Ken Willard's •POOLBOY•

Swimming pool flying at its best! Ken's sort-of-scale flying boat is a great flier and goes together in no time at all. Removable tip floats and strap-on landing gear make it a fun little landplane, too. For Cox Tee Dee .010's or Pee Wee .020's, and the tiniest radios.

• Bill Northrop has a thing about biplanes. So do I. But I also like small planes, and particularly, small flying boats. The Poolboy fills all of those requirements.

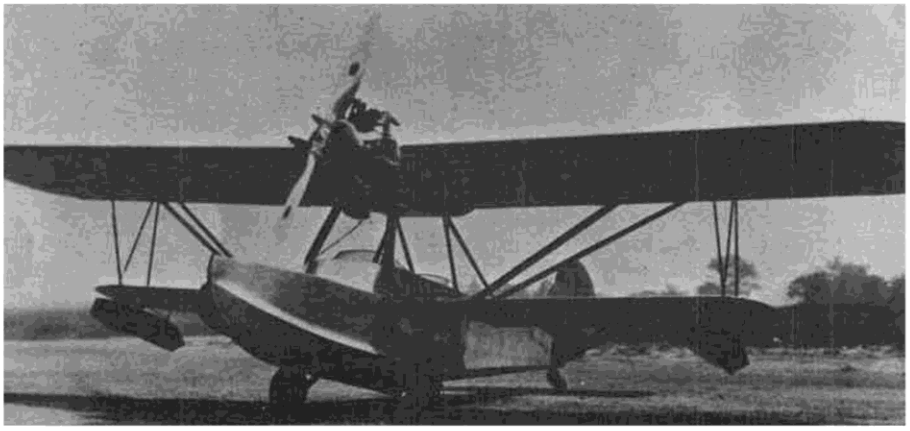
Last January I took the prototype down to the International Modelers Show in Pasadena, California, complete and ready to fly. Bill looked at it, puddled up, and said, "I gotta have that for **R/C Model Builder**!"

Since I hate to see a grown man cry, I said, "OK. But first I've got to prove that it does what it is supposed to: take off and land in a swimming pool."

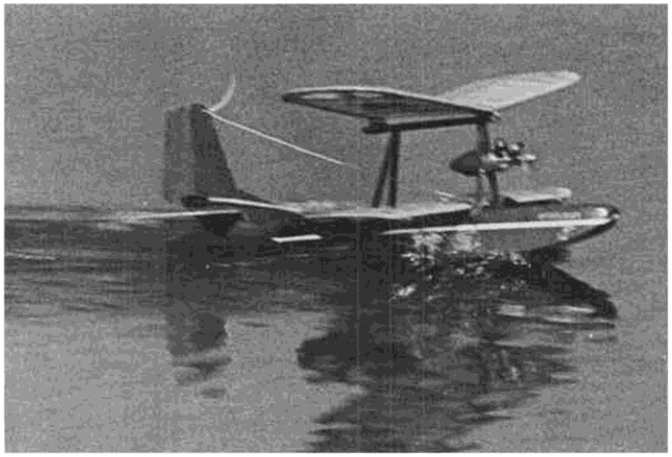
The Poolboy design was based on a 1929 flying boat, the Eastman E-2-A, which was produced by the Detroit Aircraft Corporation, one of the companies which Robert Gross, founder of the present-day Lockheed Aircraft Corporation, was associated with. A photo of the Eastman amphibian appeared in the June 1957 issue of the Lockheed publication *Of Men and Stars*, but was incorrectly identified as a Viking flying boat. It took the old "Obscure Aircraft" specialist, Bill Hannan, to set the record straight.

Anyway, for all this time, I've had that photo and thought what a great model it would make, even in stand-off scale, or nearly so. Every so often I'd look at it, but the opportunity kept evading me. However, I kept the photo, just in case.

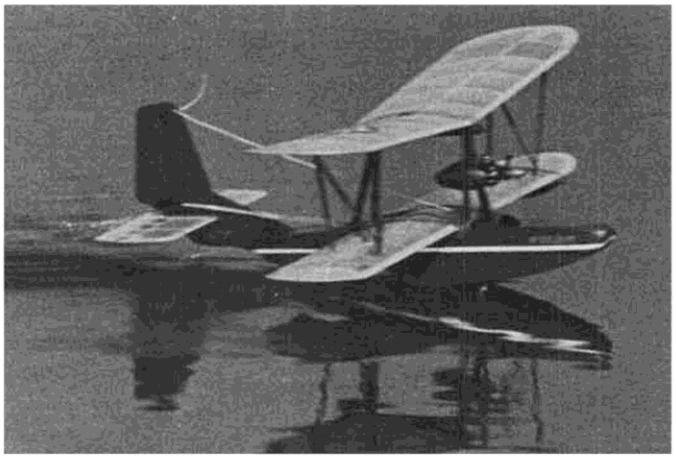
As radio control units kept getting smaller, the idea of a small flying boat became more intriguing. Then, when Bill Cannon came up with his Super-Micro unit, the idea came to me. Why not make a "stand-way-off" scale model of the Eastman E-2-A, in miniature, and see if it could be flown off a swimming pool.



Ken's source of inspiration for the Poolboy was this old photo of the 1929 Eastman E-2-A amphibian. Differences are obvious, yet the general layout has been retained.

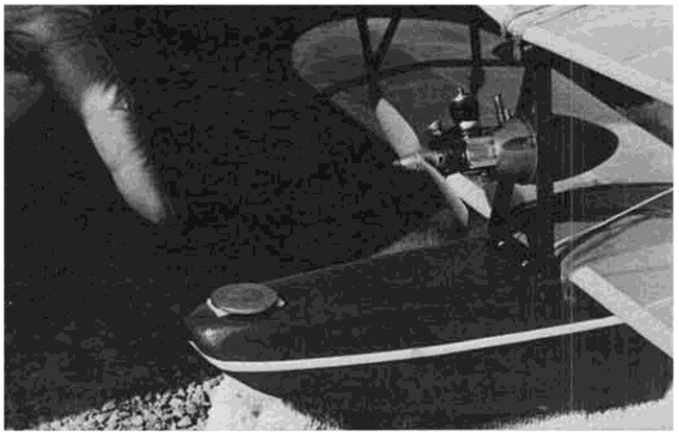


Just after release, accelerating along and in just a couple of seconds it's .....



.....up on the step and scootin'. Ken says the Poolboy can get off the water in fifteen feet in a dead calm.

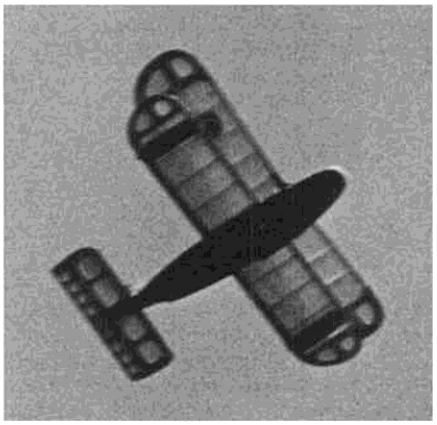
One way to bring 'em back alive is to cast a small weight over the model and snag it with fishing line. Takes some skill.



Two-bit nose weight gets the balance point forward, makes flight stability better and takeoffs longer.

So that's where the Poolboy originated. Over the years I've designed the Puddlejumper, the Pondhopper, and the Wavemaster; why not design an ultra-small flying boat for swimming pool flying? So I did.

The Poolboy will take off from the water in fifteen feet . . . less if there is a slight breeze . . . and can be turned in a tight circle as soon as it is airborne. Yes, it does take some skill to land it back in the pool, but if you can find a puddle of water twenty to twenty-five feet long and an inch deep, you've got all the room you need . . . that is, as long as it isn't closely enclosed by a five-foot fence! The model is so easy to build (and repair, if you have to) that you can experiment with your flying skill without facing a big repair job if you *do* run into a fence.



As all models of similar size, the Poolboy is quite touchy on the sticks. Feel it out at altitude before trying any low-level wild stuff.

Thumbs up after a flight where everything went just as planned.

The prototype is powered with a Cox .010. These engines are no longer in production, but thousands of them still exist, and also, if you don't have one, the plans show how you can substitute a Pee Wee .020. Just don't try a Tee Dee .020; it'll make the model much too wild to control.

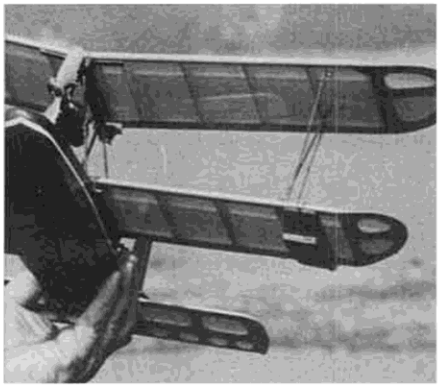
As usual, the design follows the basic philosophy of K.I.S.S. (Keep It Simple, Stupid). By using Hot Stuff or a similar glue as the principal adhesive, you can put the Poolboy together in just a few hours. You'll be glad you did, too. It is one of the best crowd pleasers you'll ever fly.

For those of you who might prefer flying from a runway, a strapped-on landing gear is also shown. Works fine.

The design is so simple that if you are an average modeler, you can build it right from the plans. Wood sizes and materials are called out for each part of the structure. There are just a couple of details that need clarifying, and they are easy to explain. The model is so small that you can almost build it out of scraps from your balsa box. Just be sure to use a medium grade of balsa to keep the weight down.

HULL

This is a simple slabsider, with the sides slanted so that the cabane structure, made from coffee stir sticks, will attach right to the sides of the hull and taper up to meet at the apex of the triangle where the upper wing saddle stir sticks are Hot Stuffed in place. Then the dihedral braces are attached. The 1/8 balsa fairing on the top of the aft end of the hull goes along the centerline, and serves to raise the empennage up high enough so that it does not drag in the water on takeoff.



What *not* to do if you want to make good R.O.W. takeoffs. Mr Dum-Dum was in such a rush to fly he accidentally put the left tip float on backwards, caused wild waterlooping. If you build your Poolboy strictly as a seaplane, consider gluing the tip floats in place.

The top of the hull between the cabane struts is left open for access. Triangular braces are Hot Stuffed to the sides, thus providing a base on which to attach some 1/16-inch thick wing seating tape. Then, when the wing is put on, it closes the opening and makes it reasonably watertight.

Note that the wing mounting dowels also serve to hold the canopy in place. In addition, if you want to attach the landing gear, the same dowels can be used.

You may feel that the switch location is inconvenient. It is, but with the canopy held in place by a rubber band, all you need to do is take it off, turn on the switch, and put the canopy back on. The reasoning here is that the canopy will serve to protect the switch from both water spray and fuel.

ENGINE MOUNT

You may wonder why the engine is mounted at an angle as seen from the front. The reason is that by doing so, the mounting holes for the .010 tank will be inside the cabane strut opening, and by inserting a piece of 1/4-inch basswood and Hot Stuffing it there, the engine can be mounted with two small wood screws.

The other angle on the engine mount, as seen on the side view, which creates

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Poolboy . . . . *Continued from page 19*

the necessary upthrust, can be achieved by different means. One is to shim the bottom of the mount with some 1/16 hard balsa. I prefer to cut out a disc of 1/16 plywood, then sand it away until one side of the circle is paper thin, then glue it in place.

As noted on the front view, a Pee Wee .020 could be substituted. Yes, it has four mounting holes, but you can get away with using only two. You could also raise the location of the engine mount if you wanted to use a standard .020 prop; this would require some adjustment to the upthrust because of the higher thrust line. How much? Only a flight test will tell.

The fairing behind the fuel tank is carved out of soft balsa. It is only for appearance, and can be omitted if you don't want to bother with it.

WINGS

The wings are standard rib-and-spar construction, with the dihedral in the upper wing achieved by inserting a piece of 1/2-inch trailing edge stock lengthwise between the two center ribs as shown. You may have to sand it slightly to get the right amount of dihedral.

INTERPLANE STRUTS

These are made by slitting coffee stir sticks lengthwise and gluing them together as shown. They are not really functional, just cosmetic, but they do help to align the upper wing with the lower. Note that the diagonal member joins the uprights with a bit of the latter extending out. That is so the ends can be inset into the "wells," which are cut from fuel line tubing and Hot Stuffed to the Monokote covering at the locations indicated. They will stay in place while in flight and will easily snap out for disassembly or in the event of a rough landing.

EMPENNAGE

Both the stab and fin use 1/16 balsa sheet throughout. The lightening holes are more for appearance than weight reduction, but with transparent Monokote covering it adds to the overall impression of lightness. Hinges for the rudder and elevator are made with 1/2-inch strips of Monokote. They're plenty strong; after all, the air loads here are measured in ounces.

RADIO INSTALLATION

At the time of this writing, you have no choice. The only radio unit which will fit in the Poolboy is the Cannon Super-Mini unit. The servos fit snugly in the compartment aft of the step in the hull, the receiver in the compartment just forward of the step, and the 100 mah battery pack (with case removed) is located as shown on the plans, just ahead of the bulkhead at the leading edge of the wing, which needs a hole cut in it to allow insertion of the battery pack. You will soon discover that it's tricky to install the switch through that same opening, but persevere, you'll make it.

The flexible pushrods from the servos to the tail surfaces were fabricated from nylon tubes which I happened to have left over from an RPV project. They may not be readily available to you, but a satisfactory substitute is: Sullivan Gold-n-Rod cable, with .030 cable inside a nylon housing, will do the job very well, but you'll have to figure out a way to attach the cable to the adjustable clevis. On the prototype, I attached the clevis permanently to the inner nylon tube, then put a bend in the wire at the end up front by the servo. By varying the angle of the bend, I could make adjustments in the elevator and rudder settings. There's always a way.

Where the nylon tube exits from inside the hull, it is best to seal the opening with epoxy. Then, in addition, epoxy the tube to the side of the 1/8 balsa fairing as shown on the top view of the hull. This will assure a firm connection from the servo to the tail control surface.

WING TIP FLOATS

These are carved from solid blocks of lightweight balsa. No big deal, but one of them gave me fits on the first test flight; more about that later. Note the 1/16-inch dowels pressed into the front and rear ends, to which the mounting rubber bands are fitted.

That just about covers the construction of the Poolboy. Admittedly, it's not exactly for a beginner, but for those details that I may have glossed over, most of you can figure out your own solution. At least, I hope so. If you can't, then write me care of **R/C Model Builder**, and I'll try to answer your questions. But send me a self-addressed, stamped envelope, please.

FLYING

The Poolboy was designed to accomplish a specific mission: take off from a swimming pool, and land in it if you, the pilot, have the spot landing skill. But the takeoff was the principal criteria. For that reason, the C.G. and the step on the bottom of the hull are further back than you would normally expect them to be. They are set that way for the fastest takeoff possible from water. As a result, once the Poolboy is airborne, it is very, repeat *very* sensitive to elevator movement. On the drawing I have indicated the elevator horn attachment of the clevis at the outermost point, so the movement is small. Even so, with the prototype, it was so touchy that I finally extended the distance further by inserting a 3/16-inch block of wood under the elevator horn.

Of course, if you are not particularly interested in a minimum distance water takeoff, you can add a small weight to the nose of the hull. This will tame down the elevator, and increase the takeoff distance. The choice is yours. We tried various weights on the nose; a quarter attached to the top of the hull with servo tape made the model very much less sensitive in the air, and also increased the takeoff distance to around thirty to thirty-five feet. This latter effect probably could be minimized by moving the step forward slightly so that it would still be under the C.G., but that would make the radio receiver compartment pretty snug. Besides, it's more fun to have a snappy little job that really keeps you busy.

When assembling the model preparatory for flight, be sure that the tip floats are not put on backwards. On the first test flight I was so eager to get the model in the air that I put one of the floats (the one on the left wing) on backwards and didn't notice it. With the .010 screaming, I set the model down in the water and it spun around in tight circles to the left as the float dragged it around. At first I thought I had a torque problem, but when I retrieved the model and looked at it, I felt pretty foolish. Mr. Dum-Dum had done it again! When I installed it properly, the next launch was perfect. Takeoff run was about fifteen feet, climbout excellent, and the flight was really exciting to watch. The Poolboy met the specs. •