

Remove the wing from the fuselage and drill the holes for the 3/4" dowels. When the two dowels are installed, the portion of the dowel on the bottom side of the wing must be left flat to provide a binding surface for the screw head. The portion of the dowel that comes through to the top (wing saddle) side of the wing should be sanded to the wing contour.

Install the hold down plate onto the bottom center trailing edge of the wing. See the plans.

Drill 1/4" clearance holes through both the dowels in the wing L.E. and through the plate on the wing T.E. The hole through the T.E. should be located on the center line, about 1/2" in from the T.E. of the wing. The hardwood wing hold-down blocks in fuselage will be installed after the firewall.

7. **Installing the Firewall and Engine Mount.** Use the procedure outlined to insure that the engine is properly installed. If this procedure is carefully followed the engine will be set up with 1° down thrust and 2° right thrust.

Before the firewall is installed, the blind nuts used to mount the retract (or fixed) gear should be installed. Mark one side of the firewall to serve as a reference line. Mark and drill the nose gear retract mechanism mounting holes. The blind nuts are installed on the front of the firewall. Because the engine mount must fit flat to the firewall over the blind nuts, you will have to countersink the blind nut shoulders into the firewall so they are flush with the face.

Now you are ready to install the firewall. Drill and tap the motor mount for your engine. Cut out the access hole in the fuselage for the engine. Put the engine mount inside the fuselage and mount the engine to it. Install a 1/16" balsa shim over the prop shaft and install the spinner back plate, prop, and spinner onto the engine. A 2" spinner is recommended. Push the spinner back to the fuselage so it rests snugly and squarely to the nose of the airplane with 1/16 balsa shim between spinner back plate and nose, for clearance. Tape the spinner to the nose of the plane to hold it firmly in place. Note: Sanding the firewall may be necessary because of the many types of engines and motor mounts.

Put a couple of dabs of 5 Minute Epoxy onto the face of the firewall where it will contact the back of the engine mount. Put the firewall into the fuselage through the wing opening, and push it up snug to the back of the motor mount. Hold it in place carefully while the 5 Minute Epoxy sets up. At this point the motor mount is tack glued to the firewall and the firewall is properly located but not glued in place.

Apply some 5 Minute Epoxy to the inside of the fuselage at 4 or 5 locations around the edge of the firewall to glue the firewall in place. Then, apply Hobby epoxy II or IV around the inside of the fuselage at the Fuselage/Firewall joint. Add pieces of glass cloth/epoxy to strengthen the fuselage/firewall joint. Tip the fuselage onto it's nose while the glue sets up.

Once the firewall is glued in place, mark the location of the engine mount screw holes on the firewall. Remove the engine mount and drill the engine mount screw holes into the firewall. Install the blind nuts on the back of the firewall. Drill the throttle linkage and fuel line holes into the firewall.

8. **Installing the Wing Hold-Downs.** Now that the wing is set up, the next job is to locate and mount the hold-downs in the fuselage. A plywood 1/4 x 1 1/4 block is used for the forward hold down, and a plywood plate with a small hardwood block glued in the center is used for the rear hold-down.

Put the wing back in place on the fuselage and check it carefully with your alignment marks. Turn the fuselage/wing upside down and insert a screwdriver or long nail down through the holes you drilled in the wing dowels so it extends into the fuselage. Look at the fuselage from the side and you should be able to see the object which indicates the center of the hold-down in the fuselage. Mark the side of the fuselage on both sides. Do the same thing for the T.E. hold-down.

Remove the wing from the fuselage.

Install the forward hold-down so it goes all the way across the fuselage and is glued to the fuselage sides and wing saddle. To make the glue joint stronger, some glass tape and epoxy may also be used.

Glue the smaller 1/2 x 1 block to the center of the 1/8 x 1 plywood rear hold-down plate. The plywood (not the block) side of the plate should be oriented toward the wing. See the plans.

Put the wing back in place, mark, drill and tap the holes for 1/4-20 nylon bolts through the forward and rear hold-downs.

9. **Fiberglass the Wing Center Section.** Sand across the leading edge of wing at the center line, so that it is flat across for 1" on each panel. Wrap with 4" wide glass all the way around. If the wing was joined with Hobby-poxy II seal the seam with 5 Minute Epoxy before applying fiberglass cloth and resin.

After the glass has been installed and sanded, the bottom faring on the L.E. and T.E. of the wing should be installed. For the forward faring a bulkhead and sides have been provided in the kit. Fill the space between the faring sides with resin and microballoons, in two applications. Put a piece of tape over the hole in the dowel and tack glue a piece of 1/2" balsa scrap on top of the tape. Then when the microballoons have set up, dig out the balsa. Add microballoons along the outside of the sides as necessary. For the rear faring only some microballoons and resin (or epoxy and microballoons) is needed.

10. **Building the Stab and Elevator Halves.** Sheet the stab halves with the 1/16 balsa sheet provided and install the 3/8 x 1/2 leading edge, 1/4 x 1/2 trailing edge, and stab tip. Set 4-7/16" anhedral (see plans). Be careful this alignment must be exact! Use 5 Minute Epoxy to join the stab halves, then wrap the center with 1" wide glass cloth and epoxy.

The balsa precut elevator halves provided in the kit are presanded to near the proper shape. They will have to be finish sanded however, so the elevator trailing edge is about 1/16". The leading edge of the elevators should be sanded to the shape as shown on the plans. Drill the holes for the elevator horns on the inboard side of each elevator half. Using an elevator horn on each elevator half means that the elevators will be independently adjustable; a feature of great advantage in trimming planes for contest flying.

Though the hinge slots may be cut in the stab and elevator halves at this time, do not hinge the elevators until after the stab is installed in the fuselage.

11. **Installing the Stab and Elevator Halves.** The back of the fuselage has been molded open for the stab. Though accuracy is stressed throughout the production of these kits, the builder is advised to consider these marks only as guides. We recommend the Robart incidence meter.

Block up the fuselage with the wing in place on a flat surface. This time though, make sure that the wing is level from tip to tip. Block up the nose or tail as necessary so the wing leading and trailing edges are the same distance to the surface. Now adjust so wing is setting with 3/4° positive incidence. Then you're ready to install the stab.

Slide the stab in place in the fuselage and check the alignment to make sure that: (1) the center of the leading edge and trailing edge on both sides of the stab are the same distance from the surface of the table on which the fuselage rests, (2) the distance from the stab tip to the fuselage is the same for both stab sides, (3) the distance from one stab tip to the wing tip on the same side of the fuselage is the same as the distance from the other stab tip to other wing tip. Sand or shim the stab cut-out as necessary. When you can get it properly aligned use epoxy glue to glue it in place — checking the alignment again while the adhesive sets up. Apply small pieces of glass cloth through rear of fuselage, being careful not to add too much weight.

Install the rudder top guard and rudder post (use epoxy glue). Cut slots for hinges for elevators and rudder. Use three hinges for each one.

**Rudder**—taper rudder as shown on plans. Note: when sanding fuselage keep leading edge of fin sharp.

12. **Cutting the Pushrod Exit Holes.** Cut the pushrod exit holes for the elevator and the rudder. Two holes must be cut for the elevator. Be certain to set up the holes so they align with the appropriate horn and so they will allow for some clearance between the elevator and rudder pushrods.

13. **Preparing the Pushrods.** Fiberglass arrow shafts are recommended. The rudder pushrod is set up for a straight hook up. The elevator pushrod must have double ends at the rear, two rods and clevises. They are bent into a "Y" shape to exit from both sides of fuselage mount the two clevis rods to the pushrod. Use staggered holes on each side of the pushrod wrap with fine wire and epoxy.

14. **Glass and Resin All Balsa.** 3/4 oz. glass cloth is recommended for all sheeted surfaces. Because Hobby-poxy II is incompatible with resin, it's advisable to coat any Hobby-poxy II seams with some 5 minute epoxy first to seal it. Then resin may be used with no problem. Another good method is Perma-gloss coverite or Monokote to cover the wing and stab. This saves weight!