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TECHNICAL CORRESPONDENCE

MORE ON A HIGH POWER RF SAMPLER (MAY 2011)

◊ARRL Lab Engineer Zach Lau, W1VT, pointed out an error in the May 2011 Technical Correspondence letter from Tom Thompson, WØIVJ. On page 53, in the text describing Figure 4, we incorrectly listed the wall thickness of the hobby brass tubing that Tom used to build his sampler as 0.14 inch. Of course that specification should have been 0.014 inch! I apologize for any confusion and inconvenience this may have caused our readers.

Zack and others also raised some questions about the resistor type Tom used, and also wondered how he formed the concave half-round end on the tubing to be soldered to the "top" of the T. Tom answered those questions and provided some additional construction information for those interested in duplicating his sampler. — *73, Larry Wolfgang, WR1B, ARRL HQ;* **wr1b@arrl.org**

Here are some further comments about my RF Sampler Technical Correspondence:

1) The tubing is actually 9/16 inch OD with a 0.014 inch wall thickness.

2) The 15 Ω, 2 W resistor I used is a metal oxide resistor that I obtained locally. It measures 15 Ω with 20 nH of series inductance. Digikey carries a resistor that should work: part no. P15W-2BK-ND. I don't have this resistor but I have some 100 Ω resistors from the same manufacturer that measure 100 Ω with 4 nH of series inductance. The lower inductance should improve the VHF performance of the sampler.

3) The 34.8 Ω, ¼ W resistor is a 1% metal film component, Digikey part no. CMF34.8QFCT-ND.

Construction Steps

Construct the BNC/toroid assembly as shown at the top of Figure 4, on page 53 of May 2011 *QST*. Cut the tube to length so that the flanges on the BNC connectors just fit inside the through tube, and drill a ¼ inch hole in the center of the tube as shown in the Figure 4 photo. Insert the toroid assembly into the through tube and snake the toroid wires through the ¼ inch hole.

Solder the BNC flanges to the tube, filling the slight gap between the tube and the flanges with solder. Solder a ¼ inch wide brass strip to the through tube just below the ¼ inch hole. Cut the strip so it is just slightly longer than the 15 Ω, 2 W resistor. Cut the lead on one end of the 15 Ω resistor to about ⅛ inch and fold the other end 180° so that it is parallel with the resistor body and solder it to the far end of the brass strip.

Next, solder the 34.8 Ω resistor, along with one of the toroid wires, to the ⅛ inch stub of the 15 Ω resistor. Solder the other toroid wire to the near end of the brass strip. Connect the other end of the 34.8 Ω resistor to the BNC connector center pin.

File a notch into the T tube with a small round file, so that the curvature matches the curvature of the through tube, slip it over the resistor assembly and cut it to length so the BNC flange just reaches the end of the tubing.

Solder the tube to the BNC in the same manner as was done with the cross piece, and solder the curved part of the T tube to the through tube, filling in the gaps with solder. — *73, Tom Thompson, WØIVJ, 990 Toedtli Dr, Boulder, CO 80305;* **tlthompson@qwest.net**

DAIWA CN-801 WATTMETER BULB REPLACEMENT

◊Older models of the Daiwa CN-801 series SWR meters have a small light bulb inside the meter assembly to light up the meter face for low-light operating. See Figure 1. That bulb burns out eventually. By replacing the bulb with LEDs, you can extend the life of the meter. It's a bit awkward to replace this bulb. Here are the steps I followed to do it in less than 30 minutes.

Start by removing the case screw on top, and then the two screws on each of the left and right sides. You will need to flex the cover a bit to remove it. Once inside, you may want to label the wire connectors on the circuit board, then disconnect them.

Now locate the screw that goes through the meter retaining plate on the left side of the meter when looking from the rear. You'll need a stubby Phillips screwdriver to get it out, as you can see from Figure 2. Once that is out, remove the meter by slightly moving it to the left while taking care not to break the plastic case tabs on its right side.

Figure 1 — The Daiwa CN-801 SWR/power meter is a versatile instrument. The meter face is illuminated by a small bulb below the bottom of the meter movement.

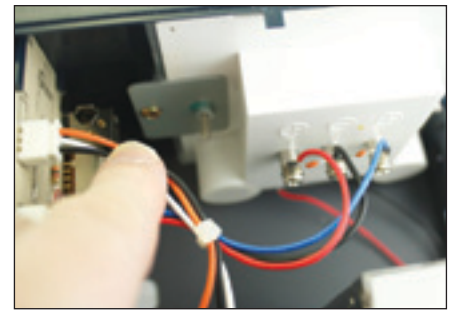

Figure 2 — Inside the cabinet, you will have to remove one Phillips screw to remove the meter movement from the case.

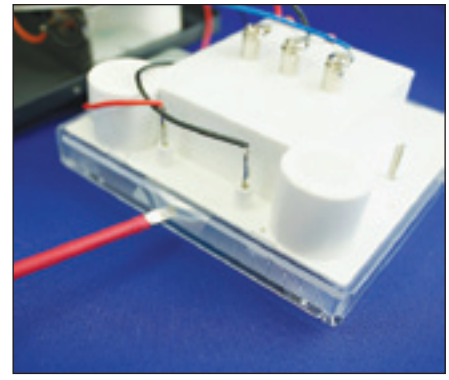

Figure 3 — You may need a thin-blade screwdriver or other tool to gently pry the plastic lens from the front of the meter case.

Notice that red and black power leads go from the back panel to the bottom of the meter — this is the power connection to the light bulb. Carefully remove the meter from the case — you don't need to unsolder anything.

Next, you'll need to open the meter itself. Start by removing the four pieces of transparent tape around the edges. Next, pull the clear plastic face off the back of the meter. You may need a small screwdriver to gently pry it apart at the notches, as shown in Figure 3. As you remove the cover, be careful not to disturb the two meter movements and their needles. Put the cover where it won't get scratched.

Now place the meter on its back, so you can see the long bulb between the two terminals at the bottom. You can see the bulb near the bottom of the meter face in Figure 4. Snip off its wire leads. We'll clean it up later.

I used two white LEDs and a 470 Ω resis-