

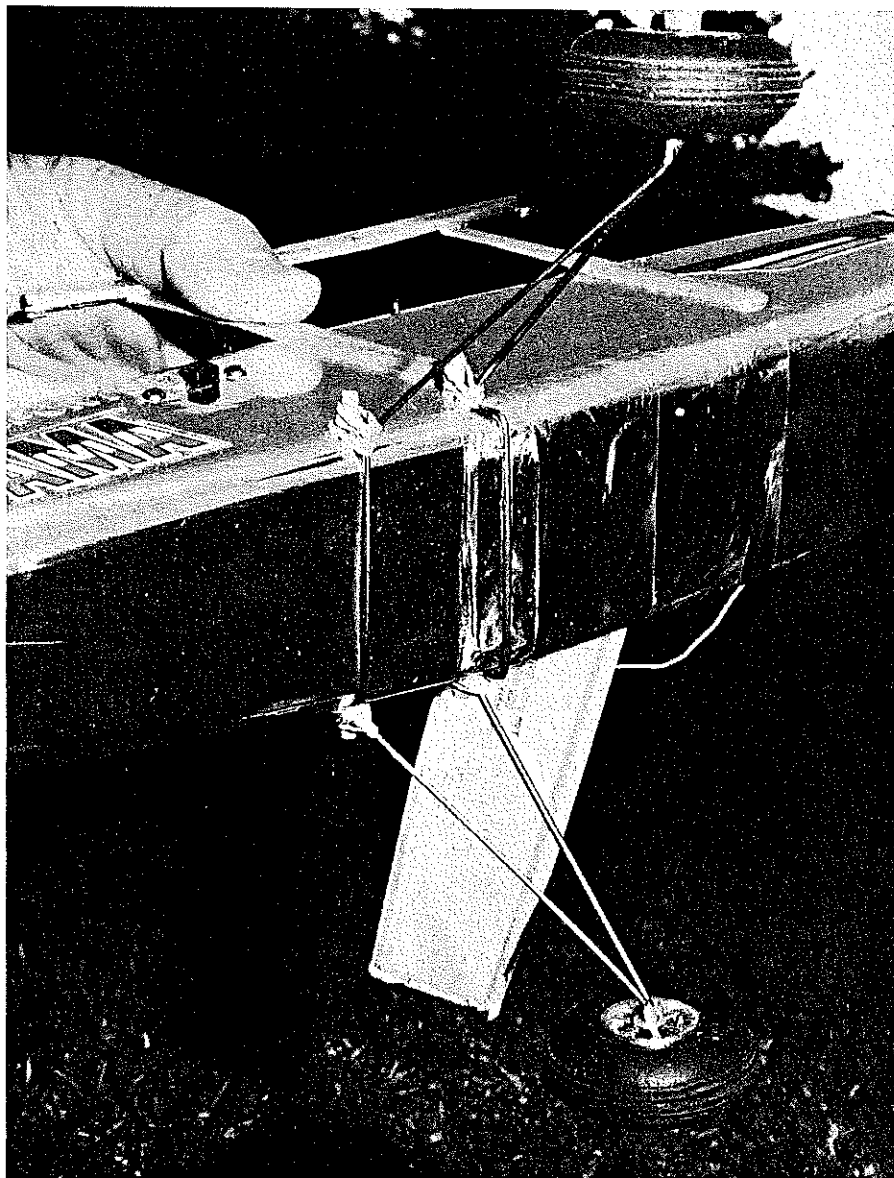
Sunday Sportster

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For the Sunday sport RCer.
This .049 rudder-only pulse job is
most inexpensive and a cinch to build.

Ken Willard

Right: The old master of fun-model designs himself with the Sunday Sportster—the ship reflects his direct no-nonsense approach; for example, below, the simple strut arrangement and stay-put gear.

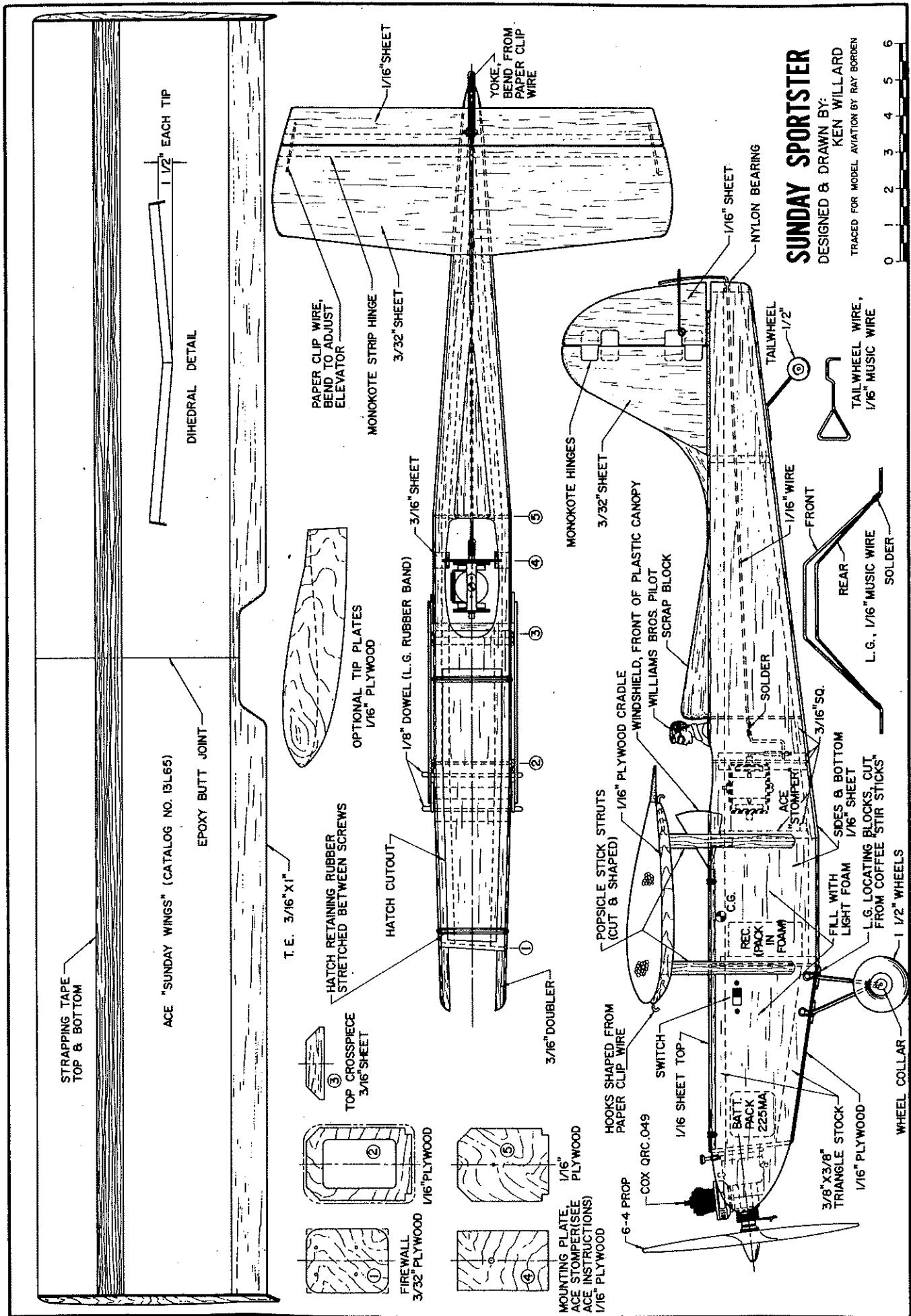


WHEN I WAS ASKED by *Model Aviation* to design a rudder-only pulse job for all the modelers who are still enjoying this least costly phase of RC flying, it was suggested that I might try a low-wing design, just for something different. So I sketched out a nice looking little job, put it together, and test flew it. It confirmed an opinion that I had formed a long time ago; low-wing models and rudder-only control don't mix well. Oh yes, you can get them to fly—lots of them have flown, but for a good rudder-controlled aircraft, you just can't equal a high-wing design.

So, I discarded the low-wing idea (but the design will be used later for rudder and elevator control) and started over.

This time I went back to basics. The best design for rudder-only control is simple. Design a good, free-flight sport model—one that will fly well without radio control and, when properly adjusted, will recover from stalls, turns, or dives all by itself and resume normal flight attitude. Back in the early days of radio control, Don Mathis got the radio enthusiasts all riled up by remarking that radio-controlled airplanes were just free-flight models whose flight path was occasionally interrupted by turning the rudder. And, at the time, he was right. Now, with all the sophisticated systems, an RC plane—particularly a competitive precision contest design—is a long way from being a good free-flight model. They go where you point them, and recover only when you command it.

So, for a rudder job, use a good free-flight design. That made it easy. Many years ago—1938, to be exact—*Model Airplane News* published the CAVU, a parasol monoplane that I designed for the old Elf ignition engine (I've still got it—the



SUNDAY SPORTSTER

DESIGNED & DRAWN BY: KEN WILLARD
 TRACED FOR MODEL AVIATION BY RAY BORDEN



Sunday Sportster

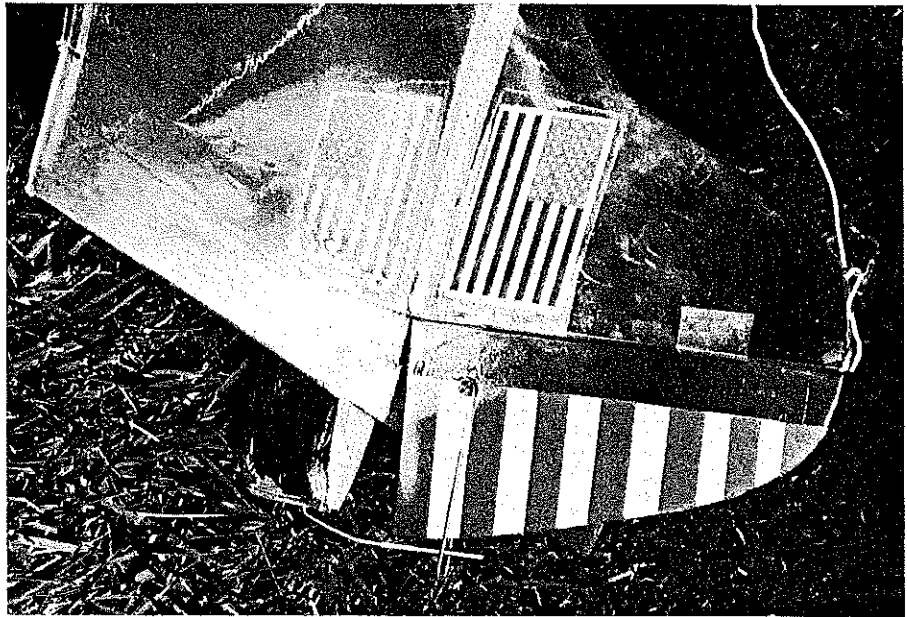
engine, I mean. What a smooth little sewing machine it is). Why not use the basic force setup, add some modern touches, and go from there? So I did.

The result is the Sunday Sportster—a little smaller because I wanted to use the Cox QRC .049, the quietest running engine you can get. Also, the Ace Stomper pulse unit is ideally suited to a 35" wing-span model. And another reason is that Ace Sunday Wings could be used, saving a lot of time in building and repairing.

Yes, I had to repair it right after the first flight—not the model's fault, though. The test glides were good, and I fired up the QRC and hand launched the model. As it turned out, I didn't have quite enough downthrust, and the model promptly nosed up. I nearly broke the control stick on the transmitter, trying to push down elevator! I had forgotten that, with rudder control only, when the model noses up, you *turn* it out of the climb. So, it stalled, crashed, and broke the prop. Pretty embarrassing but no serious damage, except to my ego.

After adding a bit of downthrust and changing props, I tried it again. That's all it needed; it went up in a nice left turn, just like a good sport free-flight should. Once it got up, I flew it around, had fun, and when the engine ran out of gas, I let it free flight into the glide—a nice, gentle right turn. Then I guided it back to the runway—and again, as it approached the ground, I found myself trying to give it some up-elevator to flare the landing. Habit is hard to break.

After a few flights, I began to remember the limitations of rudder control, and how to live with them—like, when the model starts to drift downwind, and you want to come back, it just keeps climbing, and if the wind is fairly strong, you can't make any headway. So, to come back upwind, you apply rudder, get the model into a spiral dive, neutralize, and as it levels out and the nose is headed into the wind, let it come up slightly, then again apply rudder



The only control—but you can do rolls and loops! Rudder swings side to side following transmitted pulses but gives smooth proportional effect in the air. Fuselage Monokoted, the wing Solarfilm.

and do a horizontal rudder roll into the wind. The model will be going faster than usual and will penetrate. Keep it rolling that way until it is upwind of you, then resume normal flying, and repeat the rolls if it goes downwind again.

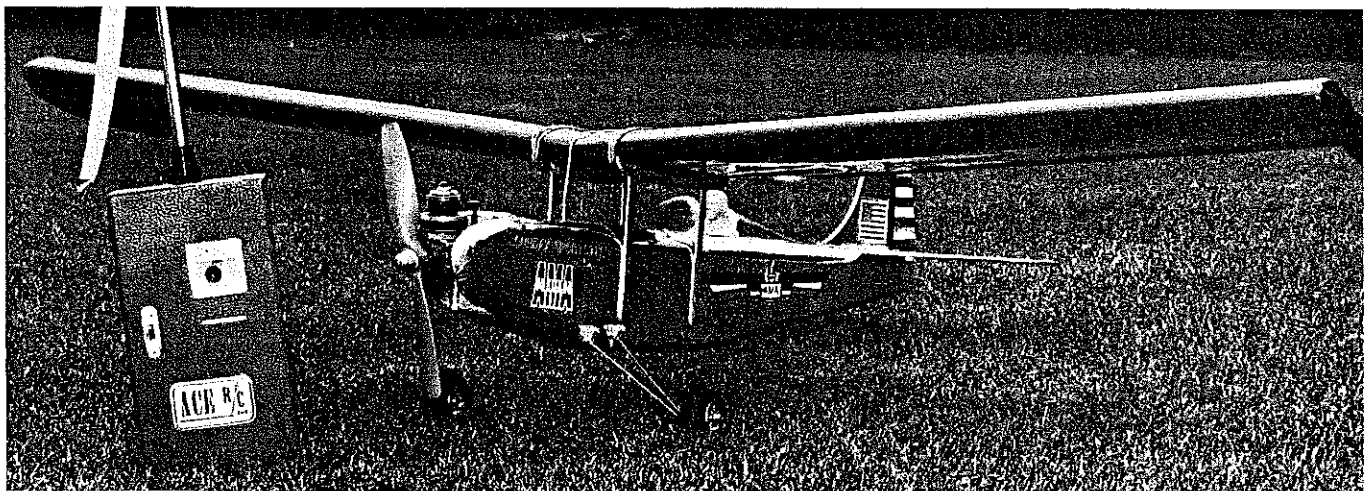
To do a loop, just get enough altitude, then give the model rudder and hold until it is spiralling down rapidly. Let up on rudder, and the excess speed will make the model nose up and over into a loop. Takes a bit of practice, but you'll enjoy it.

Building the Sunday Sportster is just about as simple as you can get. The fuselage is a "slabsider," but with the triangular stock as a top longeron, you carve away the excess wood and round it off so the model has the appearance of a rounded hatch and turtledeck. And all the lines are straight, so you don't have to pin things together. In fact, because I was impatient (having already built one model) I put my

whole fuselage together using Zap, except for epoxying the firewall in place, and it went together in a couple of hours.

The cabane structure is made with four struts carved to streamline shape, using popsicle sticks as the basic material. The wing cradle is cut from 1/16" plywood, and shaped to fit the undersurface of the Sunday Wings. The whole structure is Zapped together to the fuselage sides. You have to be careful to align the two sides uniformly, so the wing rests on both and at the right incidence as shown. The little wire hooks, for the rubber bands holding the wing, should be epoxyed to the wing cradle. Either that or, if you want to use Zap, add some of the microballoons alongside the wire to give a better retaining surface. Either way, make sure they are secure—you don't want them to come loose in flight, unless you want a spectacular crash.

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The jaunty looks of Ken's design may seem vaguely familiar—a Pietyenpol, Heath Parasol or a Q-T perhaps. The foam wings are Ace's Sunday Wings. Just join panels at center—that's it. Since the Cox QRC .049 is the quietest engine you can get, the small ship can be flown at many small fields.

RC Sport/Van Putte

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it book for contest directors so that new CD's can avoid the pitfalls that every contest has, no matter what the size. Are there any volunteers?

Another thing I noticed at contests so far this year is that flying quality has improved in the lower classes, especially in the Advanced class. In the old Class A, B, D Novice and D Expert setup, Class B (now called Advanced) used to be a low-population hodgepodge of fliers of widely varying ability. First there were the fliers who became impatient with earning their "graduation" from Class A (now called Novice) and promoted themselves to Class B. Then, there were the older fliers who were unwilling to compete in a group as "low" as Class A despite their lack of flying competence and they flew in Class B. Finally, there were the Class A winners who earned their way out of the class; they really tore up the competition in Class B. From what I've seen lately, those Novice class graduates are going to have a surprise coming when they get to Advanced. In each of the recent contests I competed in there were half a dozen fliers who would have won virtually any of the old Class B contests.

It's also interesting to compare the quality of maneuvers done in the various classes. A large percentage of the maneuvers in Advanced, Expert and Masters are identical and it is often nearly impossible to tell what class a flier is in by looking at a portion of a flight because the quality of flying is so good.

Perhaps one reason so many people are flying so well is that so many competitors are flying outstanding airplanes. At any given contest over half the contestants will be flying Don Lowe's Phoenix 6 or Joe Bridi's Dirty Birdy. I would imagine that the relative numbers of one airplane versus the other would vary depending on whether the contest was nearer the East coast or the West coast, but the two of them outnumber all the rest combined.

FOR THOSE of you who are interested in building a Phoenix 6 and plan to install retractable landing gear, let me share a suggestion with you. One of the problems with the airplane is that the plans show the nose gear retracting into the leading edge of the wing. Doing that requires cutting the bulkhead at the front end of the RC compartment and scooping out the front of the wing. It's difficult to do properly and it weakens both the wing and the fuselage. However, you don't have to go to all that trouble because the plans are wrong; the nose of the fiberglass fuselage is longer than shown on the plans and the motor mount that is normally installed is longer than required.

When you order your kit, order it without the firewall and motor mount installed. Purchase a Fox mount to fit your engine

and put the engine as far back on the mount as it will go and still leave room for the fuel tubing or fuel pump. Purchase a 2" Goldberg spinner because it has a skirt at the rear of the prop which allows the engine to be installed further forward than normal. Determine the distance from the rear of the spinner to the rear of the Fox mount; this is the distance from the nose of the airplane to the front of the firewall.

Mark the location of the firewall on the fuselage and make a cardboard template to fit the fuselage at this point. Cut the firewall from 5-ply 1/4" plywood, mark and drill the holes for the Fox mount and retract nose gear and install the firewall using polyester resin (not epoxy). If you have done everything carefully you will obtain 1 1/2" prop clearance and the nose gear will retract into the fuselage in front of the wing.

THE 1976 Jim Kirkland Memorial joined the ranks of major pattern contests by drawing 89 contestants from eight states. Over 200 enjoyed the now-famous Saturday night shrimp feast. Rhett Miller proved that he still has it all together by winning the Masters event for the third year in a row, but Rhett had all the competition that he could handle from Jim Whitley who finished only 15 points back! Jim edged out Ron Chidgey who served notice that he's back by flying better than he has in years. Ron flew the new Atlas which is now being kitted by Southern RC Products. The Atlas appears to fly slower than either the Phoenix 6 or the Dirty Birdy, but it is at least as smooth and precise as either of them.

The three of them were at each other again two weeks later at the Atlanta Phoenix City contest. This time Rhett Miller won again but Ron Chidgey managed to beat Jim Whitley, partly because Jim had aileron problems due to water getting into the aileron pot in the transmitter open gimbal assembly. This was the initial contest sponsored by the Conley Fliers, but CD Marty Farron put together a contest to be remembered. The Saturday social hour at the contest headquarters, the Admiral Benbow Inn, was free to contestants, wives and helpers. It was an enjoyable contest which pattern fliers from the Southeast should plan to attend next year.

ONCE IN A WHILE a modeler shakes the rest of us up with his creation; Ed Fluery of the Detroit Aero Modelers club is one of them. Ed's scaled up Skylark has a wingspan of 14 feet and weighs about 18 1/2 pounds! Here are a few more details in his own words: "The fuselage is built of 1/8" sheet balsa with hardwood longerons and plywood bulkheads. The wing is built up with hard 1/8" square balsa ribs capped with basswood. The spars are 3/8" balsa capped with 3/8" x 1/4" spruce. The aircraft is all silk and dope. The gears are made up of 3/16" spring steel wire and it's a little shakey. I am going to make up regular oleo struts using heavier construction. The con-

trol system is powered by Kraft with steel control cables and bellcranks throughout. The ship has not been flown yet, but I expect to have it in the air by July 4th." I hope Ed had good luck.

Ron Van Putte: 12 Connie Dr., Shalimar, FL 32579.

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Tail surfaces are balsa sheet. No surprises here. Maybe one. Note I have an elevator on mine; it's inoperative, but by hinging it to the stab, then Zapping a couple of short lengths of wire across the hinge line, you can make small adjustments in the elevator without having to reglue the stab. Use small paper clip wire; it's soft, yet firm enough to take the air loads.

The wing is a standard Ace Sunday Wing, Catalog No. 13L65. You get four panels, enough for two wings for the Sunday Sportster, in the kit, and with the pre-cut ends at the right dihedral angle, all you do is epoxy two of the panels together at the center, and add the reinforcing strapping tape.

Are you wondering about the tip panels? Well, in a way, so am I. But, since the wing ends are both cut at the same angle, I thought it would look nice and modern to have wing-tip plates that slant out at that slight angle—a simple variation of the conical tips that some planes have. Theoretically, they should delay any tip stall, and give the same effect as a slightly longer wing. But I just thought they looked nice. If you don't, then make a standard type tip—it probably won't make any noticeable difference in a model this size. Maybe you will want to experiment, since you have two sets of wings. Make one with, and the other without the tip plates. And if you notice any big difference, let me know. I'd be real interested.

In covering the model, I used three methods. First, the fuselage is covered with Monokote. Second, the nose and engine area is painted with Hobbypoxy to keep it fuelproofed. Third, the wing is covered with Solarfilm, because it shrinks up at a lower temperature than Monokote and you won't melt the foam wing. But be sure you do test the temperature first.

And there you have it. Yes, I know, it looks something like the Pietenpol, or the Davis, or the Heath parasol, or the Q-Tee. The way I see it, they'll all qualify as Sunday Sportsters. Fly about the same.

They're just named different. Originally, I had thought of naming this model the "Super CAVU," but then I thought not too many of you were flying back in 1938, so the name might not mean much.

Sunday Sportster makes more sense.

It's for today's Sunday sport fliers.

Like you and me.