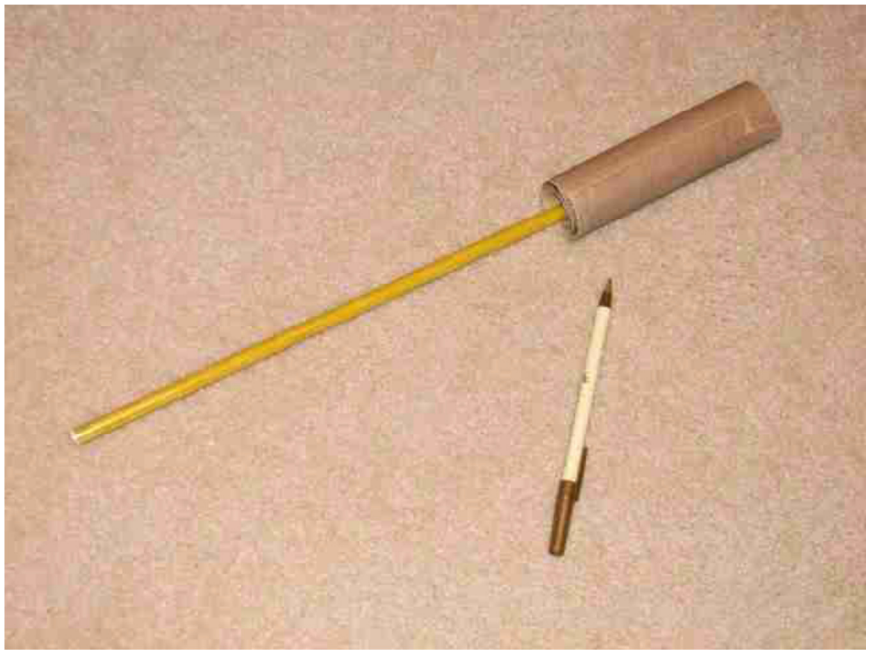
Wing tube to tight???

By Jack Sallade (jack@flyrc.info)

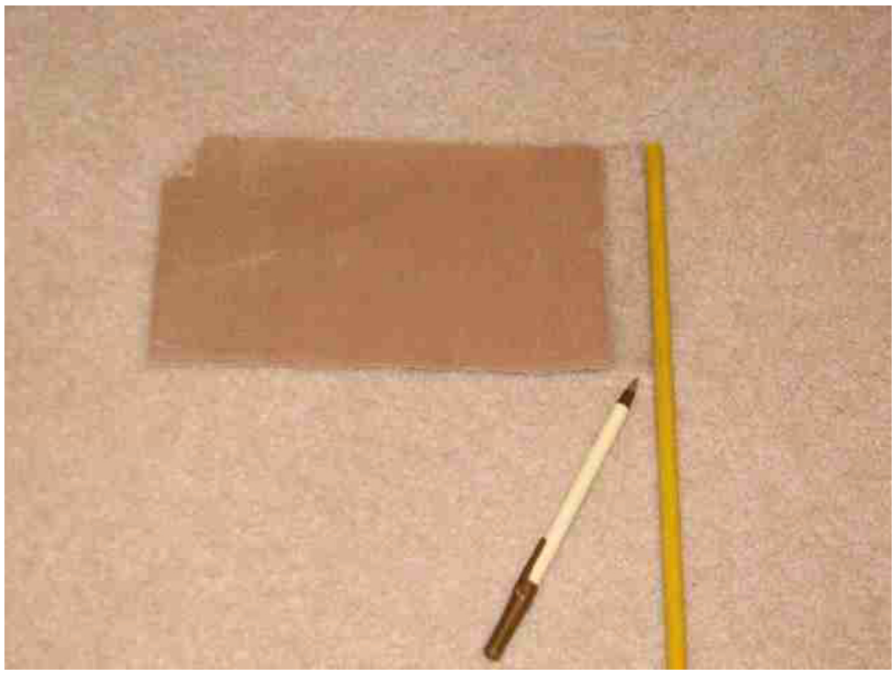
I just purchased a new Edge 540 ARF that uses a wing tube attachment system to secure the wing. It consists of a carbon fiber tube that is inserted into a cardboard tube that passes through the body of the plane. Cardboard tubes in each wing are used as sockets and nylon bolts are used to hold the wings securely against the body, trapping the tube inside. This sort of construction makes for very easy assembly and disassembly and provides great strength. Unfortunately, even after nicely clearing out the covering over the openings in the body and cleaning the tube thoroughly, the CF tube was such a tight fit in the cardboard tube in the body that it was a major effort to insert or remove the tube.

You definitely want this to be a no slop connection but this was ridiculously tight. Clearly I needed to create just the smallest fraction more clearance if I was going to remove the wing tube on a regular basis (a necessity with this size plane). The issue was how to do it?? I didn't want to sand on the CF tube for many reasons… CF dust is not very friendly to the lungs; the tube is thin already so I didn't want to risk weakening it and besides how would I get a nice even reduction in size?? Clearly I needed to open up the cardboard tube. But of course the same issue of keeping the hole perfectly round comes into play. Certainly I didn't have a drill bit the right size, nor was I sure it would work if I did. As I pondered this, a friend who was working with me in my shop related how he had overcome this issue on a previous project. Here is the tool we "created" to do the job. It's inexpensive; you probably already own all the necessary parts and it's very adaptable to whatever size is needed.

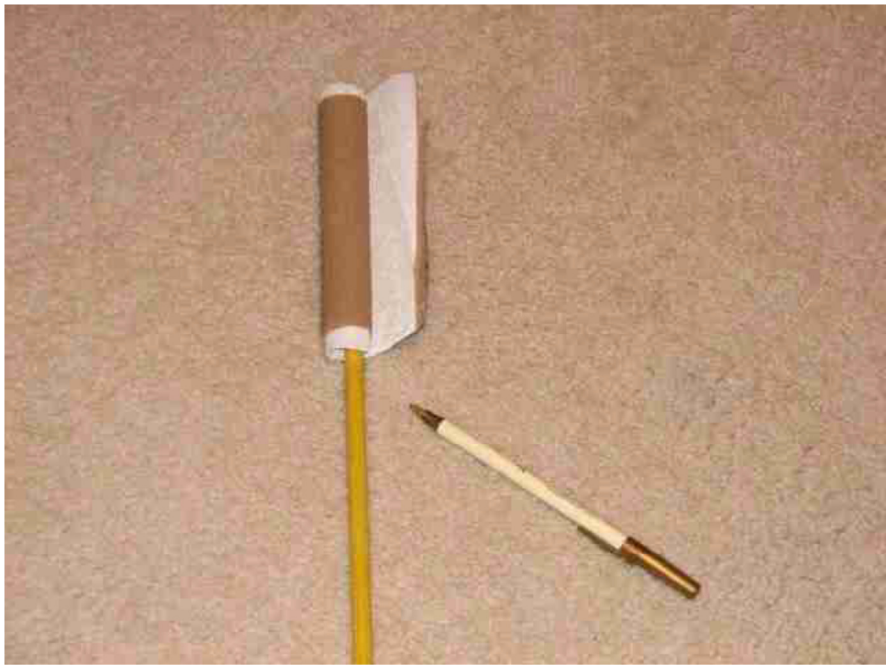


Assembly is fairly simple. Take a ¼" dowel rod (or something similar, mine is made from a fiberglass rod that is left over from a driveway marking reflector) and attach a half

sheet or so of sandpaper using box tape or something similar. Here's a picture to give you an idea of the construction.



Where the pen is pointing is clear box tape wrapped around the rod and overlapping the sandpaper on both sides for an inch or so. Now wrap the sandpaper tightly around the rod with the grit facing out.



As you can see I have also sandwiched a paper towel (or at least part of one) under the sandpaper for the last turn or so. This helps to space out the sandpaper to the proper size. You want to end up with a roll that, when wound nice and tight, can be inserted into the tube. The amount of paper towel you include can be varied so that the result is a close fit inside the tube. It doesn't need to even touch when you insert it, but when you release it you want a small amount of pressure so that the sandpaper will be pushed out against the tube enough to do the job. It doesn't take a lot of pressure to make this work.

Finally, attach a hand drill to the rod end away from the sandpaper and run it for just a few seconds. My advice is to keep the drill moving a bit so that you don't sand any grooves in the tube. In all likelihood you will only need to do this for just a couple seconds to get the clearance you want. Putting material back in is going to be tough so don't overdo it! This works well and took me all of about 4 minutes to accomplish my task once the basic idea was explained to me. As my building buddy would say there is "no doubt about it". This works very well!