then takes over the power needs of the shack as well as recharging the battery. — *73, Philip Karras, KE3FL, 3305 Hampton Ct, Mount Airy, MD 21771*, **ke3fl@arrl.net**

SignaLink USB Modification

The SignaLink USB (**www.tigertronics.com**) is a handy digital interface for your rig and it is an excellent choice for operating most digital modes. If you like to chase the very weakest signals this modification may be of interest. Please note that this modification will void your SignaLink USB warranty, if it's still in effect.

The SignaLink USB has an internal noise source that can potentially be vexing when working very low-level digital signals. The noise is a significant low-frequency broadband noise between 10 Hz and 700 Hz. To measure this noise, I used a free software tool called *Spectran* from I2PHD (**www.weaksignals.com**) that turns your PC sound card (or SignaLink USB) into a spectrum analyzer (technically an FFT analyzer).

It turns out that the bias voltage supply (set at 2.5 V) for the four ac-coupled inverting op amp circuits in the SignaLink USB is directly driven from the relatively noisy external USB power source with only some capacitive decoupling. Essentially, any noise from the USB power source that is not removed by the low-pass filter feeds directly into the audio stream.

One way to reduce the noise on the op amp's bias voltage is to use a voltage regulator. This is the solution I chose because there is already an on-board low-noise source (a Micron MIC5205BM5) supplying 3.7 V for the comparator reference in the PIC microcontroller and also for the Audio USB IC A/D supply.

Referring to Figures 4 and 5, remove the 1 kΩ resistor in series with the 5 V USB supply line. Next, add a jumper with an inline 470 Ω resistor (to return the bias to the 2.5 V required by the op amps) between the Micron regulator output and the inboard solder pad of the removed 1 kΩ resistor. The outboard resistor pad should remain empty. The easiest place to access the low-noise 3.7 V source is at JP4, although you can solder directly to the Micron IC if your skills are good enough. You can either use an inline resistor or an SMD resistor mounted to the inboard pad where the 1 kΩ resistor used to reside.

More information on SignaLink USB modifications can be found at Peter Frenning's, OZ1PIF, website (**www.frenning.dk/oz1pif.htm**). — *73, Mat Breton, AB8VJ, 35229 Rosslyn St, Westland, MI 48185*, **ab8vj@arrl.net**

A Part-Cleaning Jig

Old electronics and the miscellaneous tubs at hamfests are good sources of parts that can be recycled, but those parts often need to be cleaned up before we can reuse them. In particular, the terminals of switches, pots, tube sockets, connectors, terminal strips, and similar components must be cleared of old solder and scraps of wire. The usual technique uses flux, desoldering braid, or a solder sucker to remove solder, and often needle-nose pliers to remove twists of wire. This technique, however, calls for more hands than humans have; one to hold the part, another to hold the soldering iron, and a third to hold the desoldering braid or pliers.

A simple jig (see Figure 6) makes cleaning those parts' terminals far easier. A small panel is attached to a scrap of wood, which acts as a base. Holes in the panel accommodate the parts to be cleaned and the base is large enough that you can put your wrist on it to keep it from moving. To clean a part's terminals, mount it on the panel with the terminals facing the base and go to work. This is more stable than "third hand" devices that use alligator clips and you can save your workbench by soldering on the base.

The materials are non-critical. For the unit in the picture, I used some Masonite and a

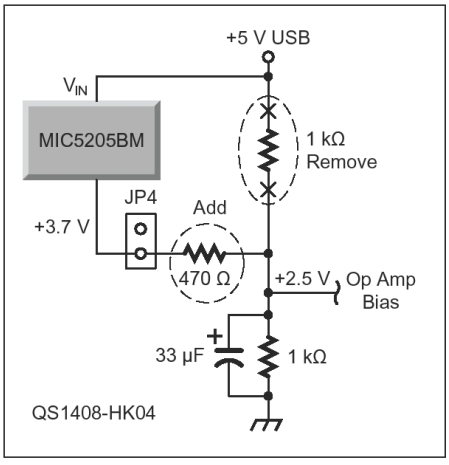

Figure 4 — This schematic shows the SignaLink USB bias supply before (right) and after modification.

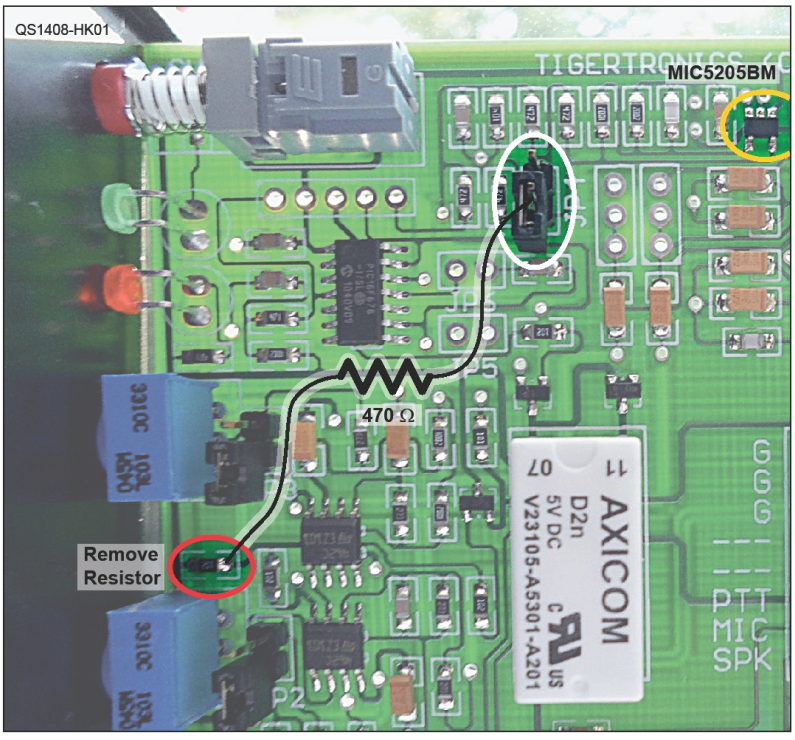

Figure 5 — Connecting a jumper and resistor between the JP4 connector and the inboard pad of the removed resistor applies regulated bias voltage to the op amps. [Mat Breton, AB8VJ, photo]