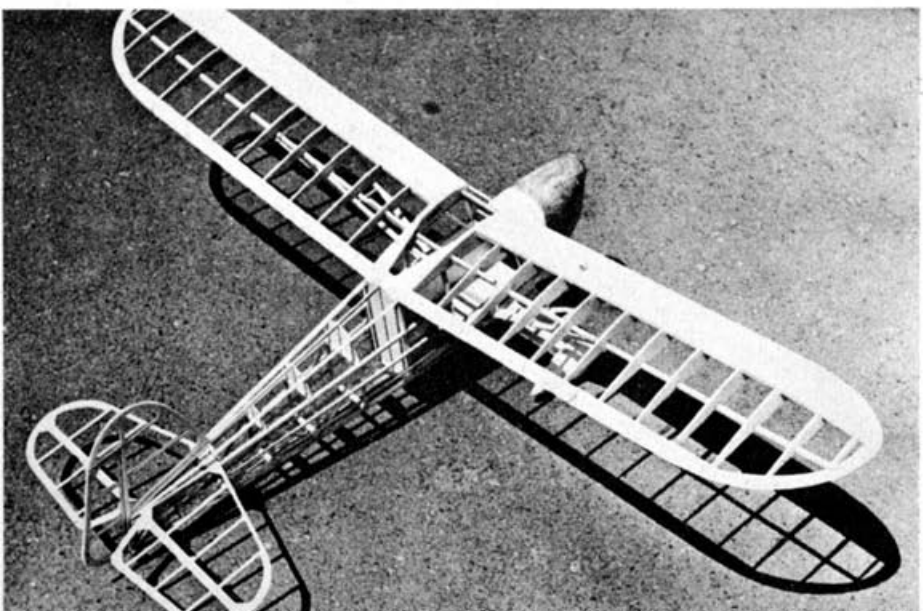
Flipping the prop on his McCoy .049 Diesel, Walt prepares to take off the original model. The small amount of right thrust, plus wash-in both wing panels, provides left climb circles, right in glide.

THE REARWIN SPEEDSTER

By WALT MOONEY

Even had a modeler designed the real plane, it could not have been a better subject for a flying scale miniature. Perfect design, looks, sound structure, make this ideal for .049's.



Considering the clean lines and special features of the real plane, such as wheel pants and struts, the structure of the model is surprisingly simple and practical. Author's model had Fiberglas nose.

The Rearwin Speedster, an outstanding airplane of its day, had a top speed of 150 mph and a climb of 1,200 ft. per minute, using a 125 hp Menasco engine. It was two-place tandem and, with 50 lb. of baggage, had a range of 550 miles.

It has always been an effective flying model. One of the most beautiful rubber-powered flying scale models in Nationals history was a Speedster flown before the war by Ed Naudzius. Being a tandem, the fuselage does not become too wide when scaled up to still larger sizes. It would make an ideal flying scale radio control plane.

The model is exact scale except for enlargement of the horizontal tail and increased dihedral. The basic fuselage structure utilizes longerons, uprights and cross-pieces. The right side is indicated in phantom on the plans. Until final assembly, the upper longeron remains in the door area. Add the aft cabin bulkhead and former and all the cross-pieces. Then build the cabin in place, using 1/8 sheet for cabin ribs. One-eighth diameter hardwood dowel is used for forward cross-member and windshield diagonals. Build the door to fit in the right side and remove upper longeron from the door area. Hinge the door on its forward side. All stringers are 1/8 square balsa.

The motor mount is a plywood box open on the bottom. For extra strength, use Weldwood glue to assemble and attach it to firewall.

The wing is conventional. The root locating dowels and attachment hooks are wrapped with thread and cemented to the spars, using filler blocks on the spars for proper locating. Sew the strut mounting tubes in place.

However, the structure is strong enough for silk covering, which is much more resistant to tearing when the model hits a bush. Whatever you choose to cover the Rearwin, be sure the frame is well sanded to remove all irregularities. After covering and water-shrinking, the original model was given three coats of clear dope to seal the paper. It takes more coats to seal silk covering. Then an all-over coat of silver was sprayed on all the tissue parts. This can be quite thin and opaques the covering so fewer color coats are required. Then, in the area of the numbers and trim, the model was sprayed with two coats of cream dope. After drying 24 hours, the numbers and striping are masked off and three coats of red dope sprayed on the model. Since the original model was Diesel-powered, nitrate dope was used. Caution! If you are using a glow plug engine, use hot fuelproof dope.

Before covering, all the wood planked areas, wheel pants, strut fairing, cowl and landing gear fillets, etc., are filled with several coats of wood filler (a mixture of talcum powder and dope) and sanded until no grain shows. For final sanding, use 600A wet or dry paper. After cover-

Arguments about the relative merits of looks, detail vs. flying ability are made pointless by this Rearwin. Landing legs are shock absorbing.

Dream ship? Be mighty tough to draw up something prettier than this real airplane! Radio fans, why not scale it up? That really would be living!

The Rearwin Speedster

ing and doping with the color coats, these areas are rubbed down with rubbing compound to give the texture of metal. The fabric areas are not rubbed because fabric on the real ship wasn't as smooth as metal on the cowl and fairings.

The tail is straightforward in construction. Note the location of the heavy thread bracing wires. The landing gear is bound to the fuselage with thread and cemented in place. It must be bound to the longerons as well as the cross-members. The leg fairings are balsa, 1/4 sheet, streamlined. Leave a 1/32 in. gap between the fairings and the plastic balsa fillets which should be built up on the fuselage.

The struts are shown true length and give the correct model dihedral. Solder a shim-stock disc on the fuselage hook, as shown, to locate the root of the struts at the fuselage.

The cowl and pants are built up of balsa block laminations. Notch the inner side of the pants to allow the vertical leg of the gear to fit flush with the surface of the pants. Attach the cowl according to your favorite method.

Cover the model with your own preferred material. Japanese tissue was used on the original. The wing is built flat and, after finishing, the completely doped wings are held over the heater (no open flame) and given their washout by twisting up the trailing edge at the tip. About 3/16 in. is enough—the exact amount is not too critical—but it must be the same in both wings. The struts are made to length after washing out the wings and they then maintain the correct washout when the airplane is assembled. A typical color scheme as used on the original was all red with cream trim and numerals.

Flight adjustments on the model are the washout on both wings, as mentioned; also 1/32 washer was needed under the left engine bolt to give a small amount of right thrust. Zero rudder setting was used. The original climbed in left circles and glided to the right.

Get the engine running with the cowl off and then stop prop. Install the cowl and flip prop smartly. This worked very well on the original. If you find you need access to your engine, make 3/16 diameter holes in cowl at appropriate places, cut slots in the engine controls and use a screw driver for adjusting with the cowl in place. END