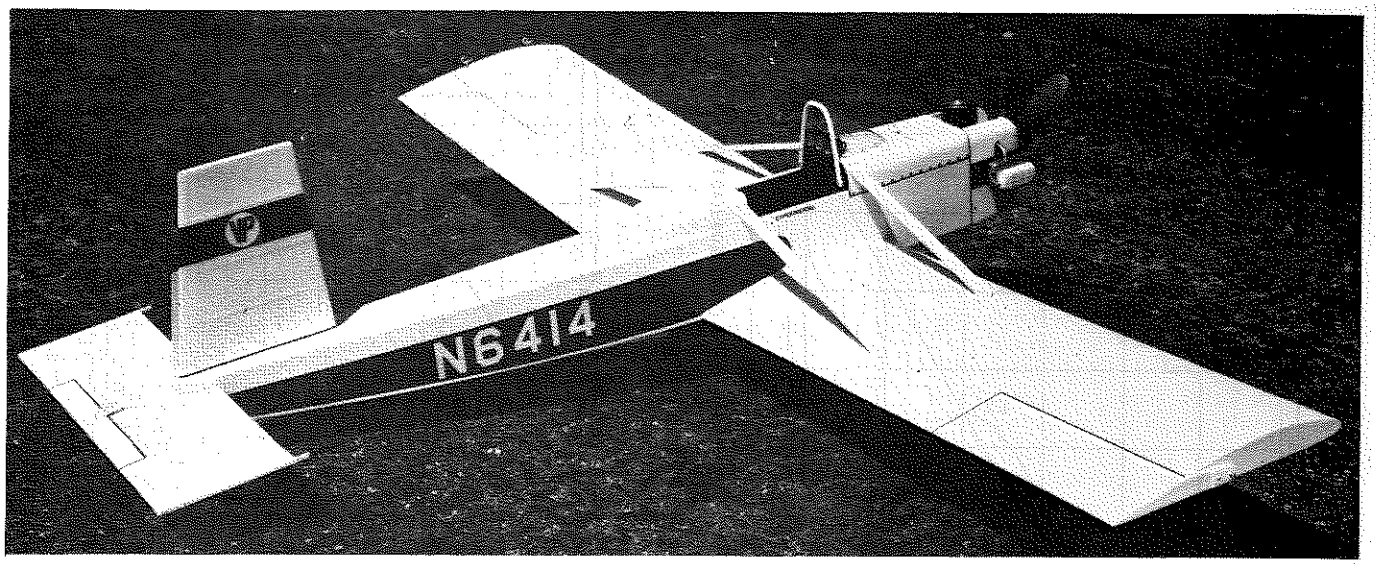

the "VOLKSPLANE"

By VERN SCHROEDER . . . Here is a control line model of an airplane that is easier to build full size than some models! Scaled at 1-1/2 inches to the foot, it could be converted to R/C.

• Designed by W.E. Evans, an aircraft design specialist at Convair, the "Incredible Volksplane," as it is sometimes called, is itself hardly more than a huge overgrown model. Its nearly all wood construction follows quite closely that of most model aircraft; and we might add, is much simpler than some.

Evans' basic design objectives were to keep it simple, low cost and light. Using a Volkswagen engine, which requires only minor modification and bolts directly to the firewall, one-piece full-flying tail surfaces, plywood sheeting on the fuselage, one-piece bent aluminum landing gear and strut braced wings, are all methods used to achieve these goals.

Although simplicity was the keynote of its design, the Volksplane's flight performance is still quite impressive. A 40 horsepower VW engine, combined with a flying weight of only 650 pounds, gives it plenty of zip. It takes off in 450 feet and lands in about 200, putting it in the STOL (short takeoff and landing) class. Top speed in level flight is about 85 mph, cruise about 75 mph, stall is a mild 46 mph, and the dive speed limit is 120 mph. Rate of climb is about 450 fpm. The airframe has been designed to withstand loads to 6.6 G's. Ceiling is about 9000 feet.

A year of spare time would enable nearly anyone to complete construction of a Volksplane. The cost would run somewhere in the neighborhood of $1200 (1969 prices). This could be broken down into $600 for the basic airframe and another $600 for the engine, prop, wheels and instruments.

Best of all, the fuel consumption is only two gallons per hour; which figures out to be about 40 miles per gallon! What better way could you find to beat the energy crisis?

During its ten year plus existence, the Volksplane has become one of the most popular of homebuilts. Each homebuilt fly-in held will produce at least one, and often several will make the scene. We know of at least one high school shop class, with an aviation oriented instructor, who built the VP as a class project. More recently, a two-place version has been designed and called the VP-2, which has slightly larger dimensions all around.

Flight tests on the original full sized aircraft (which we have modeled here) were performed by none other than **Model Builder's** "Prolific Peanut Producer", Walt Mooney.

Our model presented here is built to a scale of 1-1/2 inches equals 1 foot, which gives it a wingspan of 36 inches, and a length of 27. The original was powered with an old

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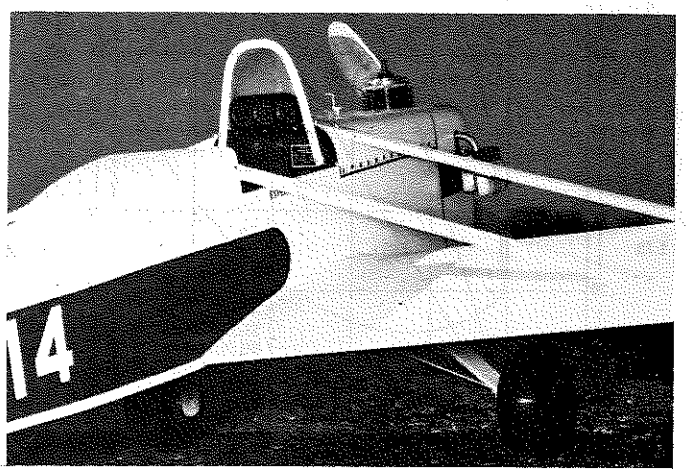
Ancient Cub .14 was used in original model. Though a modern .09 or .10 would do, a .15 would give livelier performance.



Contact shelf paper simulates natural finished plywood sides. Seal edges with epoxy. Plans could be used for R/C version, as is or larger.

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OK Cub .14 liberated from our junk box; but we recommend a more modern .15-.19, which should improve performance considerably. The nose may have to be modified slightly for the type of engine used and the appearance could probably be improved by using an inverted or horizontal mount.

We have listed scale data sources for all models of the Volksplane even though our plan is for the VP-1. The VP-3V-1 appears to be identical to the VP-1 except for a two inch wider fuselage and the elimination of the rudder trim tab. The VP-2 of course, is the two place version and has larger overall dimensions.

Let's begin construction with the:

FUSELAGE: Unlike many builders who dislike building wings, this writer finds the fuselage more of a chore; so we usually try to build it first and leave the more pleasant tasks 'til later.

Cut two fuselage sides from 1/8 medium sheet balsa and the fuselage bulkheads from the materials called out on the plan. Mark off the bulkhead locations on the inner surface of the two sides.

At this point it will be necessary to determine the type of engine and the method of mounting which is going to be used. The firewall location shown on the plan will work with most .15 engines, but will probably have to be moved farther back for a .19. A radial mount will simplify the installation considerably; but if beam mounting is used, it will be necessary to notch the firewall and install hard maple mounts. Extend the mounts back to bulkhead No. 2 and epoxy securely in place.

Once the firewall location has been determined, the two fuselage sides can be joined. The sequence is not important, but we usually start at the nose and work toward the tail. Next, install the engine bearers or drill the holes for the motor mount and install blind mounting nuts behind the firewall. The fuel tank also should be installed at this time. We used a Perfect No. 12, 2-1/3 ounce rectank.

The 1/8 top and bottom sheeting can now be added, along with the cowl blocks, backrest and 1/8 plywood bellcrank mount.

Finally, the cowl blocks can be shaped and the entire fuselage given a final sanding with 220 grit sandpaper.

WING: Cut the ribs and rear leading edge from medium 1/8 sheet balsa and the wing skins from medium 1/16 sheet. Mark off the rib locations on the inside surface of the skins and bevel the inside of the trailing edges to a thickness of 1/32, as shown on the side view, to keep the thickness of the trailing edge down to 1/16.

Now pin the two bottom skins down on a flat surface. Cement the rear leading edge and ribs in place. Be sure to cement the two center ribs in place so when the two wing halves are joined, they will form the proper dihedral angle. Next cement the upper wing skins in place. The 1/2 inch square leading edges are added next, followed by the 1/16 plywood tips. Shape the leading edges and give the wings a thorough sanding.

Finally, join the two wing panels using epoxy cement. For additional strength, the center joint can be covered with a strip of fiberglass tape epoxied in place.

TAIL SURFACES: Cut the rudder and stabilator from medium 1/8 sheet balsa. Round the edges where required and sand thoroughly. Cement the stabilator counterbalances in place.

ASSEMBLY: Fit the wing to the fuselage and cement in place with epoxy cement, checking the alignment carefully before the cement hardens. Next join the rudder to the fuselage. Note that it is offset 2-3 degrees for a right turn.

Cut a 3/4 inch length of 3/32 I.D. brass tubing and slip it over a piece of 3/32 dia. music wire. Cut the wire to proper length and bend each end as shown on the fuselage top view. Groove out the lower surface of the stabilator so the 3/32 wire hinge will fit flush with the under surface when assembled.

Epoxy the hinge in place and reinforce with two pieces of fiberglass tape as shown. Next epoxy the brass tubing pivot to the rear of the fuselage, using a strip of fiberglass tape for reinforcement. Check alignment carefully while the cement is setting.

The tailskid is bent from 1/16 music wire and epoxied in place, again using a strip of fiberglass tape for reinforcement.

FINISH: Although there are many finishing methods available today, this writer being a bit old-fashioned by nature, still prefers the old dope finish, at least over balsa surfaces. Use your own method, but ours goes like this:

First, sand the entire model with 400 grit sandpaper and apply two coats of clear dope and repeat the sanding process.

To simulate the full-scale ribs, apply 1/32 wide strips of tape at the locations shown on the plan. Now cover the entire plane with lightweight silkspan. This helps to cover the grain in the balsa wood and reduces the amount of filler needed. Apply another coat of clear dope, followed by two coats of an 80% clear dope and 20% cornstarch or talc mixture. Sand thoroughly and then give the ship one last coat of clear dope.

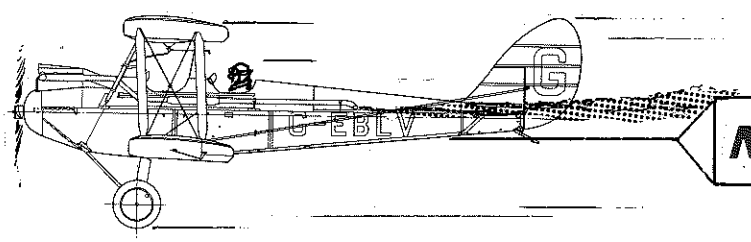
Next apply at least three coats of white dope, preferably sprayed on. The red tail stripe and stabilator counterbalance tips are painted red.

The wood-grained side panels are cut from either mahogany or walnut contact paper, which is available at most hardware, department, dime stores, or supermarkets. The lettering and numbers are cut from white or black decal or Monokote trim sheets as required.

FLYING: Balance the model at the point shown on the plans and add weight, if necessary, to the nose or tail. Under no circumstances try to fly a tail heavy ship!

The Volksplane's full-flying stabilator makes the ship extremely sensitive to control movements. Place the pushrod in the inner hole of the bellcrank and the outer hole on the elevator horn and use some means of limiting the amount of stabilator movement to about 3/16 up and 1/8 down.

Follow these simple instructions and your Volksplane should provide you with many hours of enjoyment, either as a sport model or in scale competition. ●



MODEL BUILDER

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