

Tools & Equipment

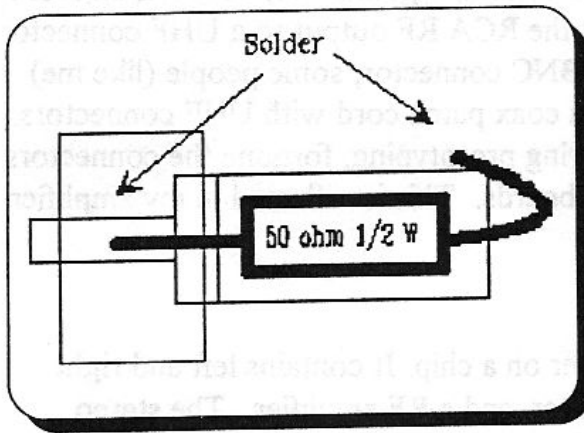
Obviously you will need the basics, solder and a soldering iron. Solder should be rosin core, not acid core. Radio Shack and other electronics stores carry large quantities of suitable solder. A small 25 to 35 watt soldering iron (do not try to use a big soldering gun.) I prefer a battery iron or a soldering station that is safe for delicate components. If you are using a cheap soldering iron and are going to solder IC's, un-plug it right before use, this will protect the component from voltage spikes and RF radiation from the AC power line.

A voltage/ohm meter is next on the list. This device will measure voltage, resistance, current, and usually a few other things. If you have money to burn, I would shop around and get one with a 20mhz frequency counter built in. One important quality you may want to look for is the volt measuring is of the high impedance type, 20,000 ohms per volt or better. Currently I have seen them go for around \$60 bucks, with the basic units costing between \$15-\$20.

If you are going to build an antenna and/or an amplifier a SWR/Power meter is almost essential (see FIG. 10.) Cheap ones can be had for about \$20 at Radio Shack. These cheap models will register SWR fairly accurately in the FM Broadcast band, and will give you a rough estimate of power output, enough for tuning up power amplifiers. More expensive ones are

available, even ones that were designed to operate on the FM Broadcast band, but these get quite pricey.

Next on the shopping list is A 50 ohm non-inductive load, or dummy load. This can be purchased at Radio Shack, or made quite simply by taking a 50 ohm resistor and placing it in a UHF or BNC male connector. An Ethernet terminator could even be used for testing transmitter power output of up to 500mw. If you make a homemade one and it burns up, then make a bigger one next time (that's what I always say.) The CB loads advertised to handle 5 watts usually contain a 2 watt 50 ohm resistor. Shown at



left is a simple design. Very important, use carbon resistors only, wire wound resistors won't work.

Later on we will cover a simple dummyload/power meter that you can build for around \$5 that will measure power very accurately with your hi-impedance volt meter.

There are many other pieces of test equipment that would be quite useful when doing the modifications and projects described in this book, but they are very expensive, and their operation is out of the scope of this book. Check the ARRL handbook if you need more info on RF test equipment.

Assembling Your Station

There are a few basic things you must have to set up a radio station, a transmitter, an antenna and an audio source. An audio source could be a tape player, microphone, CD player, or a mixing console that incorporates all of these items. A transmitter converts the audio source to radio waves at the desired frequency you wish to broadcast. You could say that a transmitter converts AF (audio frequencies) to RF (radio frequencies). Finally, you must have an antenna to efficiently radiate the RF to your target audience.