

Useful and Inexpensive Tools and Supplies for the Shack Phil Salas – AD5X

I've been doing a lot of metal work lately, both in building antennas and in building up boxes for homebrew projects. I've also been changing all my DC connectors to Powerpole connectors. In the process of all this, I've compiled a list of items that I thought others may find of interest. So I thought I'd share this info. Let me state up front that I have no particular vested interest in any of the products and companies listed, other than I think they provide a great value. So here goes:

Amp/Tyco makes equivalent connectors to the Anderson PowerPoles. You can buy these from Mouser Electronics (571-538942 black, 571-53894-4 red, 571-53892-4 contacts). If you just need a few connectors, and are ordering other parts from Mouser Electronics, this is an alternative to placing a separate order for connectors from another source. The nice thing about the contacts is that they can take 12-18 gauge wire.

An excellent PowerPole crimper is the Harbor Freight 36411 crimper. It does not deform the Powerpole terminal like the popular \$10 crimper does, and the crimp is longer (and looks better) than the Klein \$30 crimper. The Harbor Freight 36411 is normally \$6, but it is frequently on sale for \$4. Open up the box and check the tool before buying, as I did find a few where the crimping tongue was off-center. Probably still OK, but I like my crimps to look perfect!

For a really first-class Powerpole crimper, look at the West Mountain Radio PWRcrimp. This was custom made for West Mountain Radio, and does an outstanding job crimping the 15, 30 and 45 amp Powerpoles. Price is \$49.95.

A couple of neat items from Astro Flight are their Super WHATT Meter (Model 101N) and Micro Meter (Model 100). These in-line digital voltmeter/ammeter/watt-meters are powered by the input voltage source (assuming it is at least 4 VDC) and measure up to 80 volts (10 mv resolution) and 80 amps (100 ma resolution) for the Super WHATT Meter, or 20 volts maximum at 17 amps maximum (10 ma resolution) for the Micro Meter. Assuming you start with a discharged battery, you can even measure the charged amp-hour capacity of the battery when it is fully charged, since these meters measure amp-hours once you start drawing current. These digital meters sell for \$55, but you need to put your own PowerPole connectors on them.

If you like to build antennas, you probably use stainless steel hardware. A great source for all kinds of stainless steel hardware is JS Schmidt. Prices are very good, though you have to buy 100 pieces typically. However, most of the small hardware is around \$3/100 pieces or less. More expensive hardware is available in small quantities, even if the catalog says "100-pieces". Just ask when you call in. You can buy a 12-foot 1/8" stainless steel whip for \$2 (but shipping may be pretty expensive). They also sell stainless steel 3/32"x1/4" roll pins that hold Powerpole connectors together (\$1.75/100).

As an alternative to a hand drill, seriously consider the Harbor Freight Hand Punch 44060 @ \$18 (frequently on sale for as little as \$10). This tool punches holes from 1/16" to 5/16" diameter in steel, aluminum and brass up to a thickness of 16 gauge, and is much easier and more convenient to use than a hand drill in many applications. I think it is also safer to use than a drill when punching holes in small pieces of flat metal. I use it constantly. Highly recommended.

If you bend sheet metal for your home projects, check out the Harbor Freight 18" Bending Brake, 39103 @ \$24. This is an excellent low cost brake.

How about an inexpensive Tap and Die kit? The Harbor Freight 39391 Tap & Die Kit @ \$15 lets you tap holes and thread rods for the following sizes: 4-40, 6-32, 8-32, 10-32, 10-24, 12-24, 1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20 and 1/8" NPT pipe. This is extremely cheap for all this capability and I suppose the quality must not be as good as similar, but much more expensive kits. However, I haven't broken any taps yet.

Harbor Freight also sells an inexpensive step-drill set (91616 @ \$30, but on sale often for as little as \$15). Step drills are really nice for making measured hole size increases.

Do you need a portable (wireless) soldering iron? And do you ever need to solder to aluminum or stainless steel? If so, check out the Solder-It SolderPro 50/70/100/120 butane powered torches and solder pastes. These are GREAT portable soldering irons, especially for outdoor use. And couple these with silver solder paste (SP-7) @ \$6, and aluminum solder paste (ALP-21) @ \$6 and you have a great combination. It is really something to be able to solder to stainless steel and/or aluminum. The SolderPro 120 is heavy duty and has a large butane capacity for longer operation. The SolderPro 50 is good for many small applications due to it being so small and light. SolderPro torches are also available from Radio Shack (SolderPro 50) and Fry's Electronics (SolderPro 120) and \$4 for the silver solder paste at both places). I haven't been able to find the aluminum solder paste anyplace but at The Solder-It Company. For some reason, I've found that with stainless steel, sometimes the Aluminum Solder Paste works, and other times the Silver Solder Paste works. Seems to depend on the type of stainless steel, I guess.

Links: www.harborfreight.com
www.westmountainradio.com
www.powerwerx.com
<http://www.jschmidtstainless.com>
www.solder-it.com
www.astroflight.com



Harbor Freight 18" Brake (39103)



Harbor Freight Hand Punch (44060)



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Harbor Freight Step-drill kit (91616)