

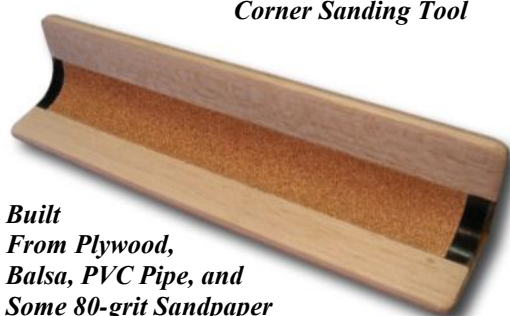
10 FINISH THE FUSELAGE

This section will more or less wrap up the construction of the wooden airframe. However, I strongly suggest you look through the next four sections and think about how you plan on doing the installations of your fuel system, turbine, retracts, and radio. It might be smarter to “glue a mount here” or “drill a hole there” while you still have easy access to the fuselage tail boom and nose bottom. Once all the sheeting is in place, you will only be able to work through the hatches and wing opening.

- ❑ Spot glue the front hatch in place on the fuselage. Remember, you have to cut this hatch free after the fuselage has been sanded, so just use a small drop of thick CA every three or four inches to hold it in place.
- ❑ The main purpose of the rear hatch is to provide access to your safety fuel shutoff valve. The valve is typically a ball-type Festo fitting provided with your turbine. Before each start you will open the valve and every time you shut down the turbine you will close it, so it needs to be readily accessible. The actual position of the valve and hatch is not written in stone - the plans show a convenient location, but it can be modified to suit your installation. The hatch itself is simply a piece of 1/4" x 4" balsa. Later on you will add the tongue and rails, but for now cut a piece of balsa sheet to serve as the hatch and spot glue it on the fuselage in a position that suits your particular valve installation.
- ❑ Now that the hatches are in place, you can finish sheeting the rest of the fuselage top with 1/4" balsa applied cross-grain. Leave a tiny gap between the sheeting and the hatches to allow some clearance after the covering is applied. Two layers of masking tape works well as a spacer. The aft end of the sheeting will need to be carefully cut to match the shape of the stabilizer LE.
- ❑ Sand the bottom of the fuselage from F-1 to F-5 with a sanding block to prepare this area for sheeting. You need to sand until you reach the surface of the triangle stock. Apply 1/4" balsa sheeting, cross-grain, using yellow glue.
- ❑ Finish sheeting the bottom of the tail boom with 3/32" balsa, cross-grain.
- ❑ Sand the sheeting at the nose flush with F-1 to make a flat spot for the balsa nose block, then glue it in place. **NOTE:** The nose block is not symmetrical. The side that is nearly parallel to the balsa grain is the top.
- ❑ Now it's time to make some balsa dust. Shape the fuselage corners as detailed in the photos. Start with 80-grit and work your way up to 150-grit and 280- or 320-grit. You want the fuselage virtually ready to cover at this point, because sanding after the hatches are removed may disrupt the smooth shape.



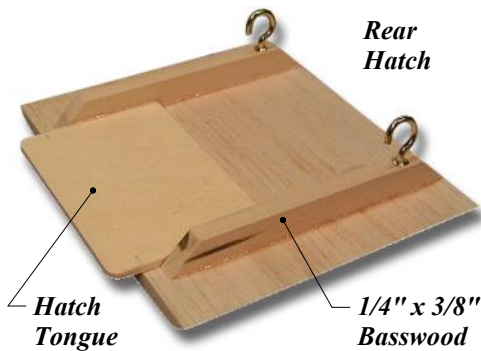
Corner Sanding Tool



**Built
From Plywood,
Balsa, PVC Pipe, and
Some 80-grit Sandpaper**

Corner Sanding Tool

I built the tool shown at the left to help with the rough sanding of the corners and to maintain an even radius along the entire length of the fuselage. You can save yourself some work and order a fully-assembled sander from BTE for only \$14.95.



❑ Carefully separate the two hatches from the sanded fuselage by cutting through the glue spots with a razor blade.

❑ Glue a lite-ply hatch tongue and two 1/4" x 3/8" basswood rails to the rear hatch as shown on the plans.

Add cup hooks to the rails and matching cup hooks inside the fuselage. Also add two small scraps of wood under the top sheeting on either side of the tongue to keep the hatch centered on the fuselage.

❑ Finish off the rear hatch by imbedding the little 1/32" plywood tab.

Use a sanding drum in a Dremel tool or a Fourmost sanding stick to make a corresponding, rounded notch in the sheeting aft of the hatch.



❑ Now let's work on the front hatch. Glue the lite-ply tongue to the rear of the hatch. In flight, there will be a lot of lifting pressure on the big, curved hatch, so be sure the tongue is glued very securely.

❑ The front of the hatch is secured with a high-quality latch that is included in the kit. You need to cut an accurate slot in the fuselage nose sheeting for the latch, using the plans as a guide. Start by drilling two 1/8" holes at each end of the slot, then connect the holes with careful knife cuts. Harden around the slot with thin CA.

❑ Wipe the metal latch housing with alcohol, then glue it under the top nose sheeting with a small amount of epoxy. Make sure the lever is centered in the slot and is free to move through its full travel. Also be sure to keep the epoxy out of the mechanism! When dry, you can firmly lock the latch in place using the two plywood hatch latch retainers. The small grooves in the retainers fit over the latch flanges on each side.

❑ The H-1 bulkhead at the front of the hatch must be accurately drilled to engage the latch pin. To do this, start by applying a tiny dot of paint to the very tip of the pin. While the paint is still wet, pull the latch pin forward, position the hatch, and allow the pin to spring back so it makes a paint spot on H-1. When you remove the hatch, you should have a nice round mark showing exactly where to drill for the hatch latch. Carefully drill at the mark with a 1/16" drill bit, then work your way up to a 1/8" drill bit.



The Fourmost Sanding Stick works great for the notch. It is flat on one side and round on the other, and is tapered along its full length. Best of all, it's inexpensive and available from BTE! See Appendix B.



Update: The plastic latch shown in these photos has been replaced with a stronger all-metal latch in later kits. Slot position for the new latch is further forward.



- ❑ Okay, the fuselage fairing is actually a part of the wing, but it's like an extension of the fuselage, right? To be honest, the fairing requires some tedious cutting and fitting and is not actually required from a structural standpoint. For those reasons, I consider it optional, but the model wouldn't look right without it! Start by bolting the wing in place. The fuselage fairing face plate is cut from the lite-ply rectangle supplied in the kit. You need to trim the long edge where it contacts the wing to match the dihedral. Glue it to the wing, leaving a small gap for clearance (again, two strips of tape works well as a spacer).
- ❑ Use the supplied template to cut two fairing sides from the piece of 3/8" balsa included in the kit. Glue the fairing sides to the wing and the face plate. The outer edges of the fairing sides should be in line with the fuselage sides.



- ❑ Add 1/4" balsa to the top of the fairing sides. At the front, the balsa will seat against the fairing plate. At the rear, you will need to trim and taper the sheeting carefully as shown in the center photo so it flows smoothly into the wing.
- ❑ When dry, carefully shape the fairing to flow smoothly into the contour of the fuselage. Apply masking tape to the wing to protect it during the sanding process. Most likely, the fairing will require some filler around its edges to finish it off properly.
- ❑ Cut a slot in the fuselage top sheeting for the front of the fin. Make sure the slot is centered on the fuselage and try for a snug fit. ◀R54▶



Congratulations, your airframe is now complete!

Covering - I recommend using a high-quality plastic film covering like Monokote or Ultracoat. BTE offers full-size templates for the color scheme used on the prototype if you wish to duplicate it. Plan your overlaps and seams so they are all facing rearward to avoid any chance of lifting during flight. At the field, keep an eye on the open rib bays. Any punctures or tears must be repaired before attempting another flight.

Easy Hinges - Easy Hinges are designed to be installed after covering. Cut accurate slots with a sharp knife, and install all the hinges dry - no glue yet! Make sure the control surface is positioned exactly where you want it, deflect it in both directions, then apply THIN CA to both sides of every hinge. You must use thin CA, the fresher the better, for maximum penetration of the hinges and wood. I like to apply at least five big drops, but I watch the hinge carefully to be sure it is still soaking the glue in. The first few drops will absorb quickly, then it will begin to slow down. I stop when the last drop takes about five seconds to flow in. Do not over-glue, and do not apply a second layer. When done properly, the hinges should actually appear dry.