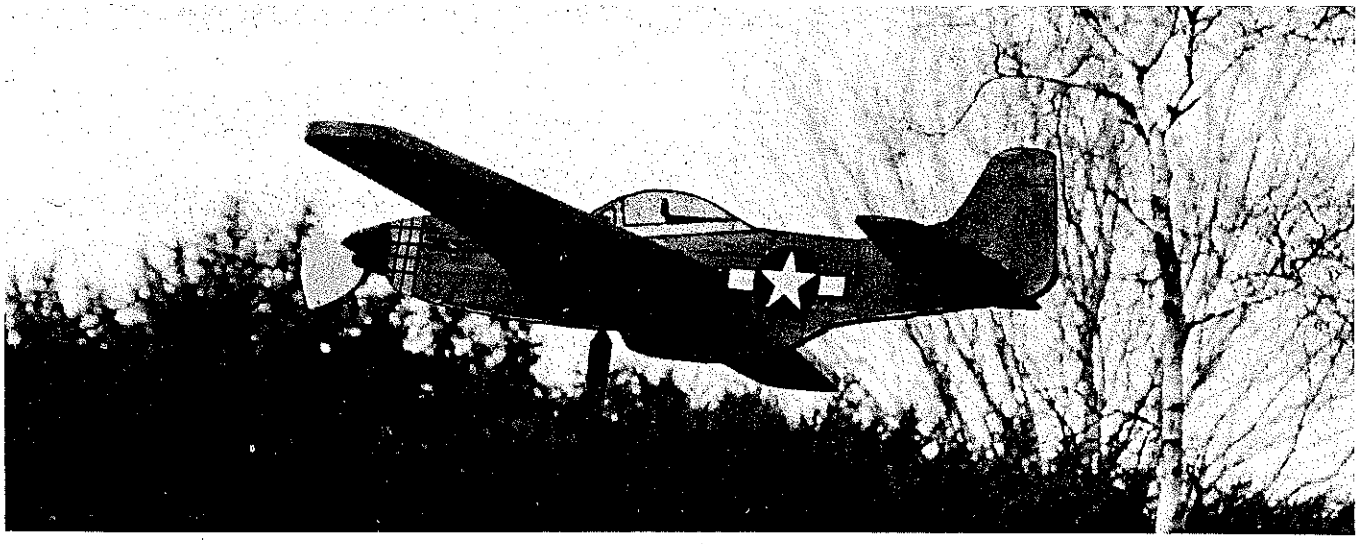
687

The Modern Windsock

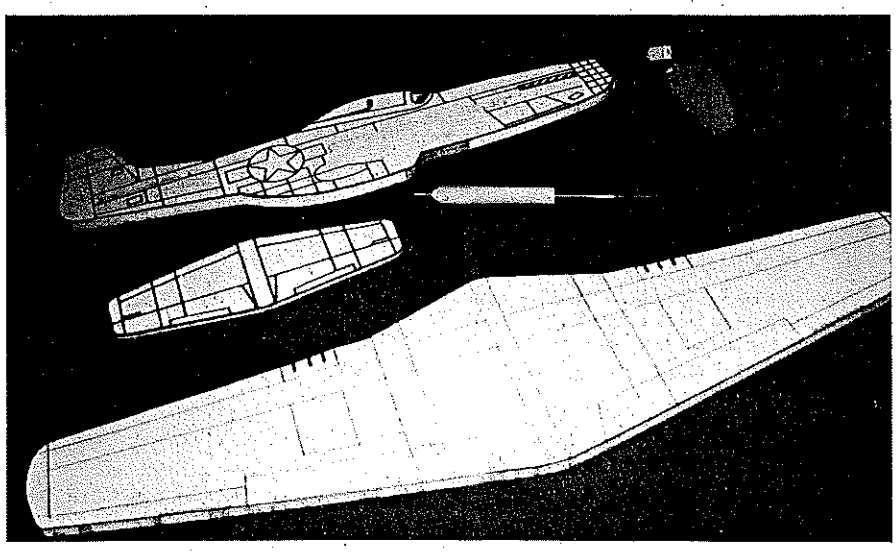


Not a low flyby by a Giant Scale Mustang! It's the Bergen County (New Jersey) Model Aerodrome's Wind Direction Finder (WDF).

The next time you're looking for something different that'll add interest to your local flying field, consider this model airplane windsock. Made of Styrofoam and foam-core board, our author's Scale model of the P-51 Mustang has the happy job of finding the wind direction while charming everyone who sees it. ■Joe Beshar

WE'VE HAD a conventional tube-type windsock at our club's flying field, the Bergen County Model Airdrome. It's been there since day one, and it has always annoyed me. When the wind isn't blowing it droops down and reminds me of a hanging wet leg of lamb. It's ugly. I always feel a bit depressed anyway when the wind isn't blowing, and that windsock is always there to remind me. What to do about it?

At the end of the last flying season I really took a close look at the thing. It was frayed and falling apart, and I thought just then that I might provide something cheery and appealing. The Wind Direction Finder began to take shape in my mind. Initially I took the outline views of the P-51 Mustang and scaled the wingspan to 37 in. This resulted in a fuselage length of 30 in. As for material, I planned to use light ½-in. Styrofoam insulating board—the kind that is used as back-up for aluminum siding; the kind that's available at any lumber yard. It's manufactured by Dow Chemical and is commonly referred to as Styrofoam Residing Board.



Here are the major pieces of the WDF ready for assembly. The bullet-shaped hickey just beneath the fuselage is inserted into the metal pipe used as a pole.

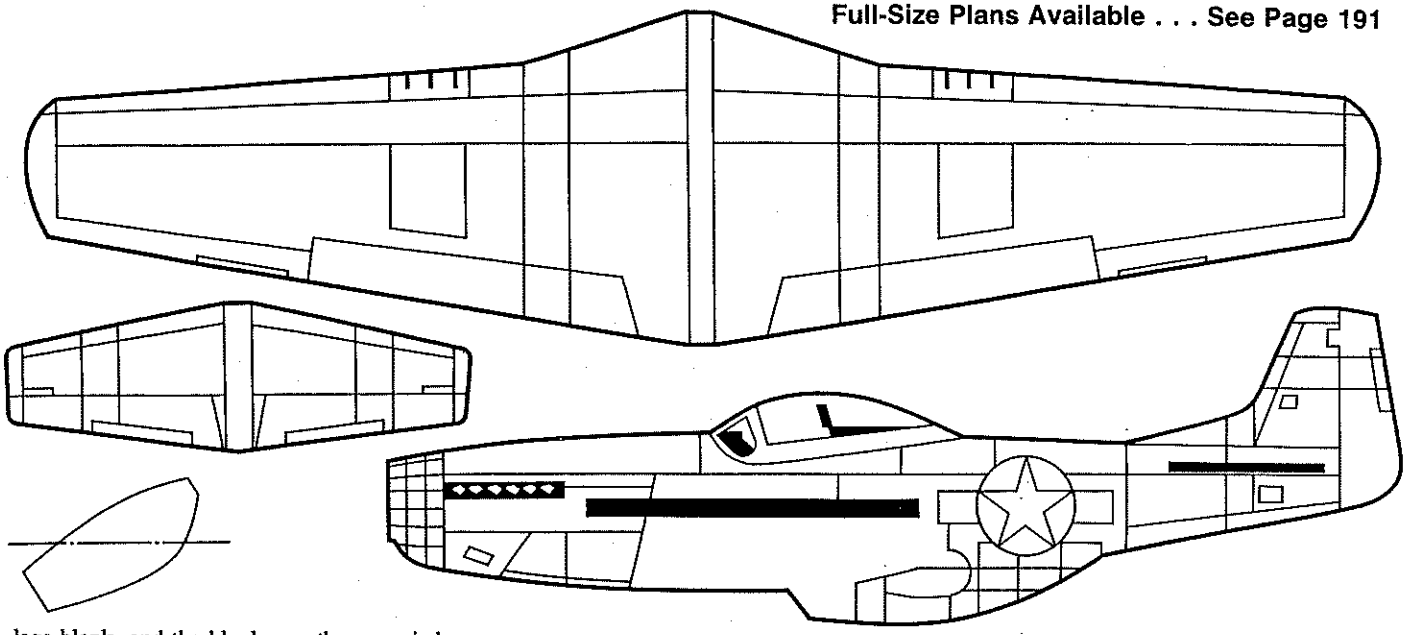
The aircraft part of the windsock, with the exception of the elevator, is constructed from this ½ in. Styrofoam board. The elevator is of ¼-in. artist's foam-core poster board (available at any art supply house).

The assembly is pivoted on a shaft located at the center of gravity, and an enlarged efficient Indoor-type propeller freewheels in the slightest breeze. Since the WDF is lightweight, it readily pivots on the center shaft and faces into the direction of the wind—just as an aircraft faces for takeoffs and landings.

The Wind Direction Finder has proven to be very effective, as it does establish wind direction by its heading, and with the propeller turning it's attractive not only to the modelers but to nonmodeling visitors as well.

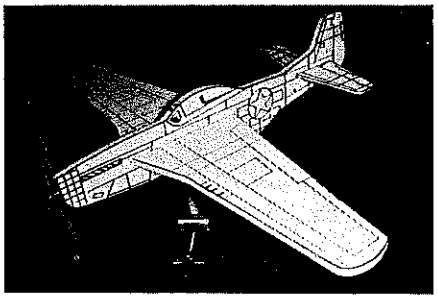
So let's get to making it. Note first that there is a left- and a right-side fuselage template. One of these is laid onto the Styrofoam sheet, and the profile is cut out. A bandsaw, jigsaw or sabre saw can be used to do the cutting.

The propeller shaft bearing block and two center-axis bearing blocks are cut from ½-in. thick pine as shown on the plans. To prepare the fuselage form to accept these blocks, their profiles are cut out of the fuse-

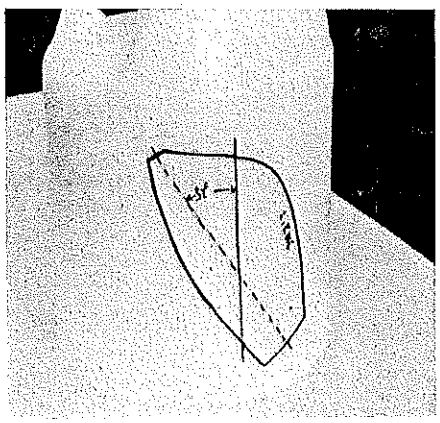


lage blank, and the blocks are then epoxied in place: one to the front for the propeller, and the other two above and below the fuselage for the central shaft. It's easy to see this if you look at the drawing.

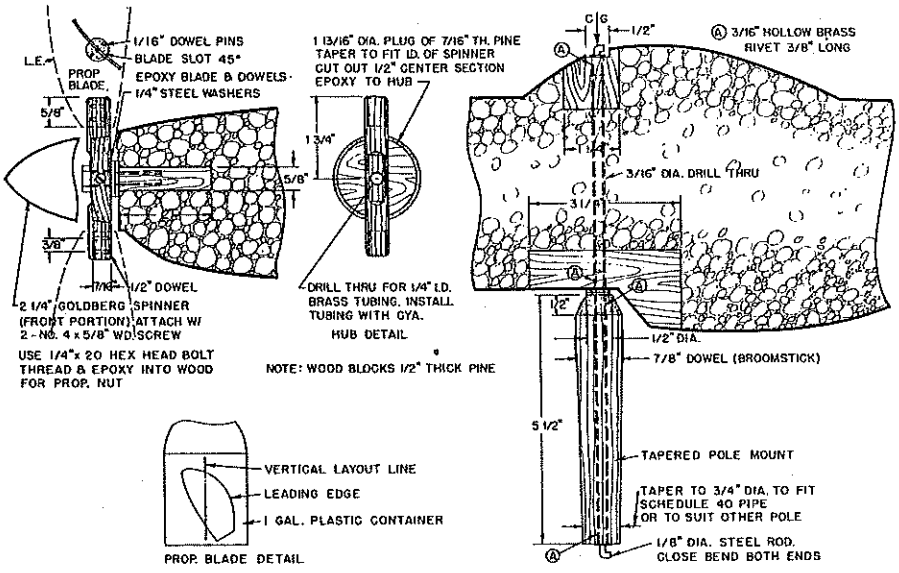
Drill and tap the block at the nose for ¼ in. x 20 threads to accommodate the ¼ x 1½-in.-long hex-head bolt used for the propeller shaft. Drill a $\frac{3}{16}$-in. hole in the top and bottom pivot blocks. Then sand the blocks until they fit flat to the foam, and glue the templates to both sides of the fuselage form with contact cement.



All ready to mount on its pole. The thingy just under the closest wing is a bench vise holding onto the pole mount for this photo.

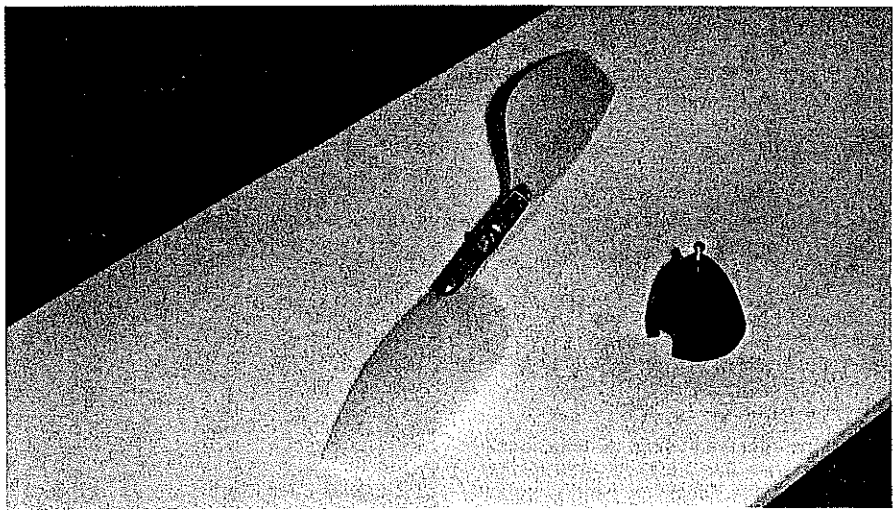


The prop blades are made just like those for an Easy B Indoor model—only bigger. Cut the blades from a one-gallon heavy plastic jug using the pattern from the full-size plan.



Cut the wing profile out of ½-in. foam board using the same procedure as for the fuselage. The elevator outline should be cut from the ¼-in. artists's foam-core board. Wing and elevator templates are now applied to the top and bottom of each of these pieces with contact cement.

Continued on page 103



Two prop blades have been attached to the pinewood prop hub. Before you can mount the spinner, you'll have to make a wooden spinner backplate. Author Joe Beshar tells how to do.

Windsock/Beshar

Continued from page 37

At this point the wing and elevator slots are cut through the fuselage profile. When you're done with this, you can fit the wing and elevator in place—but don't glue them in until after you've completed the surface finishing of all the parts. You may want to put a photo or drawing of your favorite pilot "in" the canopy.

The most difficult part is making the propeller assembly. The propeller hub is made from a 3½-in.-long piece of ½-in.-diameter hardwood dowel. You will cut a ⅝-in.-deep slot in each end to hold the plastic prop blades. The slots will have to be cut to give the prop the proper pitch. You will also scallop the front face of the dowel to about half the original thickness in the center. This will provide a flat surface for the front steel washer to bear against. Study the drawing to see how this is done.

The spinner backplate is fabricated from a piece of $\frac{7}{16}$-in.-thick pine. Cut a circular piece of this material to a diameter of $1\frac{13}{16}$ in. and taper it so that it will fit inside the Goldberg plastic spinner. Then you will cut a ½-in.-wide slot along the diameter so that the prop hub can be epoxied in place (look at the drawing).

After epoxying the prop hub in place, bore a hole through the dowel for the prop shaft bushing which is made from a $\frac{7}{16}$-in.-long piece of ¼-in.-ID brass tubing. Use scraps of the $\frac{7}{16}$-in. pine to brace the bushing along the axis of the prop hub. (The slot in the spinner backplate will help steady the bushing on the sides.) Use CyA glue to hold the bushing in place.

The spinner I used was the front end of a Goldberg 2¼-in. spinner assembly with a hole drilled in each side to accommodate a No. 4 wood screw ⅝ in. long. These hold the spinner to the pine backplate.

The two propeller blades are cut from the plan template and placed on the side of a cylindrical one-gallon plastic container, the type used for distilled water, automobile windshield washer fluid, household bleach, etc. The blade template has a vertical layout line on it. You've got to draw two vertical lines on the sides of the plastic container. Use a felt-tip pen or a grease pencil. Place the layout line on the prop blade template along this line, trace the outline of the template on the jug, and cut the blade from the jug sidewall.

After the two blades are cut out, the propeller hub is slotted (look at the sketch) to accept the thickness of the blade. Then drill two $\frac{1}{16}$-diameter holes through the hub and the blade as shown. Take a piece of $\frac{1}{16}$ hardwood dowel and cut two 1-in. pieces. The blades and the $\frac{1}{16}$ dowels are inserted into the hub and epoxied in place. Trim and sand the dowels flush with the prop hub.

To finish the unit, the first step is to coat all exposed foam edges with Hobby Poxy #2 glue. Heat the Hobby Poxy (don't use an open flame!) slightly so that it will thin out, and brush a coat on all exposed foam edges.

For color, the pilot compartment is masked off, and the rest of the unit is sprayed *very* lightly with aluminum paint, such that the printed panel edges on the paper covering material can be readily seen through the silver-colored mist. The mask is now removed from the cockpit area and the entire model is sprayed with clear Hobby Poxy. At least two coats (and preferably more) are needed to serve as a protective barrier against the weather elements.

Continued on page 106

Windsock/Beshar

Continued from page 103

The pole mount is shown cut from ⅞-in.-diameter dowel and tapered so that it will fit inside a piece of ¾-in. schedule 40 standard pipe (which we have found to be the ideal material for a pole). The pole mount, however, can be constructed to accommodate any size pole that is used.

Drill a 3/16-in.-diameter hole through the center of the pole mount as shown on the drawing. Insert two ⅜-in.-long, 3/16-in.-diameter hollow brass rivets into the hole at the top and bottom of the pole mount and glue them in place with cyano. These act as bearings. Two of the same type of hollow rivets are also cyano-glued to the top and bottom bearing blocks in the fuselage.

For the axis rod, ⅛-in.-diameter steel rod is installed and bent at the top and bottom for retention, as shown on the drawing. This serves as the central pivot for the fuselage assembly.

The wing and elevator are assembled through the fuselage slots and epoxied in place. Next a ¼-in. hex bolt (1½ in. long with ¼ x 20 threads) serves as the propeller shaft. Three steel flat washers serve as thrust bearings.

Assemble the latter items as shown, and epoxy the ¼-in. hex-head bolt into the shaft bearing block, being careful not to overtighten the bolt. If you do it will prevent the propeller from turning freely. Also, do not get epoxy on the washers and/or the propeller hub.

All that remains is to trim the model with the insignia on the wings and colors as desired.

I trust that you will not only enjoy building the Wind Direction Finder but will also refer to it at your club field when choosing your direction for takeoffs and landings. I hope that the fliers and spectators will enjoy it as much as we've enjoyed ours. ☐

RC Helicopters/Jolly

Continued from page 45

OCRCHA provided frequency control, including the use of a scanner, and required safety inspection for all models. A very impressive fun fly all around.

Thanks to the support of a local radio station, many nonmodeling types showed up to view the activities. They were impressed by both the machines and people. What more can be said, except that the OCRCHA should be very proud of itself and the positive image it projects to the public.

Onboard starters: While at the fun fly I had the opportunity to observe a most effective onboard starter in use. Produced by Gary Coler and Chuck Alessio, the system uses a small electric motor and onboard battery to start the engine. It was demonstrated in a Concept 30. I witnessed seven consecutive startups and shutdowns without the system's having to be recharged. The system worked well, and the Helicopter didn't seem to notice the additional weight. If interested, contact Gary or Chuck at 818/999-3952. I'll be trying one in the near future.

Well, that wraps things up for this month. I'd like to hear from other clubs out there; maybe I can publish some details of your activities. By the way, the OCRCHA would like to exchange newsletters with other Helicopter clubs. Interested? Contact them at The Blade Flutter, P.O. Box 18027, Anaheim, CA 92817-8027.

BCNU

CL Racing/Ballard

Continued from page 46

During my winter construction projects I have found an excellent carbon fiber tape which does not separate or fray at the ends and which, when used with extremely thin epoxy, gives an excellent reinforcing area for wings or stamp areas. In addition to the aerospace composite products, the company also makes a no-fray carbon fibered tape which can be used for strengthening. The no fray feature is what makes this product excellent. For information and samples, write to Aerospace Composites Products, P.O. Box 1621, Irvine, CA, 92714; (714) 250-1107.

Z-Poxy. I recently received a sample of two-component five-minute epoxy from Pacer Technology—Z-Poxy. The black box and pink print identifies a very thin excellent penetrating five minute epoxy. The prob-

Continued on page 117