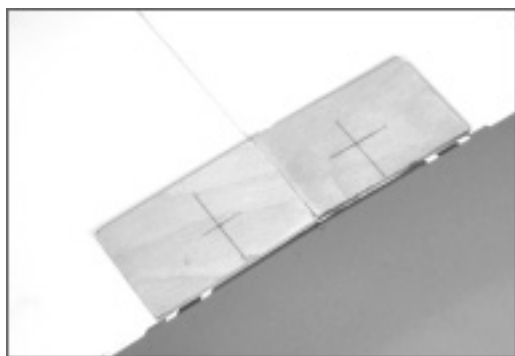




Wing Bolt Drill and Tap Guide

Many models leave the tasks of drilling and tapping the wing bolt holes to the builder. He has about one chance to get it right. After that, things get ugly very fast. After bungling a wing or two on my own, I did a number on my flying buddy LeRoy Cordes' Magic. It was so bad I hoped LeRoy would crash the Magic and destroy the ugly evidence.

LeRoy didn't crash it yet, but some good came from this. We developed a method and a special tool for this job. It still takes some skill, but the odds of doing it correctly are much greater. First the new method: The wing and fuselage must be rigidly attached, or they will shift when you drill the two holes (number 7) through the wing and fuselage. Attaching the wing trailing edge to the fuselage with a 4-40 screw before drilling the actual bolt holes easily eliminates that risk. See Step 5. Second: our special tool keeps the tap and drill perpendicular to the bottom of the wing. See Steps 7 and 8.



Step 1

Through out this discussion you will be looking at the bottom surface of the wing. Make 3/32 or 1/8" five ply birch aircraft plywood plates for the bottom trailing edge of the wing. They should extend well beyond the fuselage sides. The plywood pieces shown in this photo total a 1.5 x 6" area. Remove the wing covering that would be under the plates and glue them in place. Lay out the bolt hole locations.



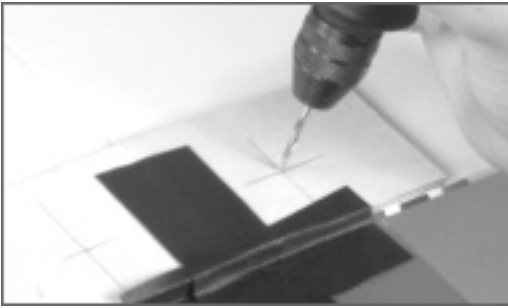
Step 2

Once the wing has been aligned, tape the wing and fuselage together.



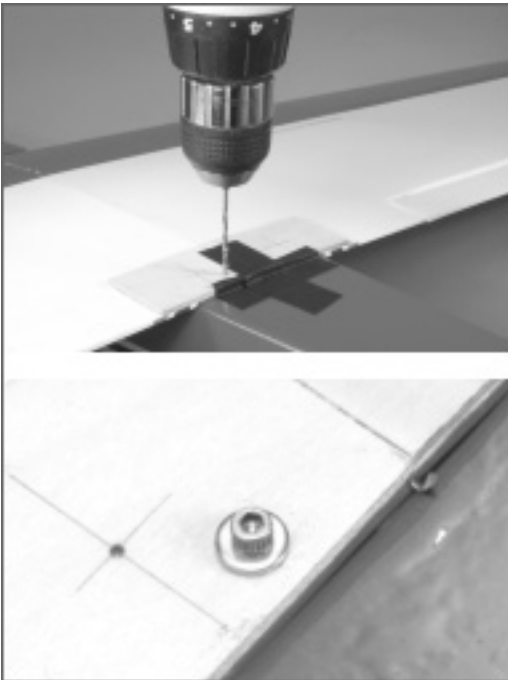
Step 3

Press an awl or scribe firmly on the bolt locations so it makes distinct indentations.



Step 4

Drill 1/16" holes partially through the plywood at the bolt hole locations.



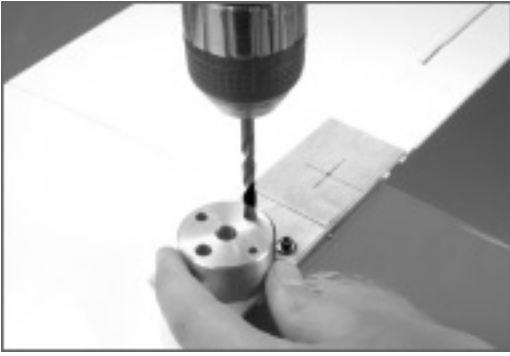
Step 5

The tape cannot be expected to keep the wing from shifting when the large bolt holes are drilled. Before drilling the holes, the wing is attached to the fuselage with a single 4-40 bolt. Drill a 3/32" hole near the center of the wing that goes completely through the wing and plywood bolt plate in the fuselage. You don't need to tap the hole; a normal 4-40 screw will make its own threads in the plywood. Thread the screw through the wing and the wing bolt plate in the fuselage. Now, there will be absolutely no shifting. You can remove the tape now, if you want to. The screw can be seen doing its job in Step 7.



Step 6

Slide the Wing Bolt Drilling Guide on the drill and put the drill point in one of the shallow pilot hole you made in Step 4.



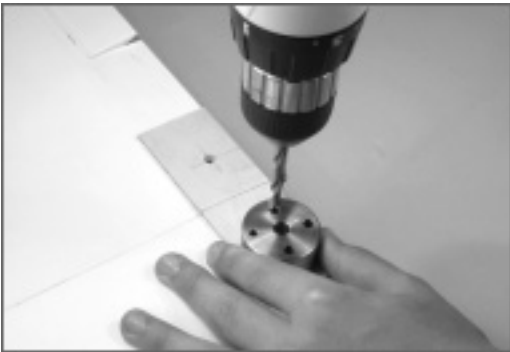
Step 7

Now drill the tap holes completely through the wing and the bolt plate in the fuselage.



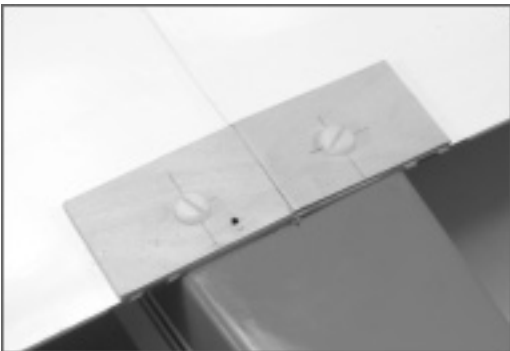
Step 8

Tap the hole as the photo shows. Repeat Steps 6 through 8 for the other hole.



Step 9

Remove the wing and redrill the holes in the wing to the bolt diameter. We do this so the bolts can slide through the wing and reach the threads in the wing bolt plate in the fuselage.



Step 10

The completed job.