



DAPHNE

By PERRY PETERSON . . . The designer of this homebuilt appears to have been strongly influenced by Wittman's "Tailwind". In any case, this 20-inch span version makes an excellent flying scale model.

• The Daphne SD-1A is an excellent small homebuilt aircraft. This attractive side-by-side two-seater, designed by Art Szaraz of Bedford, Ohio took second place in the 1970 Oshkosh aircraft flight efficiency test. A Vidervol VS-1, designed by James Vidervol in conjunction with Art Szaraz, placed third in the same test and was the prototype for the Daphne. A photo and a good three-view of the Daphne SD-1A can be found in *Build Your Own Sport Plane*, by Don Dwiggins.

As a model, the Daphne is quite easy to build and is a superb flyer. If you decorate yours like the model in the photos, it will be one of the sharpest looking planes at the flying field and will draw many favorable comments.

This model was my third Daphne. The first was a 13-inch span peanut that was not very successful, but the second was a 20-inch wing span version that was a top notch flyer. It was the only scale model I ever lost in a thermal (sob!). On it's eighth flight it slowly circled higher and higher until it was lost from sight after eight minutes and ten seconds. The seventh flight was timed at three minutes and eight seconds.

CONSTRUCTION

Lay the plans down on a piece of fiber insulation board and cover with Saran or similar kitchen wrap. Make two identical fuselage side frames over the plan. The plane in the photos was built using alaphatic resin glue except when noted otherwise in this article. Double-glue each joint by applying one thin coat of glue to each joint then pull apart and let dry while the next piece is measured and cut, then apply another coat of glue sparingly and pin in place.

The 1/16 square fuselage side frames will make a good light structure that is adequately strong if you select firm wood for the longerons and medium for

the rest of the structure. Remove the side frames from the plan and join at the tail post. Cut the 1/16 square crosspieces to length, using the top plan view as a guide, and glue in place, starting at the rear and working forward.

Form the .030 music wire landing gear using the front plan view as a guide, and sandwich between two F-4's. Glue this sandwich with epoxy and clamp while drying. Snap clothes pins work great for this. When dry, remove clamps and install in fuselage. At this point it is advisable to apply masking tape to the landing gear leg ends for safety. They can be removed just prior to installing the wheels. Install F-3 under the windshield area and trim two F-5's to exact length by test fitting, and glue in place.

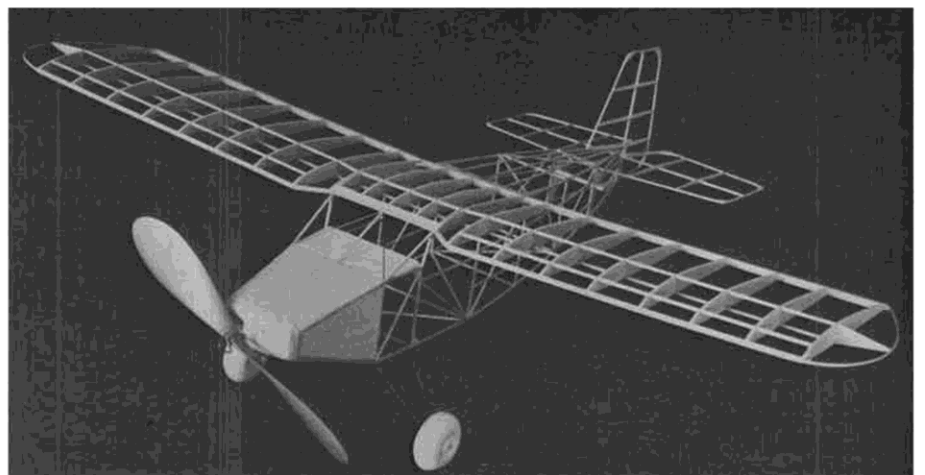
Add F-1 and F-6 to the top of the cowl and F-2 and F-7 to the lower portion of the cowl. When dry, sheet the cowl areas with 1/32 balsa. Use four pieces, one each for top, bottom, and sides trimming each one to fit as you go.

Build the tail flying surfaces over the plan with 1/16 stripwood. The wings are also built in the conventional manner. Note that there are two top wing spars. The forward spar is used mainly as an aid to covering. Using the color pattern shown in the photos, this allows covering with white tissue from the trailing edge forward to the front spar and blue tissue from front spar forward to the leading edge. Laminate the wing tips using four strips of 1/16 x .020 basswood.

FINISHING

Sand everything carefully and seal the front sheeted areas, wheels, and nose block with three coats of sanding sealer, sanding between each coat. Now it is time to cover. Use thinned white glue as a tissue adhesive. Paint a solution of about 55% white glue to 45% water, around the outside edges of the framework to be covered by one piece of

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The author/designer's third Daphne before covering. No.1 was a not-too-great Peanut. No.2 was same as featured herein. Disappeared overhead after 8 minutes.

tissue. Lay the tissue over this area and gently pull out wrinkles and pat down the edges. A razor blade and a long sharp pointed scissors are good tools to trim away the excess tissue. Don't cover too large an area at one time. Water shrink with a very fine mist. Don't saturate . . . just enough to sag the tissue. The model in the photos was covered with white and blue Japanese tissue. The darkest color in the trim is black domestic tissue. Apply the blue and black tissue trim with a solution of 30% dope and 70% thinner, used sparingly. Cut out the fuselage registration numbers from blue tissue and attach to the model in the same manner. When dry, brush on three coats of non-shrink dope thinned about 50% with thinner, allowing a few hours of drying time between coats. Sig Lite Coat is a good, low-shrink butyrate dope. A lot of rubber modelers prefer nitrate dope, but it is not as easy to find.

The small registration numbers on the rudder and the word 'experimental' under the side windows are dry transfer letters. Rub the letters onto a piece of clear acetate "press apply" material. Trim the acetate as close to the letters as possible and then peel off the backing and gently press in place.

Paint the wheels with three coats of Floquil grimy black. Cut out the hub caps from card stock and decorate with tissue before gluing in place.

The windows are cut from thin acetate sheet and applied to the model with R/C 56 glue. You may need to thin a small amount of this glue with a little water before use.

FLYING

Use one loop of 1/4-inch FAI rubber for low power test flights. Balance at the place shown on the plans and test glide. Do not throw the model into a stall. A slight bending up or down of the elevator should correct any stall or dive tendency. Start powered flights with no more than 200 turns. After satisfactory testing, use a four-strand motor of 3/16 FAI rubber 28 inches long. A motor this long in relation to the distance from the motor peg to the prop hook can be hard to manage. To help tame it down and allow for better weight distribution after the power runs out, I recommend pre-tensioning. To do this, install the motor in the plane and wind in about 75 turns into each loop separately, then put both loops back on the winder and wind in another 75 turns BACKWARDS, then connect to the prop shaft and wind as if to fly and release prop. When the motor runs down it will look like it was braided and will not bunch up in the back of the fuselage, disrupting the glide. The pre-tensioning will last the life of the motor, as long as you do not remove it from the prop hook or motor peg.

Happy flying with your Daphne. ●