

Build the Hots!

Dan Santich

Editor's note: this article is reprinted from the April 1984 issue of *Model Airplane News*. The Hots was one of the first purpose-built fun-fly designs and helped grow that segment of the hobby. Long time contributor and past *Model Airplane News* editor Dan Santich designed the Hots to use a wide range of engines, so you can have it mild or wild, depending on which engine you choose to hang on the nose. If you love fun-fly events or just want to have fun at your local flying field, the Hots is a great choice. Now, with this free pull-out plan, you can build one of your very own! □ Gerry Yarrish



Nearly every RC club in the country has a fun-fly contest sometime during the flying season. These contests usually bring out the Ugly Stiks, Quickie 500s, old worn-out trainers and the like! The only problem is that these usual suspects aren't designed for fun-fly contests; they all have their limitations.

A typical fun-fly event goes something like this: most loops in a given time, most touch-and-go's, most spins, limbo, roops (roll-loop-roll-loop, etc.), and numerous other such missions. Most times, a fun-fly becomes a demolition derby as guys try to outdo each other. I can't count the number of beautiful planes that have bitten the dust simply to get just one more spin or another low pass under a limbo stringer. It seems silly to risk all that work and money for one more spin, but I've done it, too.

Well, my friends, have I got something for you! The Hots is simply the wildest, most maneuverable airplane I've ever flown. It is like taking on a mechanical bull at twice the fastest speed. It will turn on a dime and give



12 cents change! It can loop tighter than a control-line model. It climbs so fast that it is out of sight in 15 seconds. Add to that the capability to fly around at walking speed, and you not only have a fun-fly airplane, but you have something that is also a pure ball of fire to fly at any time.

What we have here is an inexpensive model that's dirt-simple to build. Add to that the versatility of engine usage, and there seems to be something for just about everyone. With a .15 engine attached, it's a real sweetheart. With a .29 or .35, it gets rambunctious. With a hot .40 or .45, it is truly bedlam unleashed!

If you add up all the airplane's good qualities□it's fast building, inexpensive, versatile, capable and adaptable□you can see the possibilities. We all need something like this. It fits inside a compact car in one piece. It is a departure from my usual scale designs, and perhaps that says something. I wanted something capable yet disposable. In two evenings, I built the first one, and now I have two more□all in one week! My scale ships take months to build. So, let's build the thing.

CONSTRUCTION

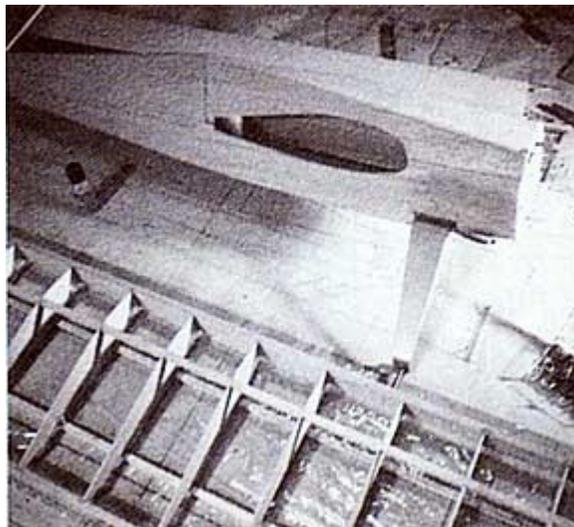
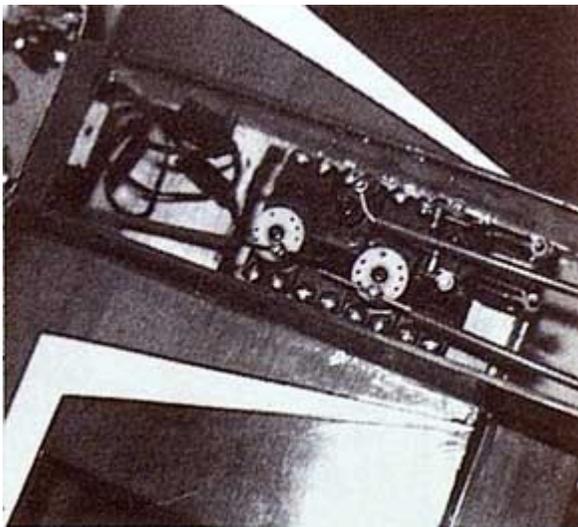
The first thing to consider is engine weight. If you use a .15- to .19-size engine, use a commercial engine mount to achieve proper balance. You must add weight to the tail if a metal mount is used with a larger engine. We want the lightest possible airplane. With an Enya .40XTV, my prototype Hots weighs only 3.25 pounds.

The second thing to consider is wood. Select only contest-grade balsa of the least possible weight.

The third consideration is adhesive; I built mine completely with CA. Don't use epoxy or resin of any kind, as it's too heavy.

The last thing is covering; select the lightest one you can find. MonoKote, Oracover, or UltraCote work just fine.

Start the fuselage by cutting out the plywood parts. Then cut the other fuselage pieces as shown on the plans. When you assemble F-1, F-2 and F-3 to the fuselage sides, glue them to one side only, and use a triangle to check that they are vertical. Then glue the opposite side into place. When you pull the ends together, make sure that the fuselage stays straight. Don't add the fuselage top pieces until the wing has been completed. Add the bottom sheeting, and make the lower hatch. Attach the landing gear, and glue the lower nose pieces on. Cut and glue the horizontal stabilizer pieces together, but don't glue them to the fuselage yet. Install the fuel tank.

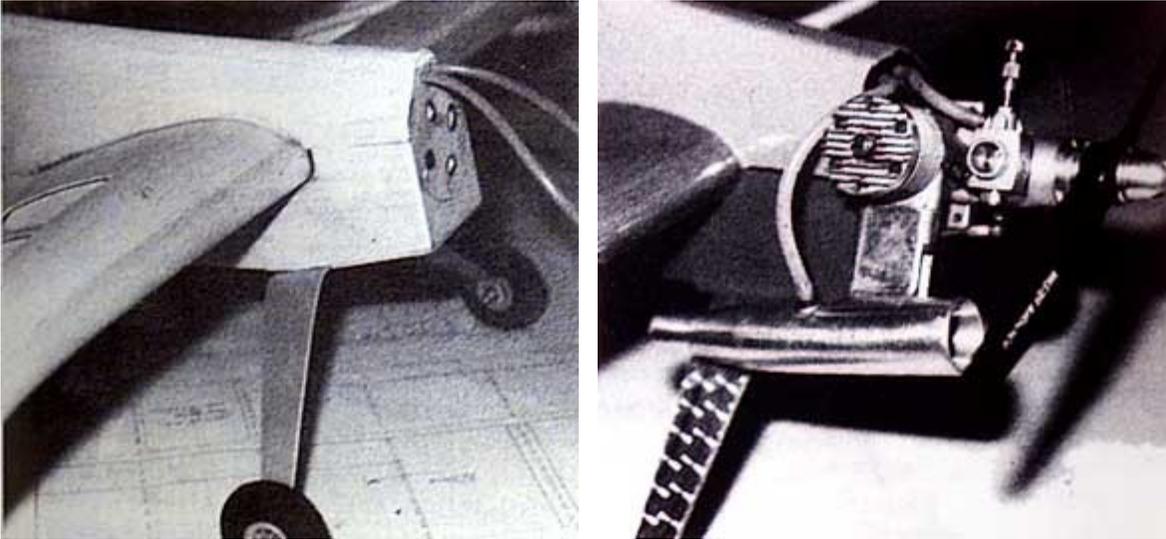


Above left - tight but ample room for most radios.

Above right - fuselage awaiting wing assembly.

Below left - nose section ready for engine plate.

Below right - Hots + O.S.FSR 45 ABC with Mac muffler = aerial dynamite.



Backplate engine mount

You'll notice that I used a backplate engine mount. This is because it's lighter than any other type of mount, plus it allows the rearward-most attachment position for the engine. Cut it out of K&S 0.064-inch aluminum sheet with a Black & Decker circle-cutter attached to an electric drill. Drill holes for the engine's backplate bolts using the backplate as a guide and then secure the engine (including the backplate) to the mount plate with the backplate screws.

Countersink the holes in F-1 so that the mount plate will sit flush against the firewall. Now remove your engine, and drill holes in the mount and F-1 for the attachment screws. Make sure that you don't drill them directly behind the engine because it will be difficult to get to them later. The reasons I canted the engine to one side are to keep the exhaust goo off the wing, and to put the needle valve in a nice position for adjustment.

Building the wing

The wing is where it's at! The airfoil is super, and it really is the key to the design. It is very thick—almost 20 percent! This gives us the lift we need for those stick-bending maneuvers. It also gives us drag—a lot of drag. We also need this to slow the model down when we throttle back. This is also why it will fly at a walk. But it thrives on a light wing loading, so keep the weight down.

Make a plywood or aluminum rib pattern template, and cut all your ribs using it. Place the lower spar over the plans, and glue the ribs to the spar. Block up the ribs so that they are all even. Glue the top spar into place and then add the trailing edge. Now glue the front and rear sheets to the ribs, and add the center sheeting. Cut and glue the capstrips to the ribs. Turn the wing over, and add the lower sheeting and capstrips. Glue on the wingtips and tip sheeting.

With the fuselage set on its main gear, set the wing in the cutout area, and check that each wingtip is the same distance from the floor. If they aren't, trim the fuselage on the high side until they are. Glue the wing into place. This is a one-piece airplane, remember! Now glue the horizontal stabilizer into place, and make sure that it is parallel with the wing. Glue the vertical fin into position. Sight down the fuselage centerline to make sure that it's straight and perpendicular with the stabilizer. Now glue the front pieces F-8 and F-11 into place. Glue rear F-7 pieces and lower ply fin F-6 into place. Make and install the aileron torque rods (or install

separate aileron servos in each wing panel), and attach the trailing edge. Make and fit into place the ailerons, elevators and rudder. Now epoxy (ugh!) the tailwheel assembly into place.

You should now have an airplane. Cover it with the lightest material you can find. I used Coverite's Micafilm. Install your radio as shown on the plans. If a balance problem crops up, reposition your battery pack accordingly.

How does it fly? Be prepared to tame a wildcat and good luck!