

Hints & Hacks

A Preamp for Dynamic Mics, An Easy Mobile Support Mount, and More

Copper Wall Plate

I needed an inside wall bulkhead plate for coax that could accommodate several connectors, as well as connect the station grounding conductor to the external ground system. While perusing the local hardware store, I came across a $10 \times 4 \times 0.025$ inch copper plate that seemed like a possibility, especially because it meant there'd be no cutting or bending involved.

For an investment of about \$8 and half an hour in my shop, I built a copper wall plate (see Figure 1). I carefully used an $1\frac{1}{16}$ th bi-metal drill bit by clamping the plate between $\frac{1}{2}$ -inch plywood, then drilling through the wood, the plate, and into the bottom piece of wood.

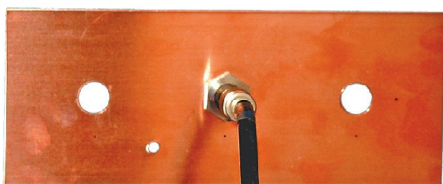


Figure 1 — The copper wall plate. [Lionel Booth, N5LB, photo]

Work is ongoing for proper grounding and cable routing, but this is the basic design. A larger $\frac{3}{8}$ -inch copper plate serves as the outside barrier for cable entrances. I measured the resistance from the inside plate to the coax shield at a few milliohms. — 73, Lionel Booth, N5LB, n5lb@outlook.com

Using Dynamic Microphones with Electret Mic Transceivers

Many popular HF transceivers were designed for use with electret microphones that have 10 – 20 dB higher output levels than typical dynamic microphones. The microphone gain adjustment range on many of those radios is frequently insufficient to accommodate many popular dynamic microphones.

After purchasing one of these radios, I found that the Audio Technica dynamic desk microphone, which performed well with several of my previous transceivers, was unable to provide sufficient output for use with my new transceiver, even with the microphone gain maxed out.

The problem was solved by constructing a simple single-transistor gain-adjustable preamp that fits nicely inside the microphone body, powered by the 8 V present on the microphone positive lead from the transceiver's microphone connector. I used parts I had on hand to build the preamp, all inexpensive and commonly available for less than \$5.

Since installing this preamp, I've received numerous compliments on my transmitted audio and I'm able to run the transceiver mic gain between 25 – 30% with proper ALC action. Prior to adding the preamp, I had to speak loudly into the microphone and run the transceiver mic gain at 100% with the compression set at +3 to get close to normal power output.

There is one thing to be aware of when using dynamic microphones with transceivers designed for electret or condenser microphones. If the transceiver powers the microphone element on the positive audio lead, this preamplifier must be connected as shown in Figure 2. If the microphone is powered on a separate

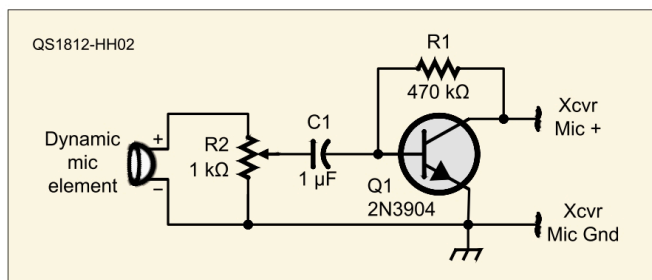


Figure 2 — A schematic with phantom power, for use when the transceiver powers the microphone element on the positive audio lead.

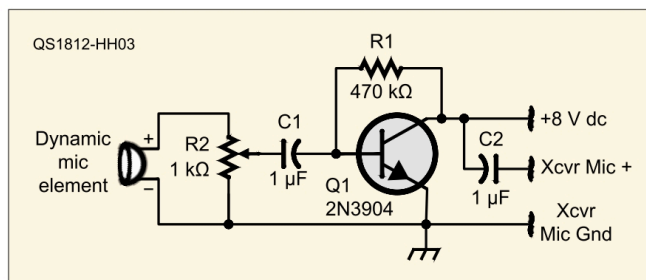


Figure 3 — The schematic without phantom power, for when the microphone is powered on a separate lead.

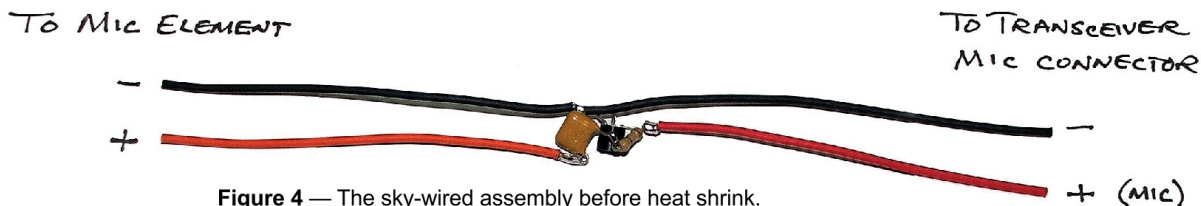


Figure 4 — The sky-wired assembly before heat shrink. [Paul Dobosz, K8PD, photo]

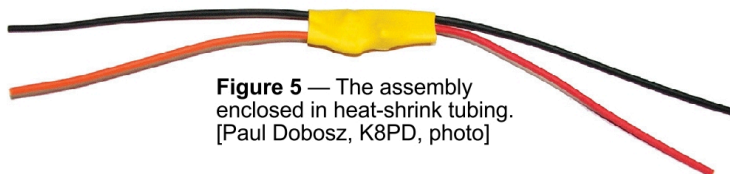


Figure 5 — The assembly enclosed in heat-shrink tubing. [Paul Dobosz, K8PD, photo]

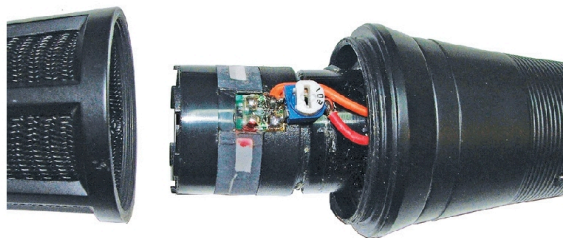


Figure 6 — The gain potentiometer installation. [Paul Dobosz, K8PD, photo]

lead, it will be necessary to connect to the preamplifier as shown in Figure 3. Most modern transceivers have 8 – 12 V available on the microphone positive pin or a separate pin of the microphone connector, so this circuit should work with pretty much any radio needing extra microphone output from dynamic microphones.

Each physical installation will be unique to the actual microphone. It will depend on the shape and size of internal space available, and your ability to disassemble and reassemble the microphone without damaging it. In my case, I opted to “sky wire” components together with fly leads (see Figure 4) and enclose the assembled circuit in shrink tubing (see Figure 5). I placed a miniature gain adjustment trim potentiometer under the microphone windscreen to allow adjustment without fully disassembling the microphone (see Figure 6). If placement of the circuitry internal to the microphone is not possible, it can also be enclosed in a small inline enclosure or in the base of a microphone stand, or combined with a PTT switch.

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An Inexpensive Mobile Scanner Mount

I needed a cheap and reliable bracket for the Uniden BCD536HP scanner that I keep in my truck. I looked at commercially made ones, but none that suited my needs were able to be installed in the close area between the center seat and my dual-band without obstructions. I also needed it out of the way while driving and needed to be able to see what was being received while parked.



Figure 7 — The finished scanner mobile mount, made from inexpensive plumbing supplies. [Al Wasielewski, WA2VJL, photo]

I decided that plumbing materials were the answer. I went to my local plumbing supply store and purchased two 3/4-inch galvanized floor flanges; one 3/4 × 6 inch galvanized threaded nipple; four #12 1-inch self-tapping screws, and two 3/4-inch locknuts.

I installed the flanges on either side of the pipe, then tightened and mounted it to the transmission hump with the self-tappers. I took the mobile bracket that came with my scanner and drilled a 3/4-inch hole in the center of the bracket, installed one of the locknuts onto the pipe, and bolted it to the top of the pipe with the other locknut. Finally, I mounted the scanner to the bracket with the hardware.

After a few adjustments, I had a mobile mount with no obstructions and great visibility for only \$4 (see Figure 7). This mount can be used with a variety of radios, using the radio’s mobile bracket. — 73,
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