

THE vulcan

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The Vulcan is an excellent pattern ship with jet-like appearance. It is set up with a swept mid-wing in-line configuration with no dihedral and 0-0 incidence. The original idea for the Vulcan was conceived by John Hedspeth, a fellow member of the Tucson Radio Control Club. Since that time, both of us have been working and improving on that design with the plans, as presented in this issue, being the latest version in the series. It is truly an outstanding performer, and being a very clean design is quick but still very easy to fly. Although it lacks dihedral, the swept wing does give it extremely good stability. I am sure that you will find the Vulcan as exciting to fly as it is easy to build.

CONSTRUCTION

Fin and Rudder

The empennage is constructed from 1/4" balsa which is cut to planform and then sanded to shape. Use a DuBro wire horn or bend one from music wire for the rudder control linkage. You must install the rudder and fin on the fuselage prior to installing the stabilizer. In addition, be sure to hook up your pushrod at the same time. Then, glue the 1/2" triangular stock at the fin and fuselage junction for additional strength in this area.

Stabilizer and Elevator

The stabilizer is also swept making necessary the use of two separate control horns. The DuBro strip aileron set, # LB89 works well for this application. The push rod will need two adjustable Kwik-Links at the stabilizer end (see pattern plan for pushrod). After you have cut out the foam blanks, trim the center to obtain the right amount of sweep. Epoxy the two halves together and install the 1/4" hard balsa spar, then cover with 1/16" balsa

skins. Be sure to epoxy some fiberglass tape around the center of the stabilizer for additional strength. Cut the elevators from 1/4" balsa sheet and make your hinge cuts. Fit together with the hinges of your choice and make sure the elevators work freely. The elevator horns are on the bottom side of the stabilizer to keep the two pushrods from interfering with each other. Epoxy in the control horns and hinges and allow to dry.

When you are ready to install the stabilizer in the fuselage, it is accomplished in this manner; cut enough of a slot on both sides of the fuselage so that the stabilizer can be inserted through it. Hook up the pushrods and adjust to make sure that each elevator is in line with the other. Slide the pushrod and stabilizer into the fuselage and align to a 0-0 reference line with the wing. When you are sure that your decalage is correct, glue the stabilizer in place and fill up the remaining and unused portions of the slots in the fuselage sides.

Fuselage

The fuselage is built up in the conventional box configuration, then planed and sanded to the contour shown on the plans. Draw a center line down both fuselage sides and cut the sides from 1/8" balsa sheet. Glue the 1" triangular longerons to the top and bottom of each side. Join the two fuselage sides using the bulkheads and firewall as a guide to maintaining proper alignment. Install the nose gear block to the rear of the firewall before installation. Allow the sides and bulkhead assembly to dry thoroughly.

At this point you can begin cutting and planing the fuselage until you have obtained the contour shown on the plans and in the photographs. Cut out the bottom of the fuselage from F3 to the front where the wing rests. Cut up to, and around, the area where the wing saddle will be located. The wings trailing and leading edges must be on the center line. This bottom piece will be glued on to the wing. If you wish to use a fillet make it out of Epoxylite.

The installation of the stabilizer was covered in the preceding paragraphs. After the stabilizer has been installed, mount your Tatone mount and align your engine on the fuselage center line employing approximately two degrees right thrust. The rear half of an 8-12" canopy should be used for this model.

Wing

The airfoil used in the Vulcan is the same as the Tornado which is available commercially from B.K. Model Products, 4765 East Iliff, Denver, Colorado. This wing kit sells for \$10.95. In addition, some of the other foam wing companies have made this configuration commercially available. If you obtain a Tornado wing kit it will be necessary to trim each panel at the center in order to get the proper sweep in the wing. Build your wing as per the instructions in the kit. It will, however, be necessary to cut new landing gear slots in the foam due to the swept wing configuration.

If you decide to cut the foam panels yourself, use the patterns shown on the plans. Glue the wing panels together with epoxy and use some fiberglass tape around the center section. Cut out a pocket in the foam for your aileron servo and hook up the aileron controls. A small cutout is shown on the plans located at the front of the wing. This may not be necessary depending on the size of the battery pack and tank you use. A Sullivan RST 12 ounce square tank fits in nicely. The wing hold-down dowels are located on the bottom side of the wing. Glue a 1/8" plywood plate at the location where the nylon hold-down bolts are located.

The bottom section of the fuselage is now fitted to the wing. Place the wing on the fuselage and fit the wing hold-downs in place. After you have them adjusted, trim the bottom section that you cut from the fuselage to fit on the bottom of the wing. This may now be glued in place.

Finish

Cover the entire model with silk, apply one heavy coat of dope, then follow up with two coats of Sig Superfill or other sealer-filler. Let dry thoroughly, then sand with 320 paper, being careful not to sand too hard since it is easy to cut through the silk. If you should wear through the covering material, simply rub on a little bit of epoxy since this will seal the puncture. Sand once again and repeat with another coat of thinned Superfill. Let dry and sand again. At this point allow the entire model to dry for 48 hours.

If you have access to a spray gun, spray on one light coat of Dupont number 30S Platinum Lacquer Primer. This will show up any imperfection that the Superfill might have missed. Correct the imperfections with some spot putty and sand the entire airplane with 400 paper.



The bottom half of the model is painted a light blue. Since I couldn't find a light enough blue in the stores I mixed my own. Spray on two or three coats of the blue, let dry for 24 hours, then tape off the fuselage bottom so that the top can be painted. The latter is sprayed olive drab, then spot on the camouflage tan wherever you like. Both Sig and Pactra sell these colors of dope.

Finishing Touch Decals have a good set available for the Vulcan. Apply the decals and you're ready to go. I, personally, always seal the edges of the decals with a small brush dipped in some thinned clear dope.

Trim

Install your motor and radio gear and check that your center of gravity is located near to the point shown on the plans. The flying weight for the 62" Vulcan should be between six and seven pounds. You will find that your model will fly very easily and smoothly as long as you set the elevator for very little movement in the up position for your first flights.

Good flying.

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