

When you bought all those tools, you knew they would come in handy one day. Here's a clever idea you can use on that next amplifier project.

How To Make Your Own Tank Circuit Coil Form

BY BILL PICKINS*, WB5NGF

While building a 160 meter amplifier recently, I found it nearly impossible to buy a tank coil. In an old Barker & Williamson catalog I found the exact coil I needed. I called around the country trying to find one. No one stocked them. I called B & W and was informed that the coils were only made on special order, and there was a \$50 fee just to set up the machine. I had several coils, but none were long enough. I needed a lot of inductance, since I had a high plate impedance to match. The calculated value of inductance was 32 microHenrys.

Using the ARRL inductance slide calculator, I found the necessary dimensions for 32 microHenrys. Since I wanted to use #10 wire, the dimensions required a 3 inch diameter, four turns per inch, for a length of 9 inches.

I purchased some plexiglas at the local glass store, and they cut it 3 inches wide and 2 feet long. It was 1/4 inch thick. I cut two pieces 10 inches long for my coil form.

I marked all four edges every 1/4 inch for a total of 36. I then set up my router table with a 1/8 inch straight bit and set the fence to allow a cut slightly less than the diameter of #10 wire. With the router table set up, I cut the 36 slots for the wire on all four edges of the plexiglas. I made one the mirror image of the other so that the extra one inch would be on the same end of both pieces.

I then set up the router table with a 1/4 inch straight bit. I set up the table to cut a quarter inch slot down the exact center of each piece for a distance of 5 inches. This has to be done in a mirror image to keep the extra one inch on each piece at the same end. The two pieces were then slipped together to form a long cross and secured with epoxy cement at several places.

I next wound a loose coil slightly larger in diameter than 3 inches. I found that a spray paint can is ideal. It has a concave bottom that allows the end of the wire to be secured by clamping with vise-grip pliers to the bottom rim of the can. The necessary turns were wound on the paint can and then removed. They were larger than the plexiglas form, but could be "threaded" onto it as one might put a nut on a

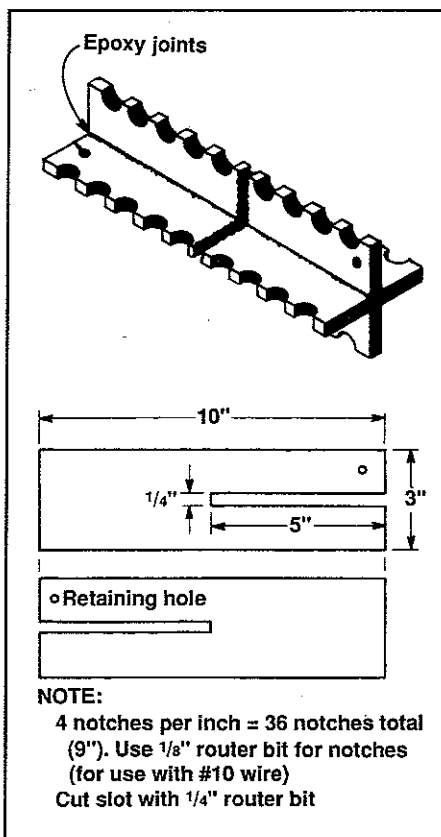


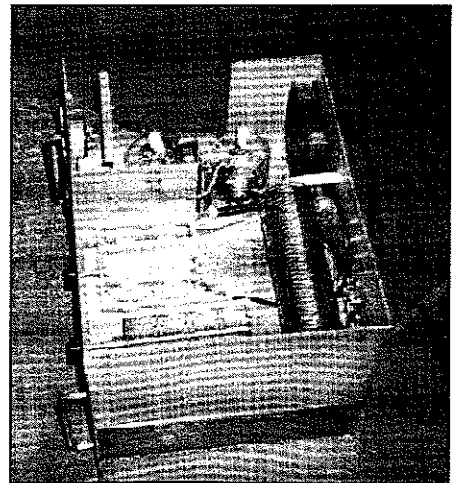
Fig. 1— The overall plan for the amplifier tank coil form. The pictorial is shown exaggerated to show the central idea.

bolt. I made sure that each turn fit tightly into the slots and worked the wire tight. This could only be done by drilling a 1/8 inch hole in each end of the form to secure the wire end. I then tightened the turns into the slots and secured to the 1/8 inch hole in the opposite end.

Several fellow amateurs have commented that the coil looks factory made. If smaller wire is to be used, the same procedure will work. Just use a band saw, coping saw, or hack saw to make slots the size of the wire being used.



The completed tank coil on the workbench prior to installation.



Here is the completed amplifier, which works great. It is now in use at AD4X.

I have found through experience that it is wise to make a coil longer than you need. It is easier to cut off turns than it is to add them.

The amplifier worked perfectly and loaded up on the first try. It is now in use by my friend David Baxter, AD4X. ■

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