and glide left. You have built in the rudder offset and wash-in as shown on the plan. And, the glider should be set up a little nose heavy to start with. This allows filing off weight later instead of having to add messy clay to get enough weight. Also, it forces you to start flying with too much incidence which is much better than with too little!

Hand glide and shim the back of the stab up (I use sheets of drafting vellum) to get a level glide. If you have a glide circle, fine. If not, bend in a little more rudder trim, but go easy on it. Now give a straight-ahead level toss just hard enough to see if the glider will climb up and start left. Basically you want to check for incidence (required for rollout) and some glider turn (so it doesn't go straight into the backstop).

Now, you're ready for a heave of about 75% only (so you don't tweak your tendons). Launch right sidearm and up at about 30%. If you have started with too much nose weight and incidence the glider will fly loopy and safe and is ready for fine tuning.

The fine tuning part is kind of hard to describe since it must be done to fit your individual arm. But basically it's a matter of filing off nose weight, removing *one* shim (back of stab) at a time and adjusting rudder trim, in combination, until the looping tendency is gone. The amount of incidence you end up with will depend on your arm strength. But, don't trim to close to 0°-0° with no margin of safety for an "off" launch. Because, when you are going for your tenth max in a row and it's 115 degrees on the field and your arm feels dead, you are going to have an "off" launch. And, an "off" launch with 0°-0° type adjustment doesn't roll out. Whereas, an "off" launch which rolls out into a thermal still scores a max!

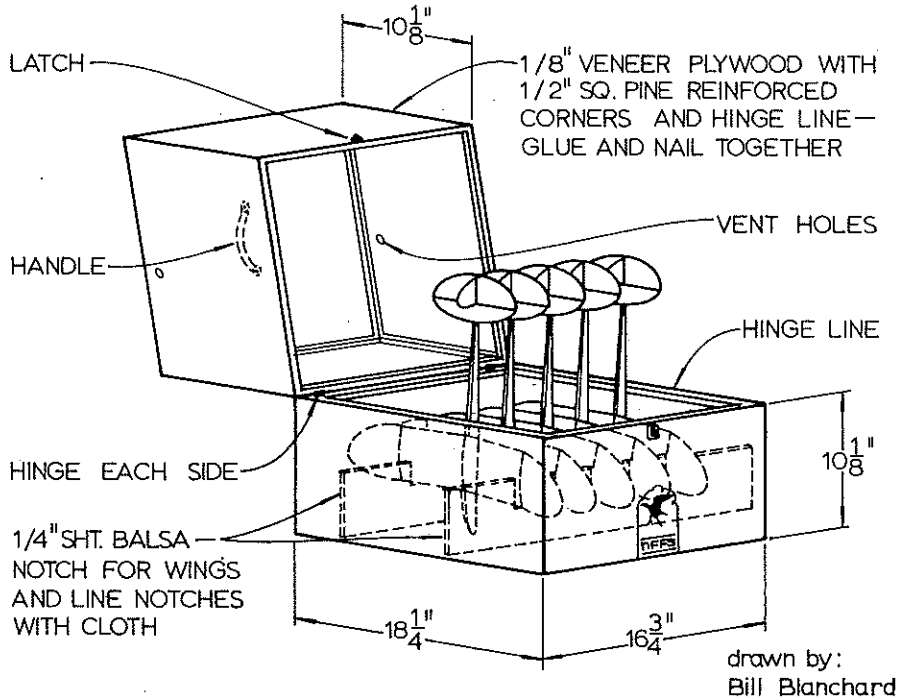
Contest Flying: Showing up on game day with less than seasoned, well trimmed gliders is not acceptable to me. My dues are paid well in advance on the practice field. Bob White's law states that you can tell the serious fliers by the degree of their suntans! During the six weeks prior to the Nats there were 15 practice sessions. The last four were spaced four days apart to coincide with indoor and outdoor at the Nats. On indoor day I had my winning scores on the board before the sealer was dry on some other flier's gliders. Score one for preparation!

Now, for all that practicing you are going to be doing you will need a glider box. One which will allow gliders to hold trim and not be damaged in transportation. Mine holds five Polly's and is "kid-proof"—almost.

On contest day, arrive early (shortly after dawn) to allow for warming up and practice throws without messing around with fuses. Throw a couple tosses on each glider to get

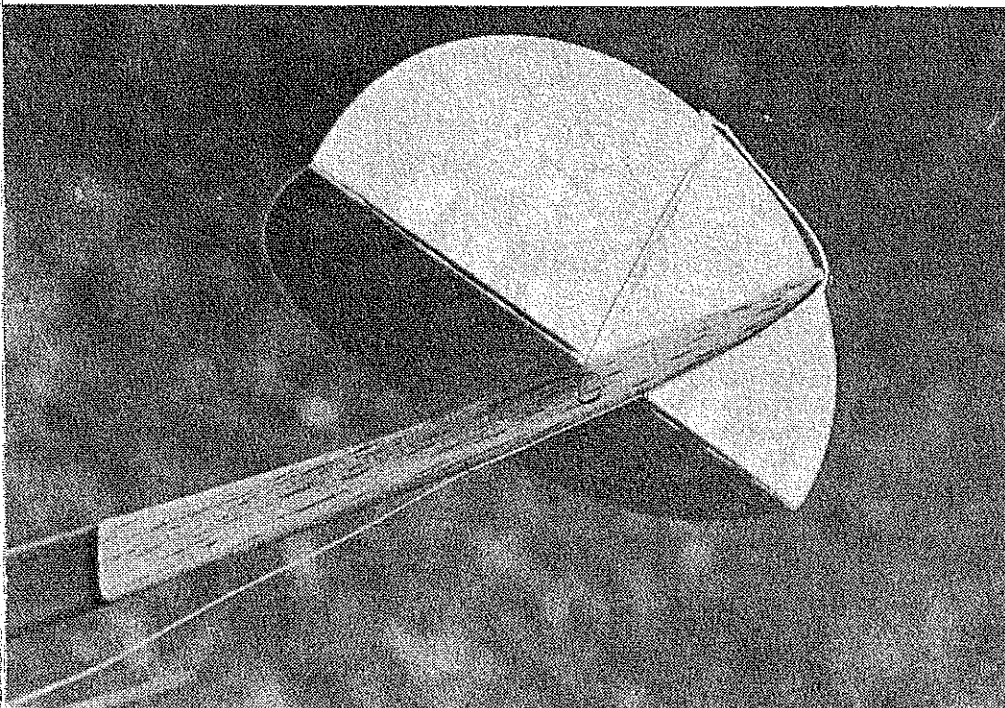
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The dethermalizer fuse—cut-out lined with aluminum sheet (beer can stock). Nose is covered with epoxy, and lead nose weight is "clean." Bill throws these things like Guidry throws baseballs.

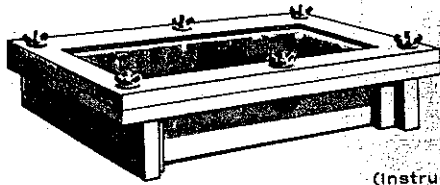


BLANCHARD'S GLIDER BOX

The pop-up stabilizer dethermalizer system is clean and functional. Note single coil spring at fuselage side, at hinge location. Interesting is the ratio of movable to fixed surface areas.



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We'll summarize the rules for the Embryo Endurance event, since we haven't done that in a long time, and they aren't in the AMA rule book:

Max wing area: Monoplanes, 50 sq. in.; biplanes, 70, but the larger wing can't be larger than 45 sq. in. Max stab are: 50 percent of the total wing area. Fuselage out-lines must enclose a space 1 1/4 by 1 1/2 by 3. Wing and tail must be built up, covered both sides, no plastic coverings. Rubber power. No folding props. Minimum diameter of wheels, 3/4 in. Models must ROG from card table top, unassisted three-point takeoff. Four attempts for three official flights, highest total wins, fly-off flight to break ties. Bonus: 5 sec. for raised cabin or open cockpit with windscreen and headrest; 3 sec. for 3-D wheelpants; 1 sec. for 3-D exhaust pipes.

Bob Meuser, 4200 Gregory St., Oakland, CA 94619.

Polly/Blanchard

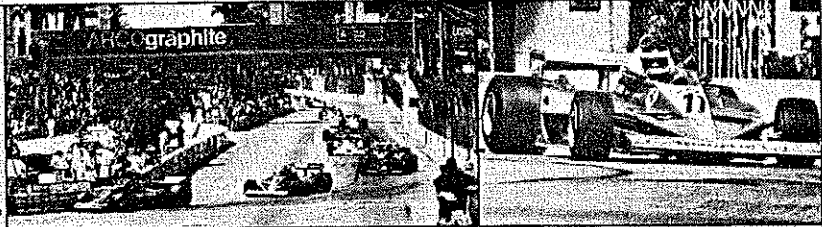
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confidence in the feel and trim, but don't waste your arm. Remember, they are supposed to be in trim. If you find one has changed and doesn't look right, then forget it. That's why you have five.

If you have properly prepared for the contest you can lay back and watch the weather while others are trimming and throwing out their arms. Be ready at the first signs of lift. Be aware of other models, streamers, bubbles, fluffies, dust and the "feel" of the air. It can be a tactical advantage to have the first max on the board, providing it didn't take six attempts to get it! And the first max is usually not as important as the last. So be patient.

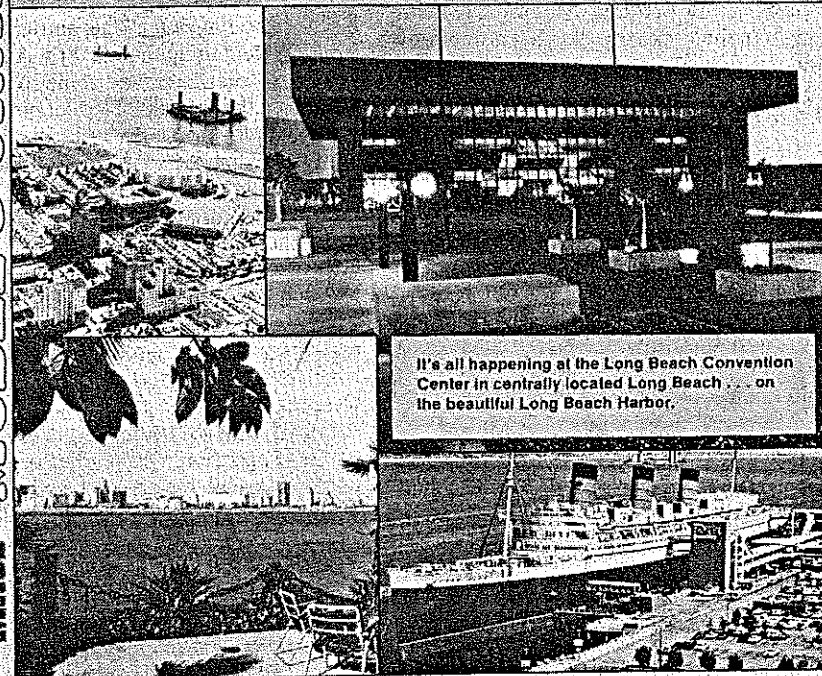
Competing in hand launch, it pays to know your competition. In other free flight events the limits are towline length, motor run and rubber weight. But, with hand launch it's physical ability. The Free Flight

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Champs was an excellent example of one-on-one tactical flying.

After five maxes "Fast Richard" Mathis and I were even up. His strategy was to try to get me to fly first as his goat. And being the crafty Texan he is, he did try. He said he wanted to go home and had been in the hot sun too long. Also said he was tired of

placing second at the Champs and would eat his hat if he didn't win. But friends, I wasn't tired (or proud) and wasn't even going to fly first. At the same time? Yes! But first? Never! I knew I could out gun "Fast."

When last seen "Fast" was telling his father; that little guy doesn't look like he could throw a glider.