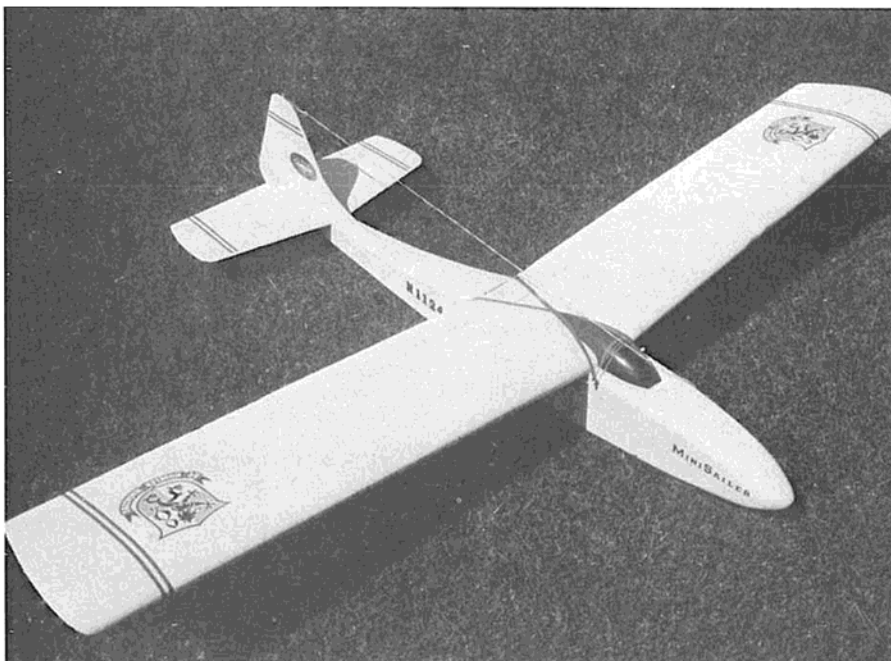


KEN WILLARD'S

MINI-SAILER



Slope soaring continues to gain in popularity as more modelers are finding out what really peaceful flying it is — no noise, graceful flight, always a nice view from the top of whatever hill you may choose, and no messy fuel exhaust to contend with. And many new ideas are being tried out as newcomers to the sport experiment with their design ideas.

One of the interesting things about slope soarers is that they do not have to have an extremely light wing loading, such as is the case with thermal soarers. More important is the ability to penetrate the wind without having to dive, and thus lose altitude at the same time.

When the R/C Bees of Santa Cruz held their recent pylon racing contest, I had planned originally to enter with my "Slopemaster," but a couple of weeks before the meet I went to Sunset Beach to practice, only to find that the wind was blowing about 25 miles per hour. The model could handle the wind, but just barely, and landings were very ticklish. It so happened that I had my little "Bushman" half-A sport job in the back of the car, so I thought "The Bushman has good penetration — I wonder how it would do in this wind if I removed the landing gear, took off the prop, and added a little rudder area?"



Mini-Sailer at the R/C Bees of Santa Cruz pylon races. Bonner 4RS installed.

So I tried it. To my amazement and delight, it not only penetrated well, but climbed at the same time. And while I was flying it, Frank Finney happened by with his wind indicator, and we found that the wind had increased to about 30 miles and had gusts up to 35! Yet the model handled it well, and best of all, it wasn't too hard to land.

That did it. I went home and promptly designed a small slope soarer around the Midwest 44" foam wing. When it was finished, my wife, Kay, looked at it and said "That's a little sailplane, isn't it, compared to the others. You should call it the Mini-Sailer." And that's where the name came from.

The very first flight of the MiniSailer was in an elimination heat of the pylon races, since I didn't get down to the slope before the races had started. Although the model flew well, I didn't, and dumped it before the race ended! But it was apparent that it could hold its own, if I could only learn to fly it in time.

The next race, I dumped it again. Then, in the next heat, I began to get the hang of it, and placed second. By that time the trials were over for the day and fun soaring was permitted. Then I really found out how well the MiniSailer performed!

The wind was about fifteen miles an hour dead against the hill, and the lift wasn't as strong as it had been when I tried out the "prototype", but the model gained about 150 feet above the top of the hill, or about 300 feet above the beach below, so I tried some maneuvers. The response was excellent. Spins, loops, inverted flight — even one long slow roll.

Later, Dale Willoughby had a chance to try it out — and it was evident that if I knew how to fly a slope pylon race like he did, the MiniSailer could be a real threat.

During the flight tests, I tried flying it with the rudder only, and found that

it can be soared with a rudder servo alone.

Still later, Scott Christenson became intrigued with the design as a possibility for Galloping Ghost. I was doubtful, because of the big rudder flapping away. But he went ahead and built one, and we took it up to the local hill, and with the Rand Pak churning away, his MiniSailer climbed up and out into the breeze without a quiver — although you sure could see that big rudder flapping back and forth. But it proved the versatility of the design to handle all of the usual control systems.

One of the best features of the Mini-Sailer is its simplicity. You can build it in three nights!

The wing is a standard Midwest 44" foam wing. Building time — about five minutes to stick the brace along the trailing edge to keep the rubber bands from cutting into the foam.

The fuselage is a simple box, with doublers at the strategic points to help it survive rough landings. No tricks at all — just look the plans over and follow them.

Select some good medium hard sheet 3/32" stock for the tail surfaces. The rudder and elevators can be made from medium stock. If you plan to use galloping ghost, narrow the elevators down to about 3/4" chord. Also, you may have to drill a hole in the rudder horn, closer in to the axis than the innermost hole, since the rudder action with GG is the average of the angle of flap and less than either a servo or full propo throw.

The equipment section can accommodate any of the new small proportional rigs, such as Bonner, Kraft, Micro Avionics, or Logictrol, and also handles GG installations of the Rand or Halco type. There is one small problem with GG — the battery pack for extended flying has to be rather large — unless you have a spare for the smaller pack. And it's very easy, once you're up, to forget about time and stay up for a half hour to forty five minutes before you realize it!

A typical propo installation is shown, and it is a simple matter to make whatever small modifications are needed to put in your single servo or GG if that is what you plan to use.

Note that the section roughly under the CG is left open. This makes it possible to add weight at the CG if you need it for better penetration in strong winds. That's right — you add the weight UNDER the CG instead of in the nose.

If you use the Kraft system as shown, be sure to use the servo arms for the KPS-10 rather than the wheel if you plan to use the Rand swingkeepers,

otherwise they will bind on the wheel. Or here's a trick used by Bud Freeman: Make the 90° bend in the pushrod wire where it fits into the hole on the wheel, then remove the wheel, insert the wire UNDER the wheel, then replace the wheel — then the top of the servo case serves as the keeper!

You will also note on the drawing that I use the servo mounting tape put out by Rand and also by Rocket City. This makes servo mounting a breeze — and, don't worry — it'll never come loose until you pull it off on purpose.

Covering the MiniSailer is again a matter of choice. For that matter, if you like the appearance of bare balsa, a couple of coats of clear dope will do, since you have no fuel to contend with and all surfaces are solid. The wing, of course, is uncovered. You can sand it lightly to smooth it off. And after flying, if the wing gets dirty — and it will — you can clean it up like new with SOS steel wool pads. Just to be sure, though, let me caution you not to rub too hard.

You'll find that the MiniSailer goes together in about three evenings of relaxed work — but the appearance, and the performance, will make it look like it took a lot longer. Also, even if you make a real hard landing, it is so small and comparatively light that damage is negligible. The weight of the model, less equipment, runs around ten to eleven ounces, and it will easily carry up to one pound of equipment if the wind is against the hill at about twenty miles per hour.

Flying the MiniSailer is easy. It is not critical on C.G. location, so if you have it located roughly where shown on the plans, your very first launch should give you the start of many hours of the most relaxing R/C flying you have had in a long time.

To prove it, I'll award a one year's subscription to R/CM for the best letter I receive describing the first flight of your MiniSailer.

Kraft KPS-10 servos installed in Mini-Sailer. Rand keepers on extensions from original Bonner installation pushrods.

