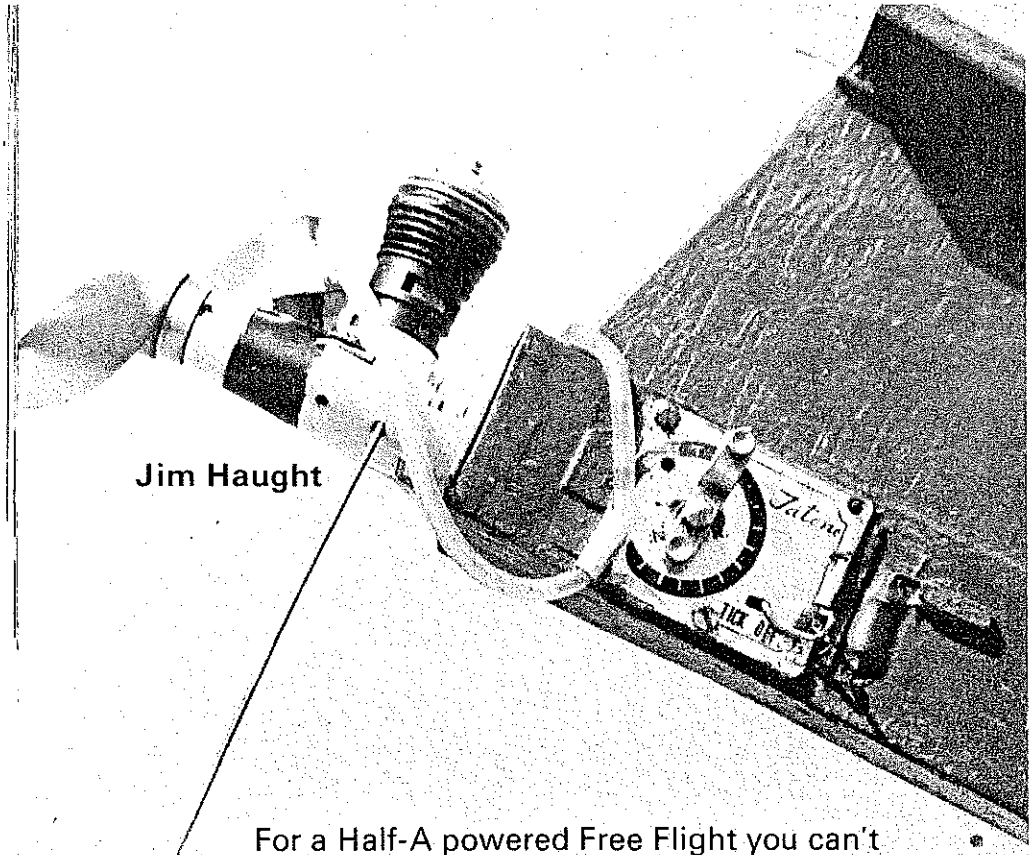
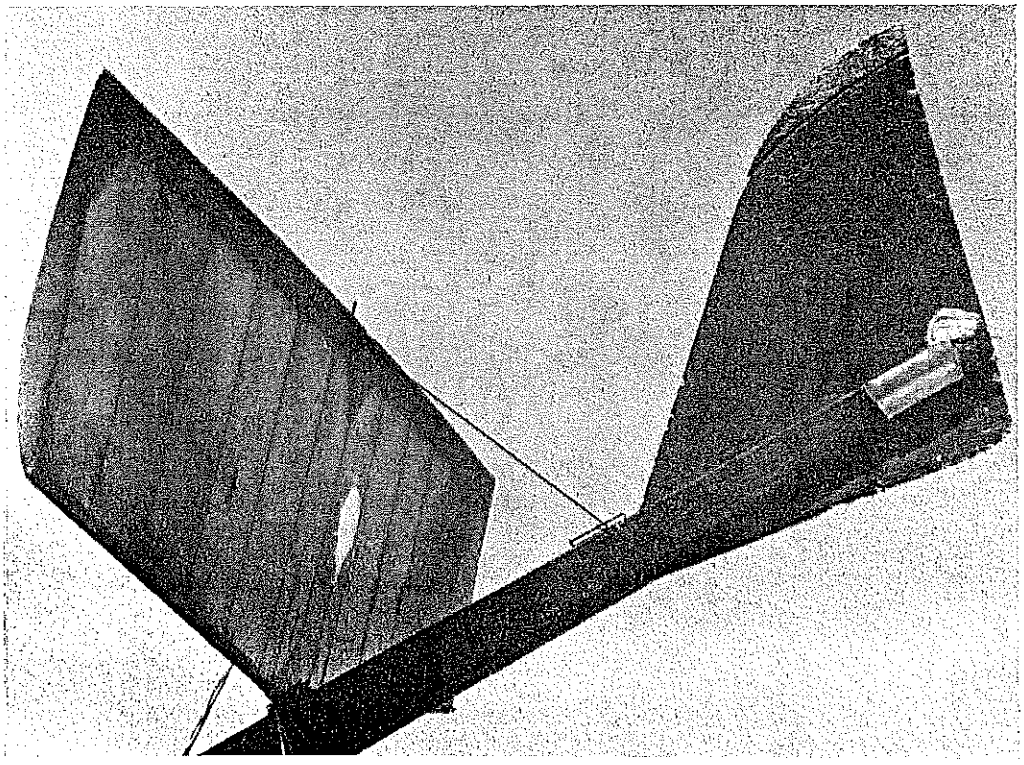


Front end close-up shows pinch-off timer, wire skid and engine mount. Wire skid is sturdy to absorb shock after steepest dethermalizer descent required for light Half-A models.

Candle In The Wind

Jim Haught

For a Half-A powered Free Flight you can't find a more competitive model than this one.



Rear-end detail showing the stabilizer popped up to a severe DT angle. It is an interesting fact that one of the highest performance jobs we've published was inspired by Jetex design.

THIS MODEL is an outgrowth of Don Chancey's "Canned Heat" Jetex design. Don and I were very impressed with the power-handling ability of our Jetex models and wished we could transfer that type of performance potential to a ½A design.

We had both been flying (and having some good success with) the "Mini-Pearl" design. We liked its missile-like climb but felt there were times when the glide left a little to be desired. We also felt that there were more aesthetically appealing models around; a minor point to be sure, but one worth considering.

So, I scaled up the Canned Heat to give a wing area of 225 sq. in.—roughly 10 sq. in. more than the Mini-Pearl. I hoped the extra area combined with a higher aspect ratio would insure better than average climb.

The results of the scale-up experiment have been quite good. The model has a very rapid climb and a better glide than other models of similar size. Some minor design faults have been corrected, and now the design is ready for others to try.

This model is basically intended for Category 2 contests since that is the category most of us usually fly. I have also flown the model in some Category 1 contests in California and done fairly well.

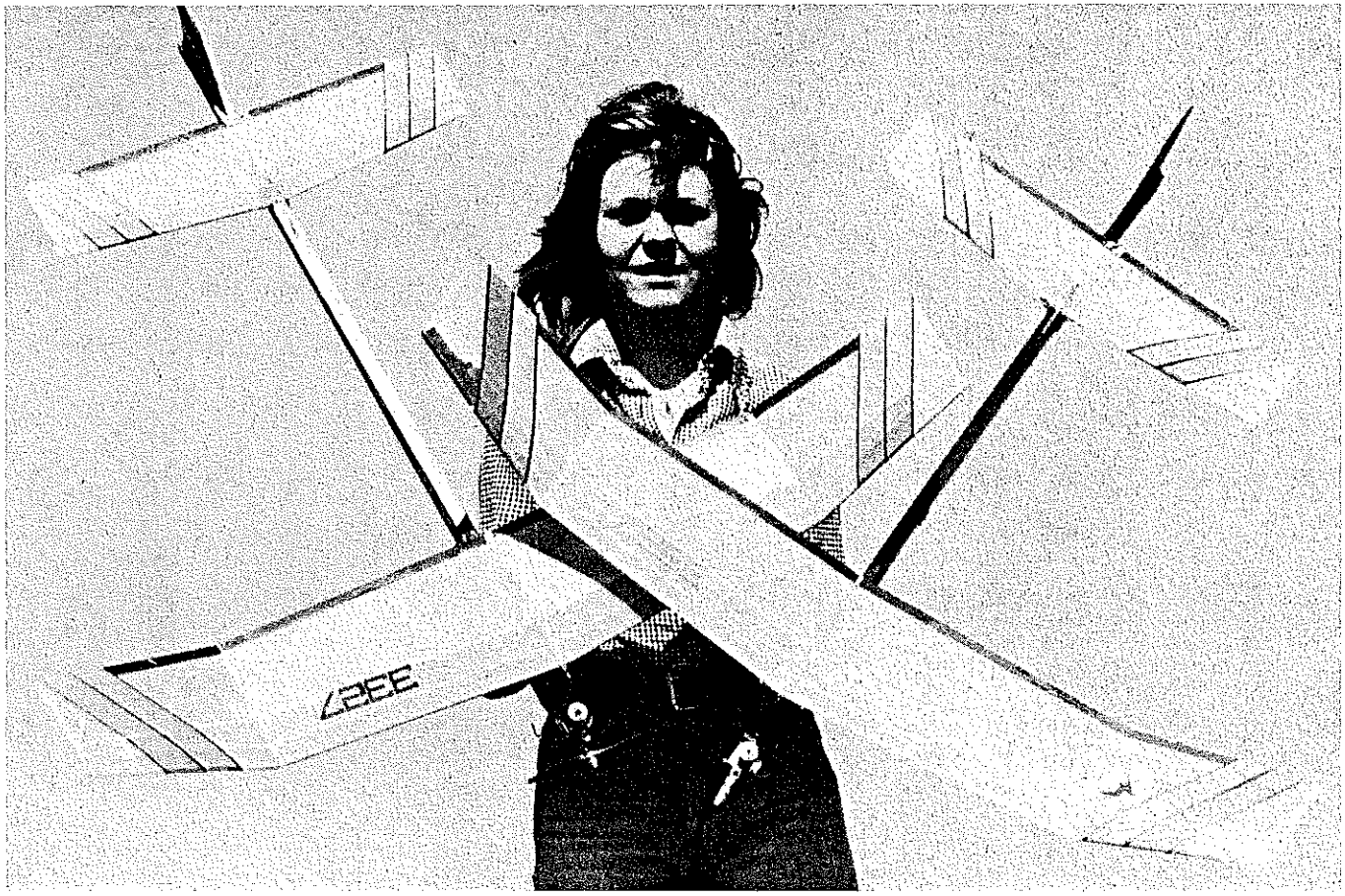
The only real problem with this size model is that of visibility on a 5-minute max. I've been informed that it becomes difficult to see after 4 or 4½ minutes in windy conditions. Thanks to liberal use of chrome mylar on the wing and fuselage, I have yet to have an OOS called in either category of flying.

Flying under Category 1 rules I placed 4th in A at the 1975 USFFC with the time of 26:49. This placing, combined with the model's performance in ½A, gave me quite a few valuable points towards my winning the Grand Championship.

The model's distinctive appearance combined with its flying ability have prompted several requests for plans and photos. Here's hoping you enjoy building and flying the "Candle in the Wind."

Construction

Wing: The wing is the heart of the design. It must be *built flat* and stay that way. The diagonal aft-ribs are an excellent and anti-warp feature made popular by the "Lucky Lindy" FAI Power classic. The structure is nearly as stiff as geodetic but is lighter and easier to build.



Models one and three in the series. The mylar near wing and stabilizer tips is a boon to visibility. Simple wing is highly warp resistant.

The ribs should be fairly stiff C-grain balsa. Be particularly careful to avoid "mushy" type wood on the diagonal ribs, as the tissue covering could cause the diagonals to buckle and warp. Be sure to bevel all joints and fit them accurately—do not force-fit any parts, as warps will eventually result.

A non-shrinking glue such as Duco or Titebond is a must for all joints. Double-glue all joints after the wing framework is completed.

To make the tip ribs simply measure off the height of the main spar at each rib station, then cut the rib in question to the proper length. It's a good idea to cut all ribs a little oversize height-wise, then sand down flush to the spars and outlines after framework assembly is complete. For ease in construction, the turbulator spars and dihedral-break ribs can be omitted until after the wing dihedral is installed.

When the wing is fully assembled structurally, it should be thoroughly sanded with #320 grit paper to remove all glue bumps and projections. Following sanding, give *all* ribs and outlines four coats of clear dope thinned 50%.

Cover the wing with Japanese tissue, preferably in a high visibility color scheme. When all tissue is attached to the structure, shrink it by spraying with rubbing alcohol. The alcohol dries faster than water and assures that the tissue will stick to all the ribs and spars. This is very important since the tissue attachment gives the wing much of its torsional rigidity.

Finish the wing with four or five coats of clear dope thinned 50%. A coat of clear epoxy on the center section can be an aid to fuel-proofing the wing, and is advised.

Stabilizer: This is built and finished in the same manner as the wing. Its finished weight should be approximately ½ ounce. If the stab is too heavy the model will be very difficult to balance without adding nose weight and thus giving a heavy model overall.

It is advisable to allow the wing and stab to cure for several days following the finishing process. In the meantime the fuselage may be constructed.

Fuselage: The fuselage should be cut from fairly stiff, long-grained sheets. A piece of wood that is hard at one end and slightly softer at the other is ideal. Place the hard end of the sheet at the model's nose and everything will work out well weight-wise and structure-wise.

The pylon and rudder must be cut from stiff C-grain type sheet. There must be

Lisa Heath holds author's third ship. It uses a Cox grey 6/3 prop cut to 5-3/4 in. diameter and a pen bladder fuel tank.

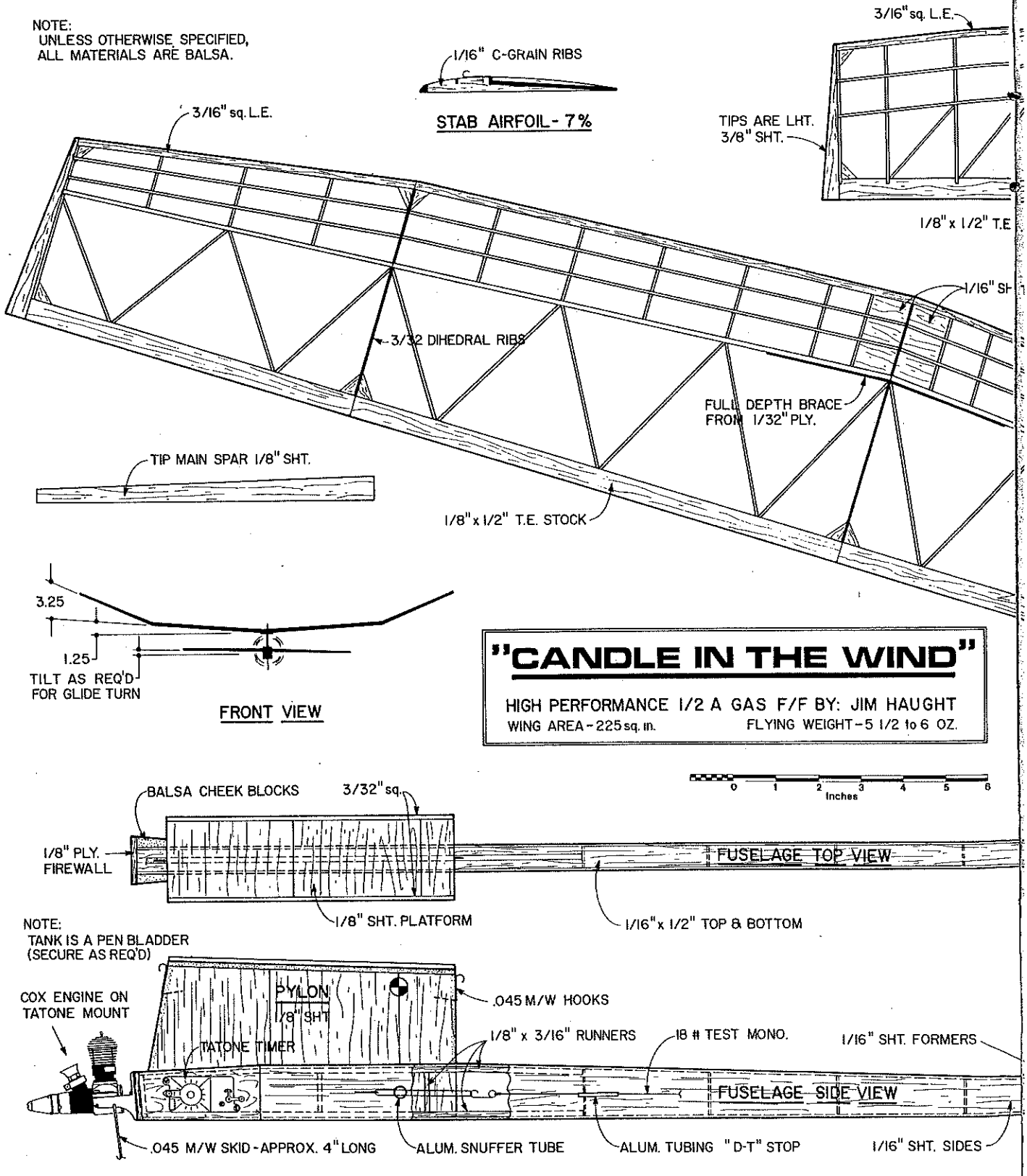
absolutely no potential for twisting or warping of these components. A light sanding with #320 paper will be sufficient to prepare them for installation.

It is advisable to leave the pylon out of the body shell until the model is essentially completed. The pylon can then be shifted as necessary to balance the model at the 80% CG.

The fuselage should be finished with three coats of lacquer sanding sealer, sanded with #500 paper after the last coat has dried 24 hours.

Allow the fuselage assembly to cure an additional 24 hours, then add a coat or two of colored epoxy for positive fuel-proofing. Any other finish will render the model a fuel-soaked mess in a very short time.

When installing the DT mechanism, be sure to have a steep angle of stabilizer pop-up—45 degrees is the absolute minimum,



with 60 degrees being even better. These small, light models take quite a while to descend from thermals and are easily lost if too low a DT angle is used. With that stout skid on the front end there is no problem or potential of damage due to a DT landing.

Flying: First be sure the model balances at 80% of the wing chord and the incidence settings are correct.

Hand glide the model over some tall grass. Strive for a flat glide with a right-hand glide circle of perhaps 175 feet diameter.

To achieve the desired glide trim, add incidence to incidence block beneath the rear of the stabilizer in 1/32" amounts if the glide is too steep. If the glide is stally, remove incidence from the block in 1/32" increments until the flattest possible glide is obtained. Do not rush the hand-gliding trim or the power trim will be difficult as well.

When you are satisfied with the glide trim, power flights may begin. For first flights, use very short (2-3 seconds) engine runs with the engine running slightly rich.

The power pattern to strive for is a right-hand spiral making perhaps 2¼ turns in 11 seconds.

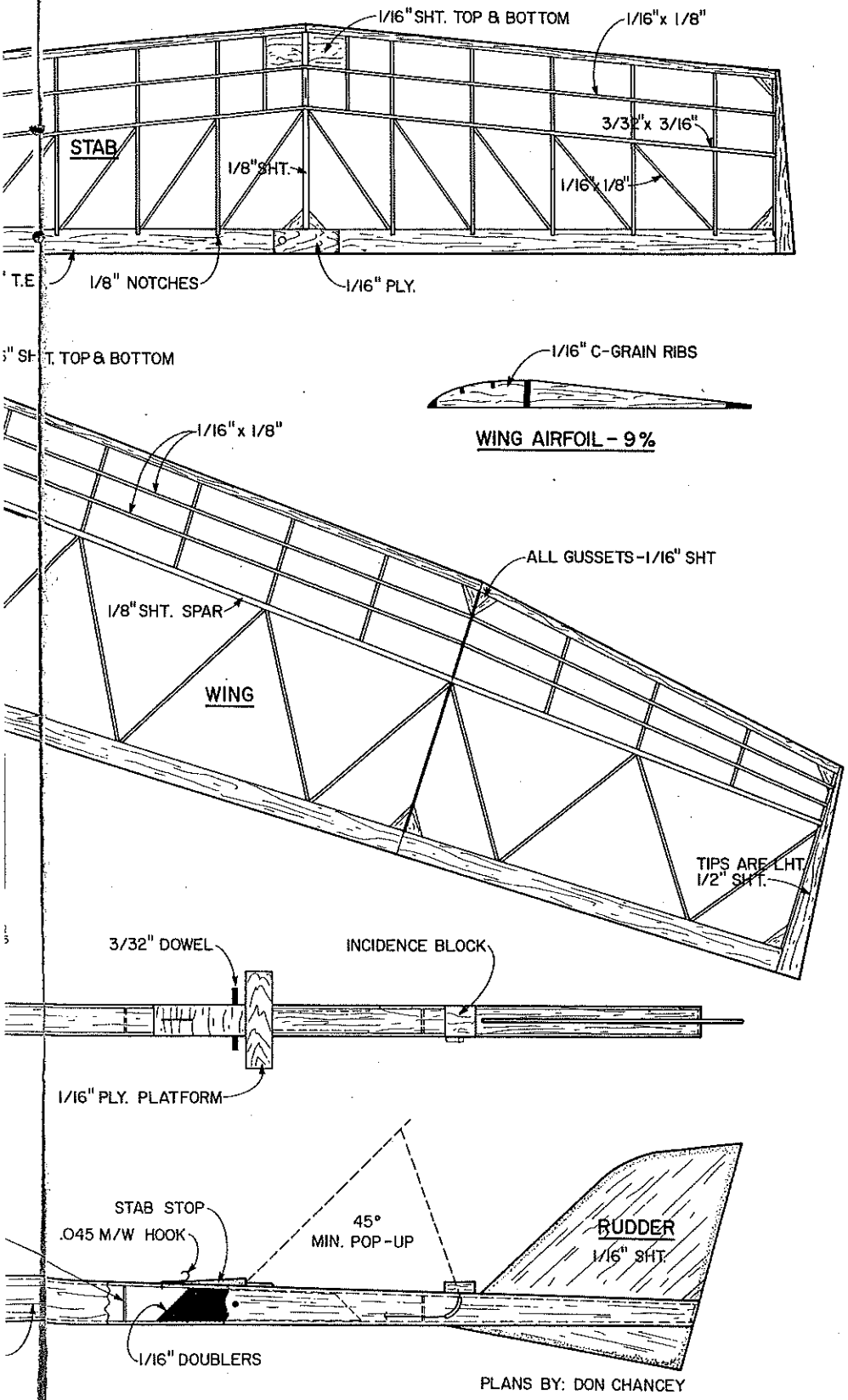
For initial climb (perhaps the first 3 seconds), adjust the model with side thrust for directional control. The rudder becomes effective after the first few seconds and should be adjusted in small amounts as necessary.

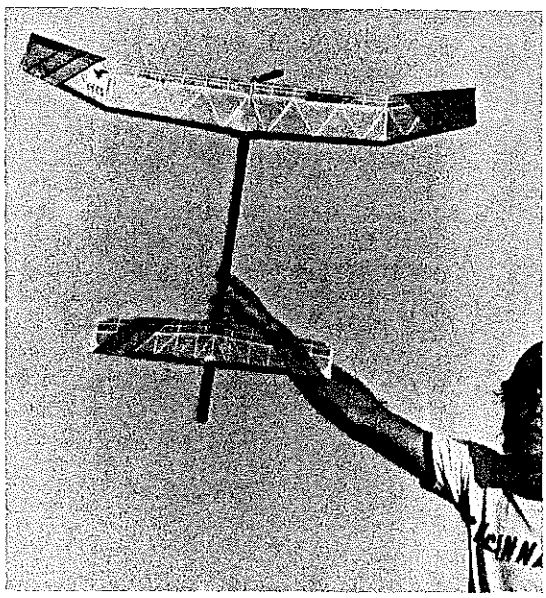
To make simple, positive rudder adjustments, carve some 1/16 × ¼" balsa to a trailing-edge type stock. Cut this into ⅜" lengths and glue one at a time to the appropriate side of the rudder, blunt edge rearward.

To keep the model from tightening its power pattern too much, it is advisable to glue a couple of the aforementioned triangular strips to the underside of the right main wing panel (again, blunt edge rearward). This will keep the right wing up in the climb and prevent spins.

When you are satisfied with the model's performance, practice with it until you are familiar with its habits. Then take it to a few contests and show your competitors how it's done.

I hope you enjoy flying this model as much as I have. I feel it can be a very capable performer for you.





Jim Haught holds model aloft to show the trim scheme and structural details—note the anti-warp construction mentioned in the text.