PEANUT WITTMAN VW RACER

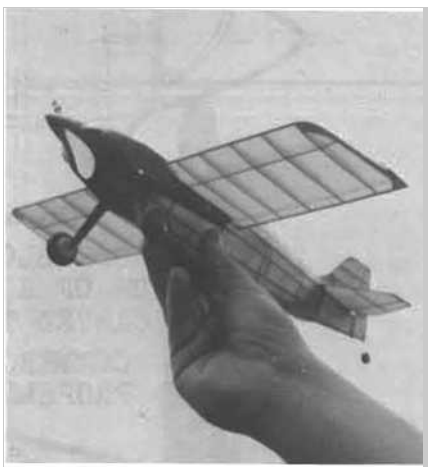
By WALT MOONEY ... Racing piiot/designer/builder Steve Wittman must have had modelers in mind whenever he dreamed up one of his famous racers. The lines are always clean, simple, and easy to reproduce.

• To anyone who has even the slightest interest in aviation, Steve Wittman needs no introduction. This racing pilot from Oshkosh, Wisconsin, has been building winning racers for more than forty years, and is still piloting them in races wherever a race is promoted. His designs are famous for being light, simple, and fast. They are also famous because they have not followed the "french curve" smoothness approach to aerodynamic efficiency. Thus, his airplanes have not always looked fast, but they have always been fast.

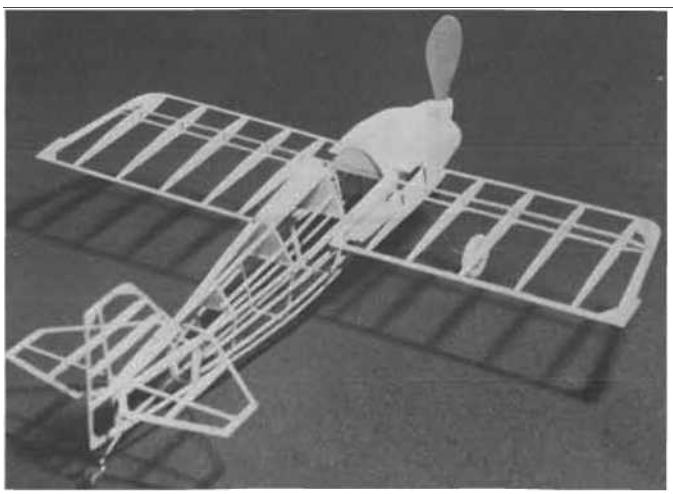
This VW powered racer is in the best tradition. It is a boxy, angular airplane. Nevertheless, looked at carefully it is streamlined in all the right places, has been simply built, and is obviously light in weight. One design approach Steve has used for years, is the wire- braced wing. By using wire bracing, the wing can be made much lighter and thinner. Keeping a racer as light as possible is important, because a considerable portion of the drag of any airplane is induced by the amount of lift developed to hold the airplane up and the lower the weight the more quickly the airplane will accelerate, both on the initial takeoff, and after each pylon turn.

There are two intentional deviations from scale in the model; the area of the horizontal tail has been increased slightly, and the dihedral has been increased from nothing to an eighth of an inch. The wing has been designed to use wire bracing just like the real thing.

Note that the top longerons are spread wider apart than the bottom longerons.



As usual, those low aspect ratio wings area great way to get area in a 13 inch peanut!



Framework shot reveals the simple construction of the VW racer. Only problem may be the sheeting around the cowl.

Only deviations from scale are a slight increase in stab area and an 1/8th Inch of dihedral added to the otherwise flet wing.

Thus the wing only contacts the fuselage structure along the upper longeron. Without the wire bracing (monofilament fishing leader) the wing attachment would be somewhat fragile. Although this method adds some complexity to the usual approach of just cementing the root rib to a flat fuselage side, it offers the advantage that dihedral is adjustable by re rigging the bracing, a simple job with monofilament, which can be shrunk with the application of a little heat.

The model has been drawn for, and the drawing calls for balsa in the standard sizes of 1 /32nd sheet, 1/16th sheet, 1 /16th square sticks, 1/16th by 1/18th sticks, etc. It can be made this way and will surely work well. If most of your flying of peanuts is done outdoors, I'd recommend following the plan. The model in the pictures, however, was built with 1 /20th square instead of 1/16th, and 1 /20th sheet instead of 1/16th sheet. This results in a considerable reduction in weight. This special "Peanut Size" wood is available by mail from PREMIER Co., P.O. Box 8264, Long Beach, Calif. 90808. For more information send a stamped, self-addressed envelope to them. I have been much impressed with the quality of their wood, and of course delighted that they have started cutting Peanut sizes.

Structure on this model is fairly standard, but there are subtle differences that warrant special discussion. The airfoil section of the wing is not flat bottomed. I chose to use a scalelike (I don't know what the exact airfoil ordinates are) airfoil section that has a very small pitching moment. This requires that when the wing is built over the plans, the trailing edge must be supported above the plan about a sixteenth of an inch.

The fuselage basic structure consists of two sides built over the plan, removed from the plan, cemented together at the tail post, and then separated from each other by a series of cross pieces at the location of each upright, to make a common box structure. It's important to note, however, that this fuselage box is not rectangular in cross-section, but trapezoidal. That is, the upper longerons are further apart than the lower ones. Care is required in making this basic assembly. Because of the difference in width, fuselage sides that are assembled over the plan shown will curve upwards at the tail, resulting in a little nose up adjustment of the tail. This happened in the case of the model in the photos, and was left that way without any noticeable change in the shape. If you wanted to compensate for this, you could, during assembly of the sides over the plans, shift the longerons at the tailpost downwards 1/16 of an inch.

The nose contours, except at the very front, are angular and generally straight-lined. Therefore, on this model, the cowl has been built up of sheet balsa; 1/16 sheet was used between the first two fuselage stations, and 1/32 sheet was used from there aft.

The cross-section of the nose block requires that you fill the inside corners of the forward part of the cowling with 1/4 by 1/4 triangular balsa so that the very front of the cowling just aft of the nose block can be carved to the rounded shape of the noseblock.

The landing gear wire comes out of the fuselage about 3/16 up from the bottom. To install it, cut a narrow notch in the lower structure and then fill the notch after cementing the wire in place.

The vertical tail is an integral part of the fuselage structure as finally assembled. The top center stringer cements to the vertical tail leading edge and a small sheet balsa fillet makes the curved fairing between the stringer and the fin. Fuselage and fin covering is continuous. This means that the horizontal tail must be covered and installed before the vertical tail is installed and the top of the fuselage can be covered.

My propeller spinner was carved from block balsa and hollowed out. It was then epoxied to a Peck Polymer 4-3/4 inch diameter plastic propeller, after installing the prop hook. Usually I put a winding loop on the front of the prop, but I felt that this would louse up the looks of the spinner, so for mechanical winding, the noseblock must be removed and the rubber disconnected from the prop hook. This is a little less convenient, but I've seen a lot of photos of modelers holding props in their mouths while winding, so I'll do it too, while winding this one!

WIttman's color scheme is green on the fuselage and vertical tail and yellow wings, horizontal tail and trim. The correct numbers show in the photos.