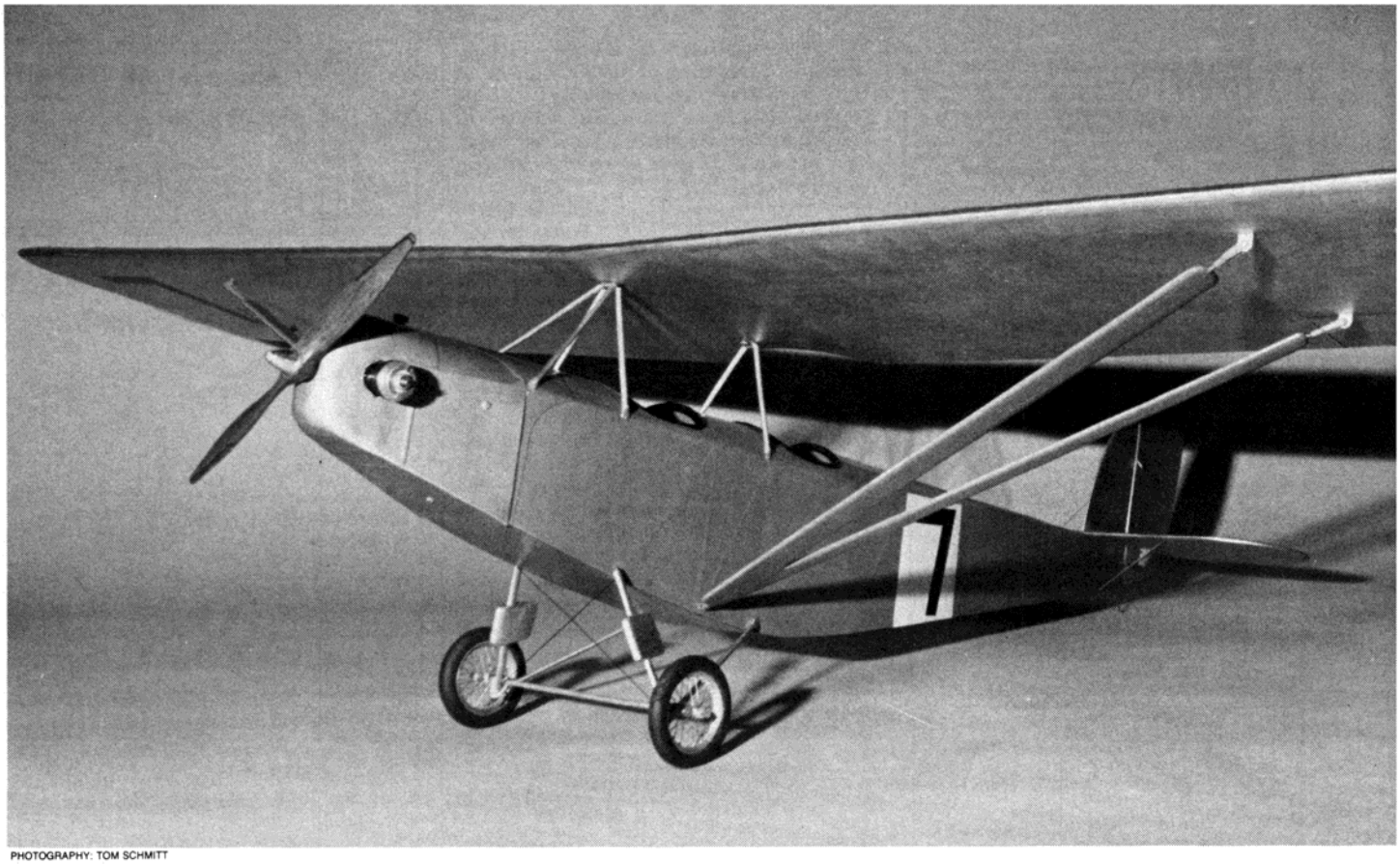


PHOTOGRAPHY: TOM SCHMITT

a Schoolyard Scale:

Supermarine Sparrowhawk II

By Don Srull

Ideal choice for some R/C fun on a calm summer evening. A two channel "SYS" parasol delight!

Warm weather is on its way, and it's not too early to start building for those calm summer mornings and evenings. An easy to build schoolyard scale R/C model is hard to beat for real pleasure and minimum investment. In the October 1982 issue of FLYING MODELS I laid out the basis for designing and building successful schoolyard scale models and described three versions of an ideal scale subject — the Supermarine *Sparrow II*. We present here the 48 inch span, .049 powered version which uses two or three channels for rudder, elevator, and optional motor control.

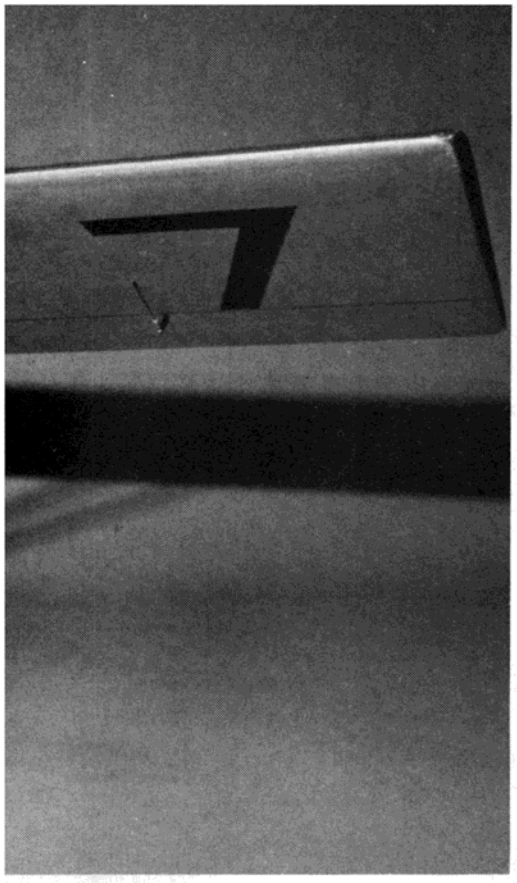
The full size *Sparrow II* was a classic British parasol, designed in 1924 by Supermarine Aircraft's young designer, R.J. Mitchell; the same Mitchell who was destined to eventually design one of the most famous aircraft of all time – the *Spitfire*. The *Sparrow* was originally built as a biplane for competition in the 1924 Lympne trials for light two-seat aircraft. Chronic engine troubles, however, kept it out of the trials. It was modified to a parasol monoplane in 1926 and the reliable 36HP Bristol *Cherub III*, two cyclinder engine was substituted for the earlier Blackburne *Thrush* powerplant. The *Sparrow II* weighed in at 963 pounds at take-off and had a top speed of only 65 MPH and a minimum, stalling speed of 30 MPH.

My model was sized to carry a light weight two or three channel radio and .049 engine at a wing loading of no more than 8 ounces per square foot. Since the wing area is 375 square inches, our all-up target weight was 20 ounces. I lucked out, and the prototype came in under the target weight, including one ounce nose ballast in the form of a dummy Cox .049 cylinder. The weight of the model breaks down as follows: I used a Royal Vanguard, four channel receiver, three World Engines micro, S-22 servos, and a 225 mAh battery pack. This comes to about 5½ ounces for the radio. A 2½ ounce Cox *Dragonfly*, .049 R/C engine is used for power. The complete airframe, including ballast, weighs a little over 11 ounces, for a total ready-to-fly weight of 19 ounces. If you follow the construction shown on the plans, you can easily make the 20 ounce target, and at that weight, the *Sparrow II* is an outstanding and realistic flyer.

Since the *Sparrow* is a simple and fairly conventional design, it is suitable for a relative newcomer to modeling. Use light to medium weight balsa throughout, and resist the temptation to beef up or add structure. The only hard woods used are spruce longerons, ply dihedral braces, and several plywood fuselage formers. I find it easier in this type model to build aluminum tubes into the fuselage where the cabane and landing gear will be attached. This way the wire parts can be bent and fitted and then removed until the fuselage is covered and painted. After final assembly, they are locked in place with a drop of cyanoacrylate glue.

Notice that the wing struts are attached to the wings by means of adjustable clevises. This permits fine adjustment to the strut lengths to assure that the wings are straight and have the correct dihedral. At the fuselage end, the struts are fastened by means of a medium size Robart Hingepoint. This is a very simple and effective fitting which allows complete removal of the wing struts.

As for covering and finishing there are several options. Model tissue or silkspan can be



Two or three channels guide the 1/2A *Sparrow II* by Don Srull (**at left**). To simplify final finish and covering, Don builds aluminum tubes into the fuselage to receive plug-in wires such as the cabanes (**above**).

The full size *Sparrow II* was a classic British parasol designed in 1924. Simple and coventional design make it a good beginner's choice.

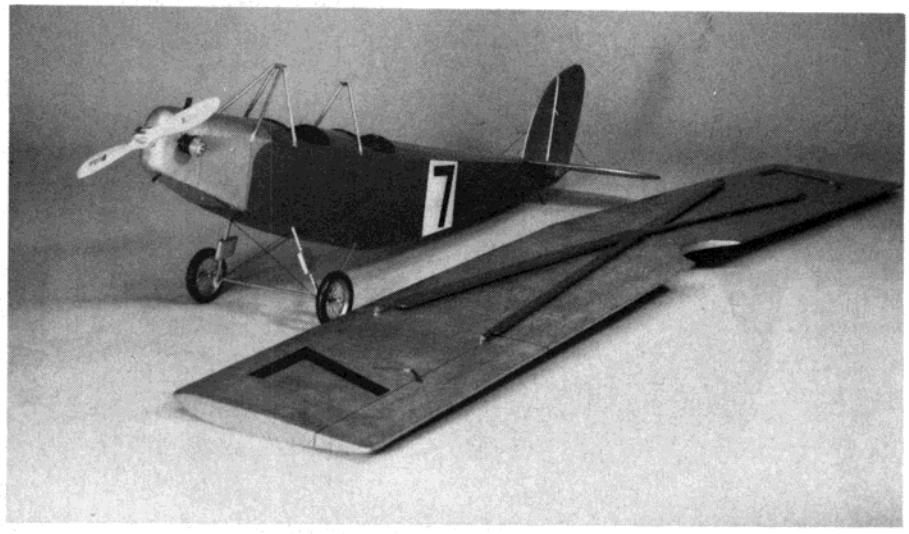
used but it is very fragile and puncture-prone on a model of this size. My number one choice would be light weight silk or Sig Silray and butyrate dope. If you prefer, the wings and tail could be covered with aluminum colored MonoKote™ or Solarfilm. However, I would highly recommend silk and dope for the fuselage in any case since it stands up better to the ravages of fuel and oil.

The removable cowl can be built up from balsa, or formed from fiberglass and epoxy as we did on our model. It will have to be tailored somewhat to the particular engine you use, but make sure you have adequate access to the fuel tank filler, the needle valve, and the glow plug. Also make allowance for the tank overflow line.

You will notice that I used a set of spoked wheels on my model, even though the full size *Sparrow* had solid wheel discs. I just happened to have a pair of the correct diameter Hungerford wheels, and they looked so good I couldn't resist. The authentic scale wheels are shown on the plans.

Here are a couple of tips on flying the *Sparrow II*. Before you attempt a flight, make sure there are no warps in the surfaces and the model balances at the proper point. You should have 1/2 to 3/4 inch throw to each side of the rudder, and no more than 1/4 inch up and down elevator throw. If you are using a 6-3 propeller, put it on backwards and run the engine very rich for the first test flights. Only after the model is trimmed out should you lean out the engine somewhat. For regular flying, I use a Top Flite 7-4 wood prop. I find that it keeps the engine from developing peak RPM's and provides exactly the correct power for realistic flights of the *Sparrow II*. If you use a 6-3 prop, keep it on backwards to reduce the thrust somewhat. The muffler on the *Dragonfly* is very effective, and the throttle allows us to climb out and then throttle back and cruise at very slow speed. It does not quite throttle down enough to allow reliable approaches and landings under power, but I'm still experimenting with different prop and fuel combinations.

I hope you enjoy your *Sparrow II* as much as I have enjoyed ours. See you down at the schoolyard sometime.



Adjustable clevises at either end of the wing struts (**above**) make wing removal a simple matter. Elimination of warps and proper C.G. set-up give you nice, uneventful launches such as this one (**bottom**).