



sitting proudly on the work bench an unnerving thought occurred. For years, this designer has cringed when well meaning friends have referred to a small plane as "cute." But damn it — this one was! Work had proceeded so rapidly that I was ready to go days before a hand-tooled prototype actuator became available. At last Dick drove to Madison from Janesville with Baby number 4, and we were ready to go.

The new Adams actuator, sporting black and red high impact plastic molded coil headers and bearing plate, the metal shoe carefully nickel plated and the magnetic heart of the unit (a specially manufactured rotor of Alnico 8), all added together gave it the appearance of a little jewel. This was the end product of over 15 years of continued experimentation and refinement.

In this age of highly exotic components the fundamental simplicity of the patented Adams magnetic actuator has been overlooked by many, but the fact remains that with it's one moving part and rugged construction, it is nearly indestructible and good for years of use. It is not generally known, but Testors came to the same conclusions when they chose the Adams Actuator as the driving unit for thousands of

THIS article follows closely the Shop & Field bits on balsa selection, use of tools, etc. Here's a chance to put some of that knowledge to work.

A model design can come into existence for a variety of reasons and a variety of purposes. SKAMPY would not have been born at all but for a late at night phone call from Dick Adams announcing the birth of a new "BABY." It took a while to penetrate my sleep-fogged mind, but it soon became clear he was talking about a new actuator and not an addition to the Adams family, a healthy happy group of nine, not including the dog, assorted guppies, and guinea pigs. As the excited father became more coherent the specifications took on meaning. The $\frac{9}{16}$ ounce BABY actuator now made possible a complete 2.4 volt system, weighing under 3 ounces and it became clear that this exciting new product would open the doors to a new concept in small R/C airplanes.

Next day the drawing board was cleared for action as this challenge was too much to resist. The goal was to be an easy-to-build, stable, and responsive 8 ounce R/C model having the look and feel of a full scale sport plane. In the years past, several small designs had made brief appearances as novelties and, as a group, could be characterized as just that. In the air they tended to be nervous and twitchy and impossible to control by all but the most experienced hands. Under these conditions, the novelty wore off fast. Hopefully, Skampy was to be different; a plane that would be easy to fly yet hold enough challenge to maintain more than passing interest. Now with the BABY, true proportional control was available which would smooth out the gentle maneuvers and still give full solid rudder reaction when desired.

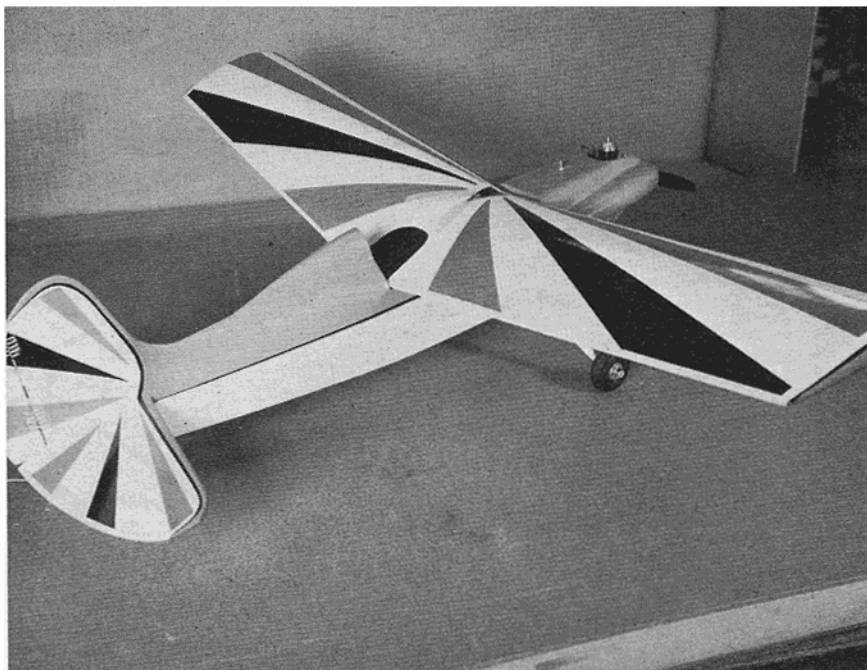
Construction was begun almost immediately and completed not many hours later. The whole experience was a reminder of younger days and rubber motored free fliers.

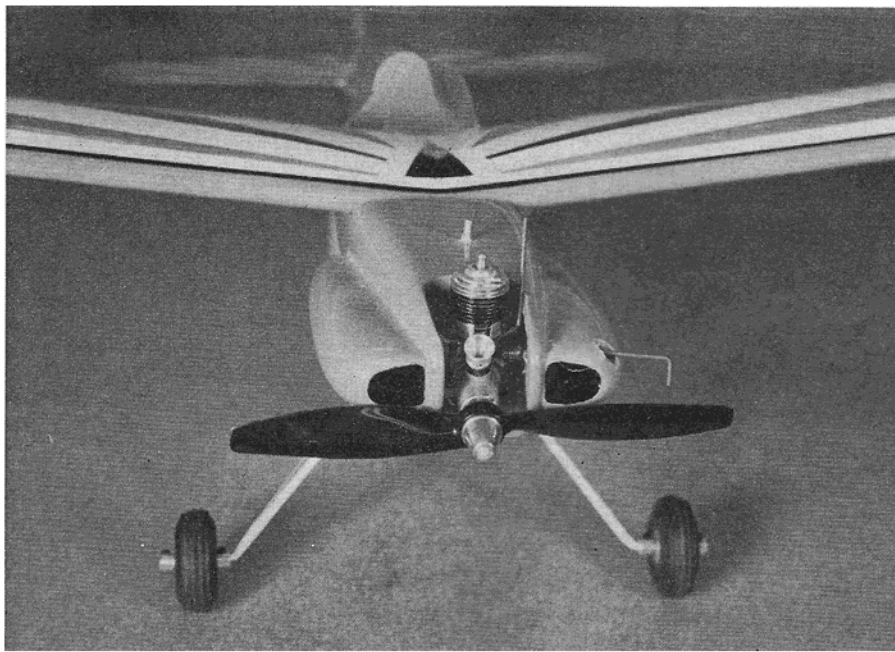
Finally as I looked at the perky little job

Owen Kampen's

SKAMPY

25" span rudder-only for the Adams "baby" magnetic actuator. An RCM Shop & Field full size plans presentation.





ready-to-fly Skyhawks. Reliability and simplicity were the critical factors in their decision, and time has proved it to be sound.

The BABY was installed in a matter of minutes, and what a surprise to see and hear the rudder bang against the stops. No butterfly power here! The little one not only looked pretty, it had muscle!

The first flights were soon underway at the local high school athletic field, and several things became immediately apparent. Most of the design goals had been met. The SKAMPY was stable and responsive but the Cox .010 engine couldn't lift SKAMPY much higher than 10 feet. It was a real strange feeling to be flying so slowly and lowly. With a change to a Cox .020 Pee Wee things began to happen. Nice climb out, excellent response, loops — rolls, the whole rudder only routine. It looked like this one was indeed more than a teeny-flopper novelty!

What was going to be a couple of test flights soon turned into a whole evening of flying. This was fun on limited funds and a cup of fuel. Two nights later, flying out of Dick's back yard, we achieved the dubious honor of being shot down full bore from 150 feet by, of all things, lightning. Ask your technical friends about this! In any event, something else became immediately clear, SKAMPY could take it. Having hit head-on a conveniently located concrete road, the total damage amounted to a broken firewall. Concrete dust had to be filed from the prop screw before it could be removed, but the airplane was intact. Wow!

Repairs were made and I lost SKAMPY to Adams who flew it in demonstrations at contests in Chicago and Minneapolis. Grab this if you can, but even the big proportional plane drivers wanted to try this one, and all were amazed at its performance and control! None of them would normally be caught dead with a $\frac{1}{2}$ A rudder only plane but SKAMPY apparently had broken the small plane barrier.

Since it soon became obvious that Adams wasn't going to give me back my cute airplane — if I wanted to fly I'd have to build another, so I did.

SKAMPY 2 had some new features and

a liability. The stabilizer span was increased slightly and wing tips rounded. An .020 T.D. was mounted up front, but to open up a range of performance from putt-putt to screamer, the .020 was equipped with a Carl Vogt exhaust restrictor.

These were first used with great success in the O.K. 202 twin engined model which appeared in M.A.N. about three years ago. They don't look like much but they sure do work! SKAMPY could now be flown at head height at a dog trot speed or opened up to the white knuckle stage. As of yet I've not dared try it much more than $\frac{1}{16}$ " open and this gives a 200' altitude in very quick order. Howard McIntee has described these restrictors in considerable detail in A.M. They are not adjustable in the air. The manual speed control unit is available from Carl for \$2 and a note to 4210 Dempsey Road, Madison, Wis. 53716.

The next move was to eliminate the plastic Cox tank, replace it with the spare plastic back plate and add a thin brass shimstock tank $\frac{7}{8}$ " diameter by $1\frac{1}{8}$ " long. Now SKAMPY had about an eight minute engine run and at last I could get even with the ten gallon multi jobs. There's an old engineering law, however, which goes something like: "You don't never get something for nothing" and I soon relearned it. Weight was now at a ridiculous 10+ ounces giving a wing loading of about 15 ounces per square foot and while this is quite acceptable for most $\frac{1}{2}$ A jobs, scale effect took effect, and when the engine quit, SKAMPY came down like a lifting body research vehicle.

Some added wing area has since solved this but be forewarned, **there are practical limits on this model and they must be respected.** Simply said it means BUILD LIGHT and this in turn means contest weight balsa throughout. Midwest Micro-Cut is as good as you can get. If while bending balsa at your local hobby emporium, you discover that the light weight stuff is all gone or has been splintered by some heavy handed squeezer, I'd suggest going down a size in wood. Wing, $\frac{1}{32}$ " top and bottom and $\frac{1}{16}$ " for the tail surfaces. F1 can be a harder $\frac{3}{32}$ " piece and the headrest

hollowed. An all up weight of 8-8 $\frac{1}{2}$ ounces is the goal to shoot for and this means the airframe, engine and wheels should total 4-5 ounces.

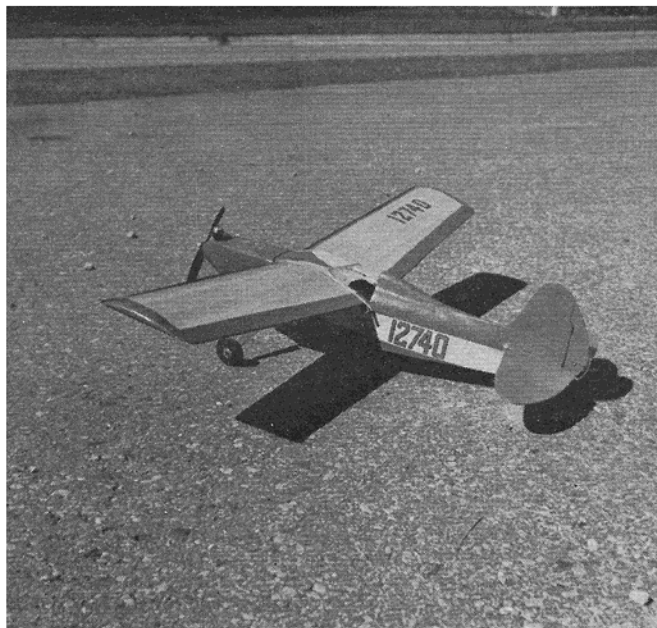
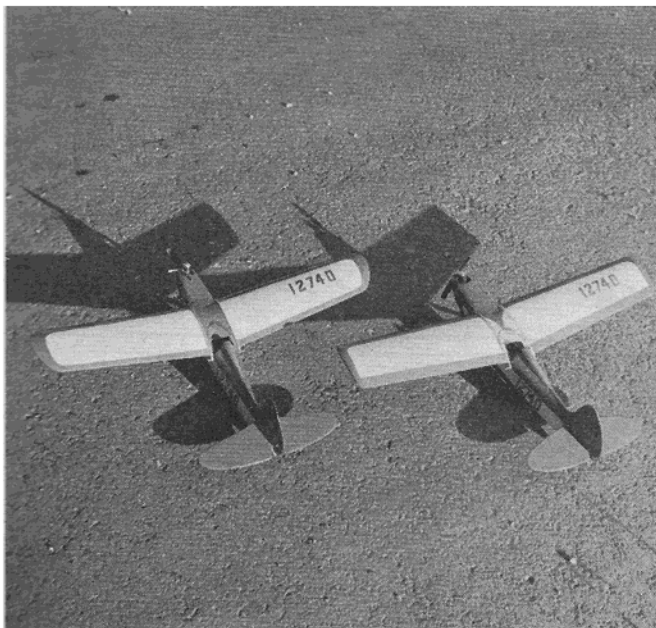
For general sport flying I'd recommend using the Cox Pee Wee for convenience and low cost. If you've built and flown a Whiz Kid this should be a natural for you. And you old pros, if your super deluxe 19 channel proportional rig is tied up at the cleaners you can build and fly SKAMPY while your exotic stuff is still in the mail. Gee, Gang, at these prices what can you lose?

Following are some construction notes, and I urge you to give a look, as some time saving hints are tucked away here and there regarding the ancient art of balsa bending. In case you're interested, bent balsa is stronger than a straight or flat section. When you see SKAMPY still intact after cartwheeling for 20 feet you'll understand what I mean.

CONSTRUCTION:

FUSELAGE: Wood selection should be light weight and straight grained balsa. Both sides can be cut from a single sheet of $\frac{1}{16}$ " insuring equal bendability.

1. Locate the nose doublers carefully and contact cement in place making sure there is a LEFT and a RIGHT side. Be sure to allow room for the landing gear wire.
2. Formers F1 and F2 are next and the sides joined at these stations. Let dry thoroughly.
3. Next come the $\frac{3}{32}$ " sheet braces between the two formers.
4. Glue and clamp the tail together keeping sides lined up. Don't forget the spacer T in the lower part.
5. Now moisten the upper half of the rear fuse on the OUTSIDE and both sides will start to bend in. Measure 3" back from the cockpit and using masking tape around the fuse, close the sides together and glue with white glue from the inside. This will leave a small triangular opening which will be covered later by the headrest.
6. Install blind nuts to fit the engine of your choice and epoxy the firewall and landing gear in place.
7. Glue the nose bottom in place and tack glue the top nose in position and add nose doublers.
8. Finish covering the cross grain fuselage bottom just short of F2.
9. Do some sanding and shaping to round off the nose and using a block, sand the rear deck opening flat to take the carved headrest.
10. Add the rudder post and laminations on each side of T at the tail bottom.
11. Glue fin in place being careful to keep alignment straight. NOTE: The fin and stab should be light but fairly stiff c-grain or quarter cut balsa to prevent warps. This can be identified by its scaly or flecked appearance. This cut is also good for wing ribs. Careful, here, as this wood cracks easily.
12. Glue the stab in place and add the $\frac{1}{4}$ " triangular braces where it meets the fuse.
13. Line the nose with styrofoam leaving room for batteries. If you've built your own tank it should be in by now. Reglue the nose top firmly in place and give everything a couple of coats of clear dope to seal the wood.



14. Glue the tail skid in place and add the sheet balsa fairings to the landing gear if desired. **Caution:** make sure these are taped and glued tightly in place as they have an effect on the aerodynamic trim of the plane — particularly if they are out of line. They act like little rudders or drag brakes. **NOTE:** Do not attach rudder until all doping is completed.

15. Actuator installation comes next and then the bottom of the fuselage can be closed in.

(SEE ADAMS INSTALLATION INSTRUCTIONS)

WING CONSTRUCTION:

A couple of tips here; do the sanding of the balsa sheets **BEFORE** starting assembly. This eliminates the ridges and thickness variations resulting from sanding over ribs.

1. While 3" sheet can be used, 4" will make the job easier. Use a steel ruler and trim the sheet edges absolutely straight then butt glue together to make a sheet 4½" wide. Ken Willard's method of using a strip of masking tape as a hinge which can be opened to allow glue to be beaded along the edges and then closed to dry, makes this easy. A thin tipped glue gun is also a big help.
2. Cut the bottom tapered panels to size and pin over waxed paper to an absolutely flat board. Use a ball point pen to locate the ribs. Build wing in halves.
3. The use of ¼" dowels for the leading edges really saves bruises and is strongly recommended. Line them up flush with the leading edge of the bottom sheet and white glue in place.
4. Add ribs and dihedral braces and let dry.
5. Cut the top sheeting about ⅜" oversize and now follow closely. Using 1" masking tape, run a full span strip under the bottom leading edge with a little over half the width showing sticky side up. Carefully position the top sheet in place snug against the dowel. Then wrap the exposed tape around the leading edge and over the top of the wing.

A couple of tries may be necessary to get the right position. Now open up the works and apply glue to the ribs, trailing edge, etc. The masking tape acts as a hinge and all will fall back nicely in place. Use weights and pins to hold down while drying, preferably overnight.

6. The wing tips are added and the two halves butt glued together making sure the dihedral is correct. When dry, cloth tape is applied with a coat of glue over the top and bottom of the wing joint.
7. Cloth tape or ⅜" wire can be used at the trailing edge as protection from the rubber bands.

FINISHING:

Be a weight watcher here. 2 coats of clear, one coat of color trim (let the natural balsa show where not trimmed) and finish with 2 thinned down coats of clear.

FLYING AND TRIM:

The wing incidence and engine offset angles represent average settings. Depending on engine, engine speed and weight, some adjustments may be necessary. More down thrust for the hot ones, more incidence for the heavy. If, in spite of warnings, you end up in the 10 ounce bracket don't give up. SKAMPY will handle fine under power but the glide won't be anything to cheer about. Don't despair however as this can be improved by cutting the wing in half and adding a 2" center section to bring the wing loading back down.

You'll find the SKAMPY very responsive to rudder and if this turns out to be more than is comfortable, then cut down the rudder throw by closing the gap in the stab by ⅛" to ⅜" each side. The plane will fly well at a wide variety of speeds and you can choose to suit yourself.

Have a ball and yet us know if you want more small ones.

Close-up of Adam's actuator installed in "Skampy."

