

# HOLLY HAWK

By MIKE HOLLISON . . . A stand-a-mile-away, could-be scale model of the type of plane that was raced during the 1930's. Simple and quick to build, and will really move out with a .19 up front.

• "Holly Hawk" was inspired by the shoulder-winged racing planes of the 1930's, with their zero-visibility cockpits, spoked racing wheels, cowled in-line engines, and bulky fuselages.

The model was intended as a Sunday flier, of simple construction, nippy in the air, but no screaming bomb that the average pilot would have difficulty handling. It can be built with a bolt-down wing for cleaner looks; however, an alternative dowel and rubber band version is shown on the plan for those who prefer this method. Pilot and windscreen were omitted from the original model; these may be added if desired. Finally, the author's Holly Hawk was flown without the cowl attached; this made for a cooler running engine and made it easy to correct any problems with the power end of the model. The decision to fly cowled or uncowed is, of course, up to the builder.

## WING

Notch the 3/8 x 1/4 trailing edges for the ribs, and epoxy the aileron hinges in place. Slot the trailing edge for the aileron horn bearing, but do not install at this point. Cut the rear wing brace from 1/16 ply and epoxy in position on one of the trailing edge strips. Next, cut sufficient wing ribs from 1/16 and 3/32 sheet balsa, and cement ribs W1 and W3 to the trailing edge. Cement the 1/4 sq. leading edge to the ribs, and add the 3/16 sq. wing spars, filling in the gap between the spars with 1/16 balsa. This sheeting should be added between the tip rib and rib W1 closest to the center-section; the gap between the spars from W1 to W4 should be filled with 3/16 balsa sheet.

Cut the main wing brace from 1/8 ply, slot for ribs W2 and W3, and epoxy in position. Add the 1/8 balsa gussets at the tip and leave to dry while you repeat the procedure for the other wing panel.

When both panels are dry, epoxy the two together by means of the ply wing braces, and glue the pieces of ribs W4 in place. A length of 1/16 balsa glued cross-wise between ribs W3 forms the rear wall of the aileron servo box. The wing should now be sheeted with 1/16 balsa as shown on the plan, and the cap strips added, top and bottom. Then, cut two wing tips from 1/4 soft balsa sheet and cement in place; add the 3/16 sq. spars, and cover the tip leading edges with 1/16 balsa. Remove some of the center-section sheeting for the servo, slide the 3/32-inch diameter wire aileron horns into the bearings, and epoxy them into the wings. Add the center-section trailing edge, which is cut from 1-1/4 x 3/8 tapered stock, making sure that the

control horns are free to move.

At this point, it will be necessary to decide whether the wing is to be bolted to the fuselage or held on by means of rubber bands. If bolted, the wing must be drilled at the leading edge along the centerline to take the 3/16-inch diameter spruce locating dowel, which should be epoxied in place after the wing has been covered. A strip of 1/16 ply should also be epoxied to the trailing edge as shown, and drilled for the 3/16 x 1-inch nylon wing bolts. When this is done, cut two pieces of 3-inch wide fiberglass tape and glass over the center-section, top and bottom. (If the wings are to be secured by means of rubber bands, omit the locating dowel and ply strip, but glass the wing as described above.)

Cut out the tape for the aileron servo, and sand the whole wing smooth. All that remains now is to make the ailerons from 1-1/4 x 3/8 tapered stock, slot them for the hinges, and then put them aside, ready to install after covering.

## FUSELAGE

The fuselage is made by cutting two side panels from 3/32 balsa sheet and two doublers from 1/32 ply. Epoxy the doublers to the inside of each fuselage side, and cement the 3/16 sq. stringers and spacers in place, as shown on the plan. If the wing is to be secured by rubber bands, drill holes for the 3/16-inch diameter retaining dowels. Cement the 3/8 x 3/16 wing saddles in place and put aside to dry.

Now cut engine bulkhead F1 from 1/8 ply, and drill for motor mount, throttle pushrod, and fuel feed outlets. The motor mount blind nuts should be epoxied in place at this point. Cut the remaining formers F2 to F5, remembering to drill F2 for the wing locating dowel if necessary, and notch formers F2 to F4 for the 3/16 sq. top spar. Cut the landing gear mounts from 1/4 ply and, using the rear mount as a cross-brace, epoxy the fuselage sides to F1 and F2. Cement the remaining formers and 3/16 sq. balsa spacers in place, epoxy the forward landing gear mount in position, and allow to dry.

Cement the fuselage top spars fore and aft of the wing bay, and sheet the bottom of the fuselage with cross-grained 3/32 balsa. Install the 4 oz. fuel tank, and sheet the curved fuselage top with 1/16 balsa. Next, slot a piece of 1/16 ply for the tailwheel bracket and epoxy in place; then add the 3/16 balsa stabilizer floor. Build up the nose section with 1/4 sheet balsa ready for carving, and sheet the bottom of the fuselage between the landing gear mounts with 1/4 balsa. Add two pieces of scrap balsa

immediately behind F2 to conform to the curve of the underside of the wing leading edge, and if the wing is to be bolted onto the fuselage, epoxy the pre-tapped 3/8-inch hardwood triangles each side of the cockpit as shown on the plan.

If your Holly Hawk is to be flown with the cowl attached, cooling slots should be cut on either side of the fuselage nose as indicated, with possibly an additional cooling vent in the bottom of the fuselage just ahead of the forward landing gear mount. Shape the cowl from soft balsa, ensuring that there is an adequate air intake at the front of the cowl, and that the top of the cylinder head is sufficiently exposed. You may have your own method of attaching the cowl to the fuselage; however, a simple way is to spot glue the cowl in place, once the aircraft has been test flown and any necessary alterations made to engine offset, fuel feed, etc.

The landing gear is bent from 1/8-inch diameter piano wire as shown on the plan, and can be installed as soon as the fuselage has been covered. Sand down the finished structure and set aside.

Cut the fin, rudder, stab, and elevator from 1/4 soft balsa; hinge and slot, and assemble ready for mounting on the fuselage. Now, bend the tailwheel strut from 1/16-inch diameter wire; slide it into the nylon bracket, and epoxy the tail assembly and tailwheel to the aircraft simultaneously. Trial fit the radio, pushrods, control horns, landing gear, and motor; if everything is OK, your fuselage is ready for covering.

The only part to be built now is the fuselage top decking above the wing. This should be done with the wing attached. Stick the adhesive saddle tape in place, secure the wing, and glue on the balsa top, which should be rough-carved to conform to the airfoil section. When dry, round off the balsa so that the top decking is flush with the nose.

Remove the wing, hollow out the balsa for the aileron servo, if necessary, and your Holly Hawk is now ready for covering.

## FINISHING AND FLYING

The original model was sanded and covered with Solarfilm. You may, if you wish, add optional extras such as windscreen and/or pilot. With the plane balanced as shown, Holly Hawk flew straight off the board. Power from a .19 is more than adequate, and the flat-bottomed Clark Y airfoil provides plenty of lift in those sharp pylon turns. So, get your buddies to make their own Holly Hawks and try some 30's style racing at your local field.

**MODEL  
BUILDER**

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