

Three possible chassis for the KD1JV Para80set Transceiver



Shown above are two of the three possible variations of homemade chassis for the KD1JV Para80set Transceiver. The one on the left is a complete chassis fabricated from 1/16" thk. pcb material, and the one on the right on a single sheet of pcb material that you can secure in a wooden box. The third later in this document is a simpler pcb chassis. The construction details of preparing and fabricating any pcb case can be found in *PCB Chassis Techniques* at <http://www.qrpguys.com> in the *Misc. Files* section on the menu at the top of the page.

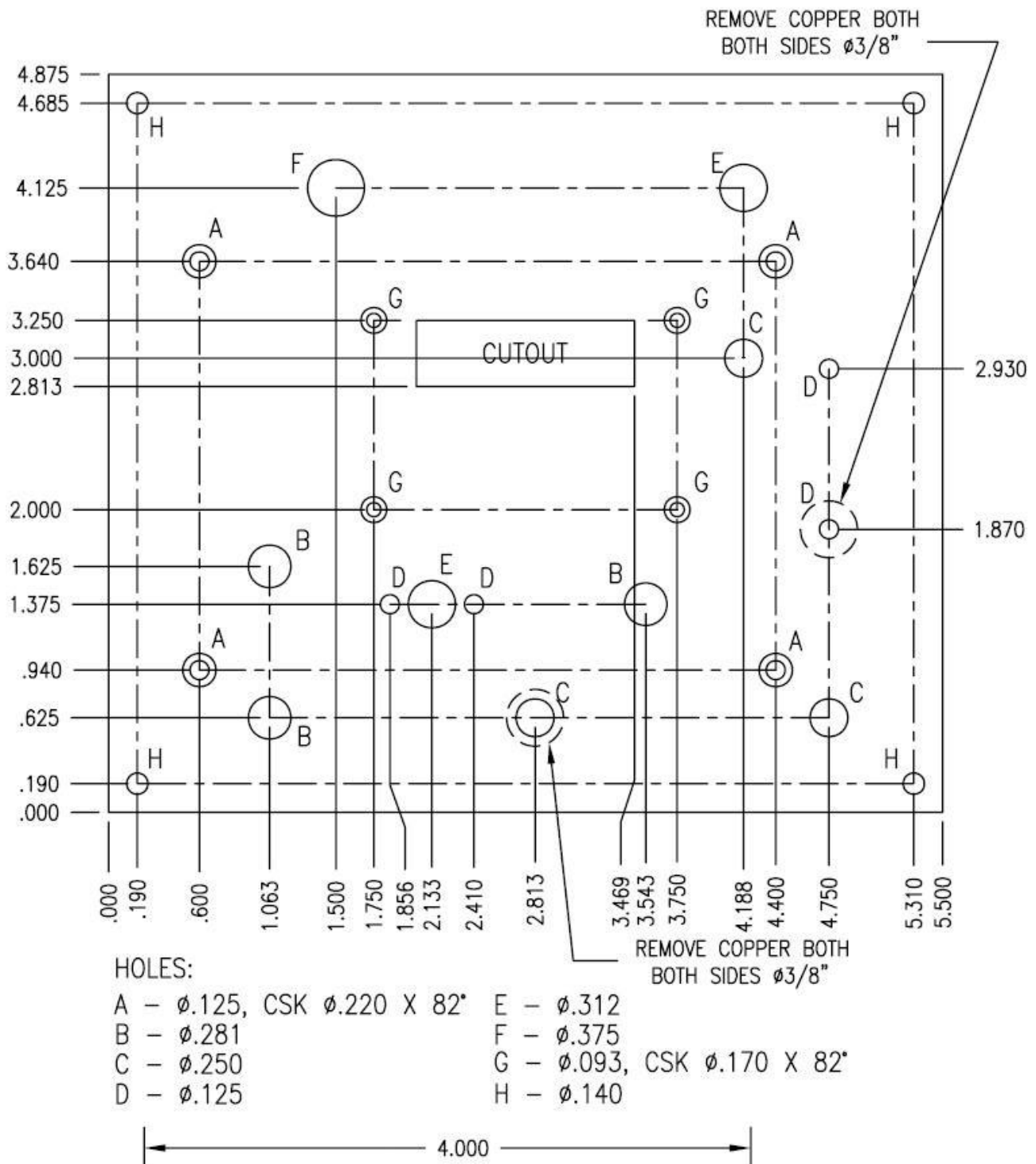
Note: If you design your own case, remember Steve's warning about the earphone common connection must be isolated from ground.

Some hardware you will need:

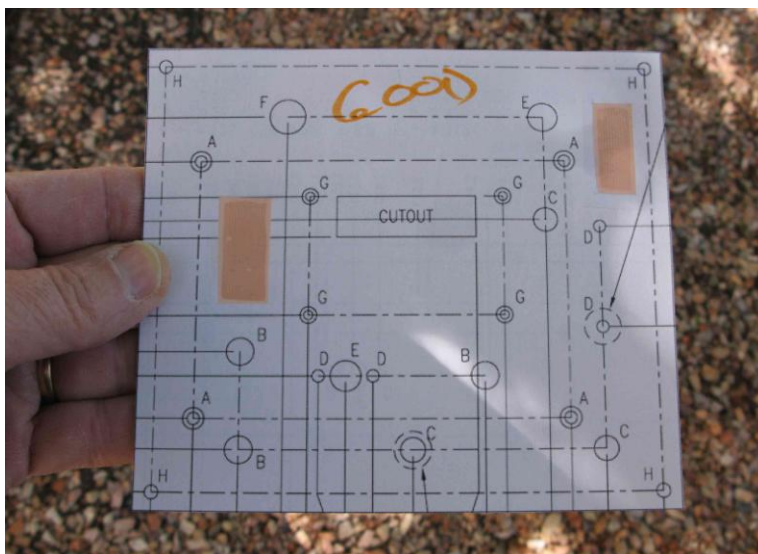
- 4 - 4-40 X 1/4" L FH SS screw
- 4 - 4-40 X 1" L FH SS screw
- 12 - 4-40 nuts
- 4 - 4-40 brass hex nut
- 4 - self adhesive rubber foot
- 1 - panel mount BNC female
- 1 - panel mount 5.5mm x 2.1mm dc power jack
- 1 - panel mount N.O. push button switch
- 1 - SPDT toggle switch
- 3 - control knobs
- 1 - Small key, homemade or otherwise

Single faceplate option:

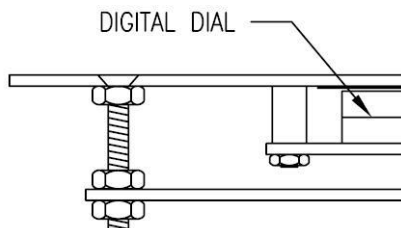
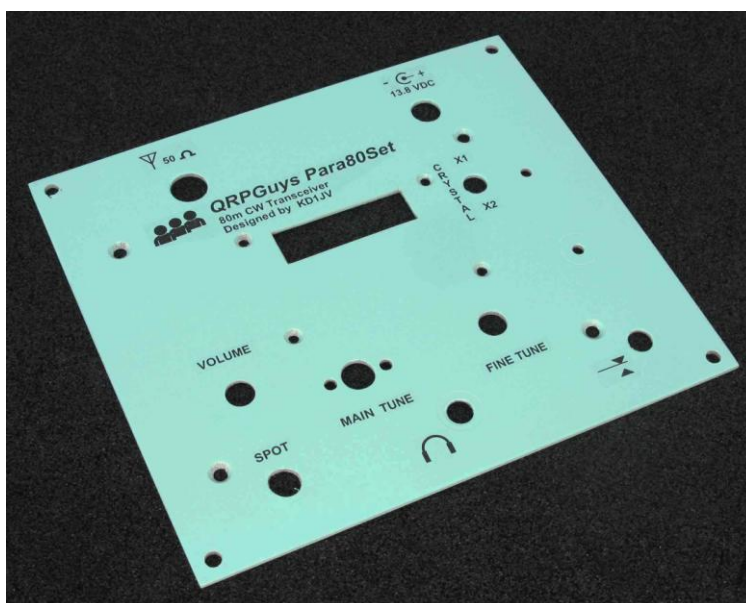
This option on the right shows all the components mounted on a single sheet of 1/16" thk. pcb material. There is sufficient clearance on the sides to allow for 3/8" thick walls. If you deviate from this you may have to make dimensional adjustments to the faceplate. This faceplate measures 5 1/2" x 4 7/8". Allow at least 1 3/8" deep inside the box for component clearance. This option also has provisions for a small Bunnell #6B key, and digital dial. The mounting holes for the key can be omitted or modified for a key of your choice. Mount the transceiver pcb with the component side down. Make the faceplate below either by laying out the dimensions or if you can scale your printer to match the 4.000" scale shown, you could tape a printout to your plate and center punch the hole locations. Both these chassis are only suggestions and we encourage builders to be resourceful with their particular parts. **Note the copper removal around the earphone jack to isolate the common connection from ground, and the Bunnell key.**



The panel below was made by cutting the pcb to size, scaling and printing the above page so that the 4.000" scale reads 4". Cut and tape the paper through a couple of rectangular holes for the tape in an unused area to the sized panel and center punch the hole locations.

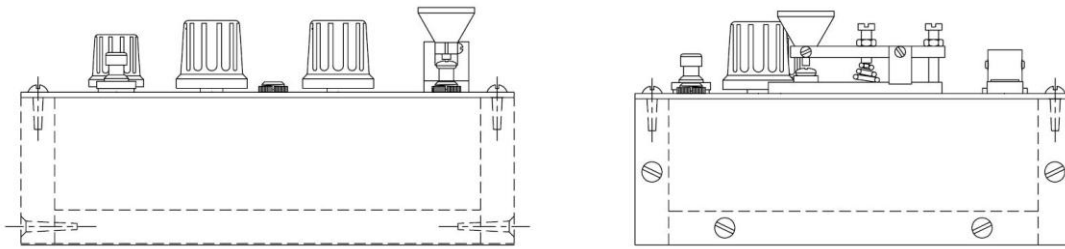


The corners for the cutout are very lightly center punched, scribed between the marks, then drill a few 1/4" dia. holes in the cutout portion and file the rectangular cutout to the scribed line. The remainder was then punched, drilled, painted and decaled.



Secure the pcb to the chassis or faceplate by 1" L corner screws using spacers or the triple nut arrangement shown above. Using the triple nut allows you to have some adjustment for the clearance between the pcb and the underside of the chassis. You are mounting the pcb with the components facing down. Use this for either chassis or faceplate option.

You can make a simple box, or perhaps modify an unpainted box from one of the hobby stores.



Below is a more involved example using an unfinished, Hobby Lobby box originally 9.69"x6.97"x3.78"





Enclosed pcb chassis option:

The option on the left is shown next. Refer to the file <PCB Chassis Techniques> in the Misc. Files section. Additional details particular to this chassis will be addressed here. This chassis also has accommodations for the Bunnell #6B small straight key, but any small simple home made key could be substituted, or no key at all and use an external key. Also in this design, the QRPGuys thru hole digital dial and hardware is used. Should you choose to use other components, you may have to modify the described holes or locations to accommodate your particular components. The PCB and connectors all mount on the cover, so there are no wires between the cover and base.

Using the previously mentioned file as a guide finish the 1/6" thk, double sided copper clad pcb material to the following sizes:

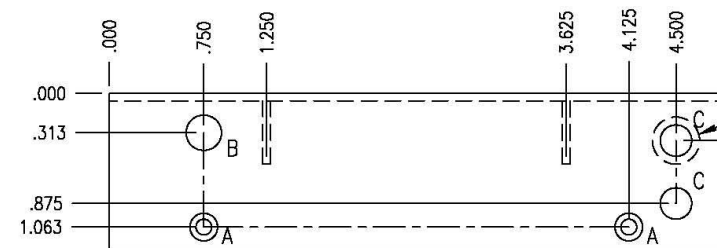
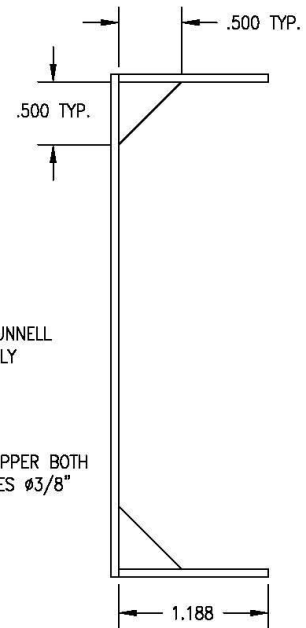
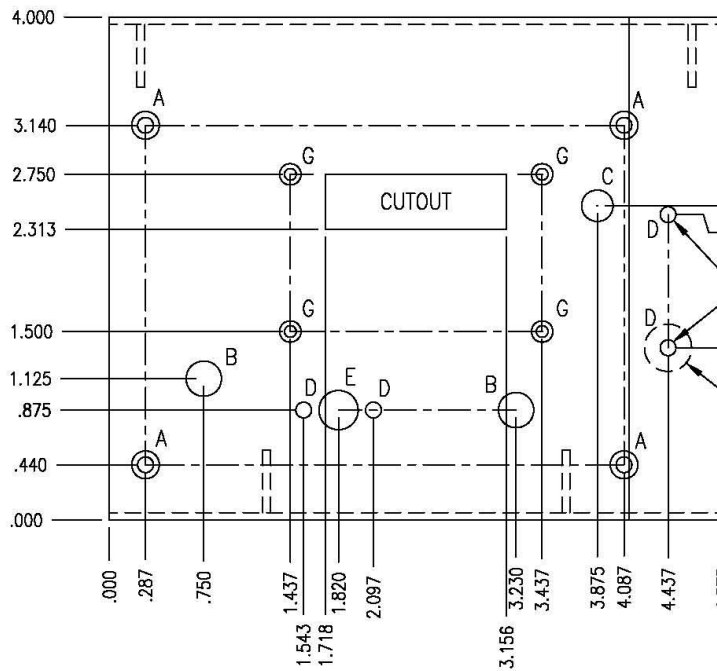
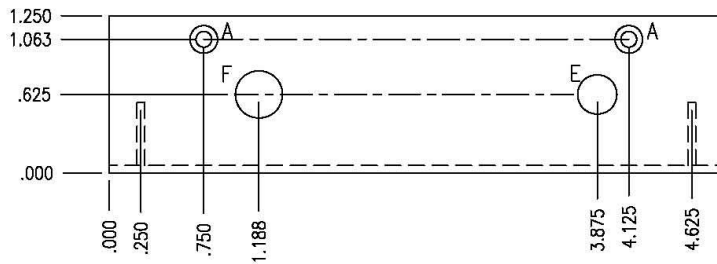
Chassis cover:

- 1 @ - 4.875" X 4.000"
- 2 @ - 4.875" X 1.187"
- 2 @ - .50 sq., cut diagonally in half

Chassis base:

- 1 @ - 4.875" X 3.875"
- 2 @ - 3.875 X 1.125"
- 2 @ - .50 sq., cut diagonally in half

After soldering the chassis parts, layout and drill the holes as shown. *Remove the copper around the earphone jack to isolate the common connection from ground. Note that the copper is also removed at the Bunnell #6B mounting screw that is the keyed connection.*



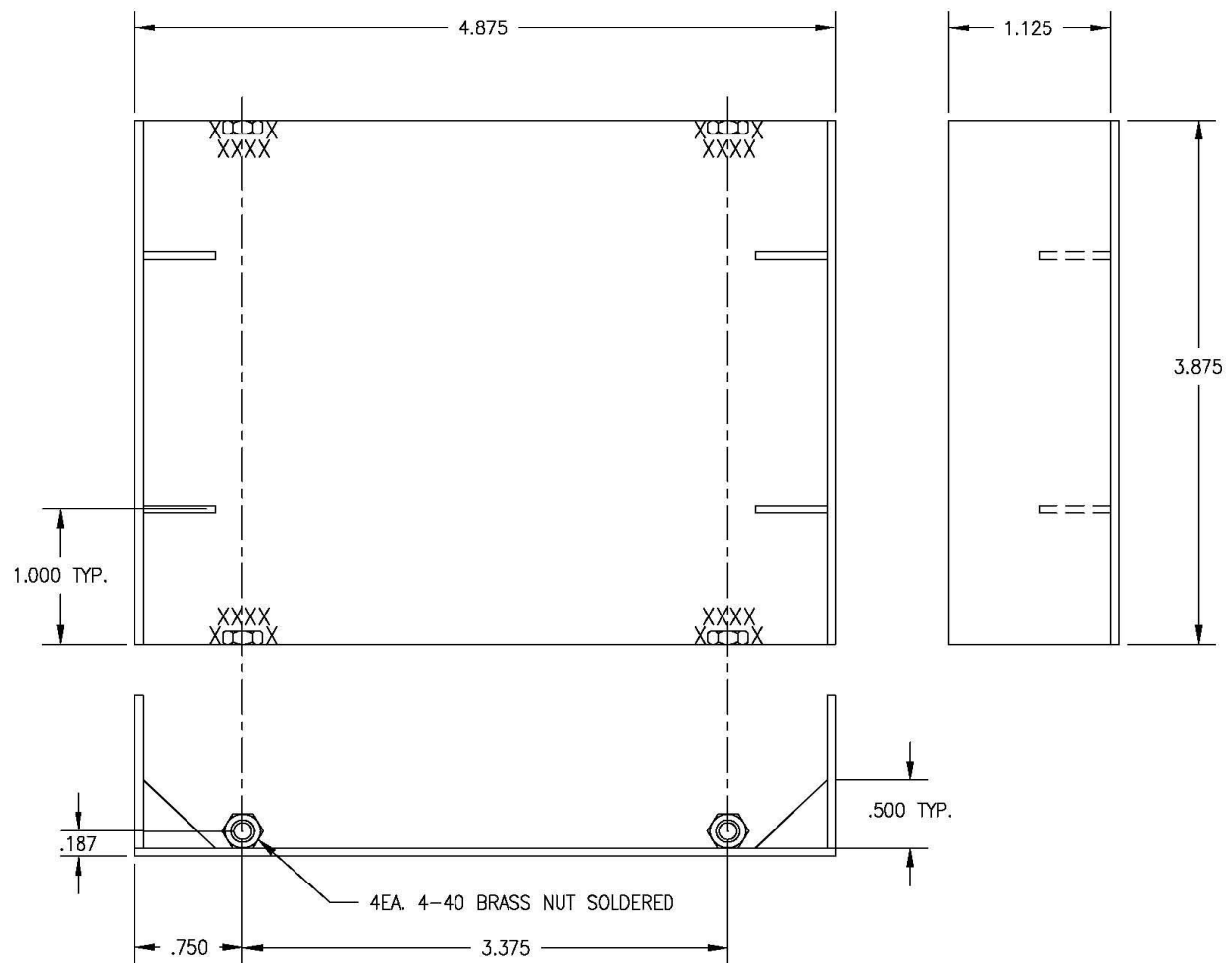
CHASSIS COVER

- 1EA. - 4.875 X 4.000
 2EA. - 4.875 X 1.187
 2EA. - .50 SQ. CUT DIAGONALLY IN HALF (GUSSETS)

REMOVE COPPER BOTH
 BOTH SIDES $\phi 3/8"$

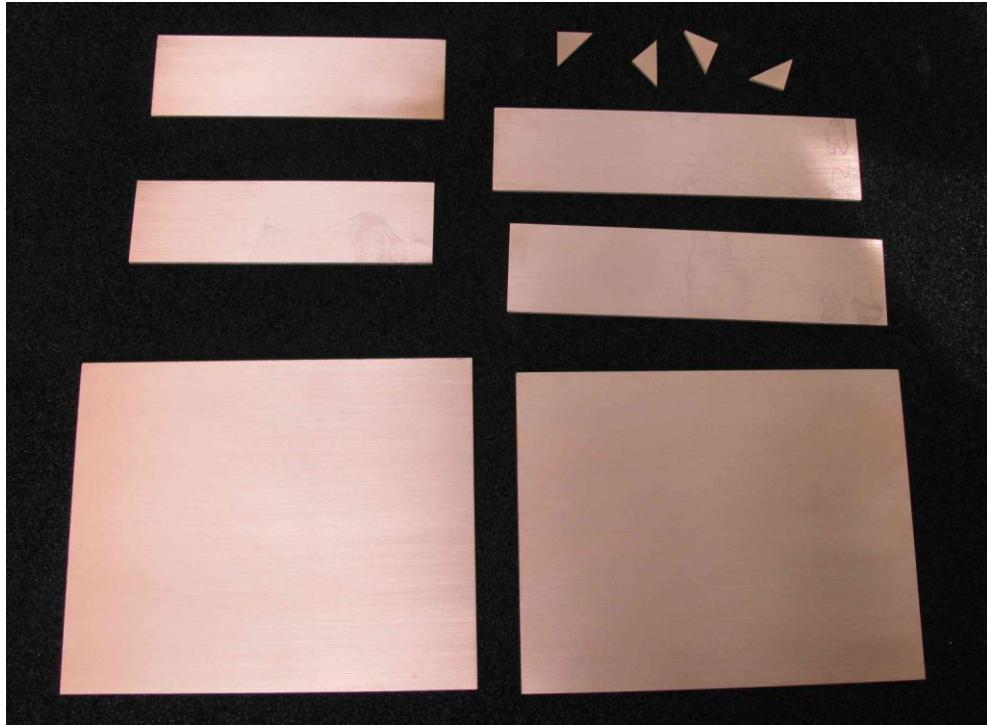
HOLES:

- A - $\phi .125$, CSK $\phi .220 \times 82"$
 B - $\phi .281$
 C - $\phi .250$
 D - $\phi .125$
 E - $\phi .312$
 F - $\phi .375$
 G - $\phi .093$, CSK $\phi .170 \times 82"$

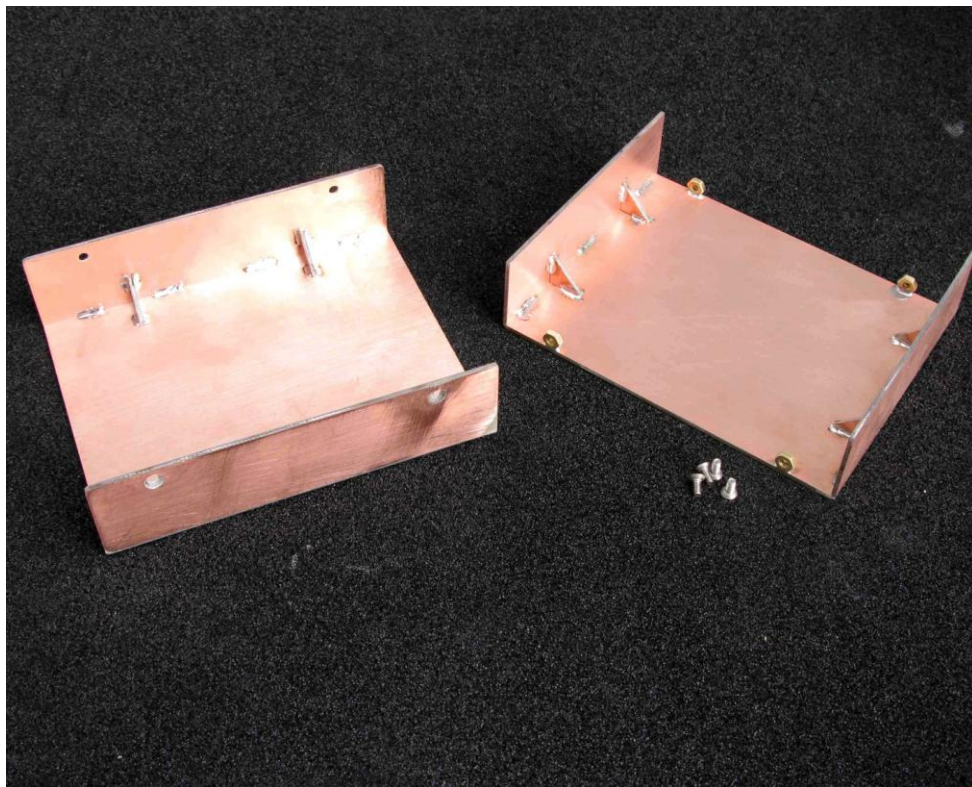


CHASSIS BASE

- 1EA. - 4.875 X 3.875
- 2EA. - 3.875 X 1.125
- 2EA. - .50 SQ. CUT DIAGONALLY IN HALF



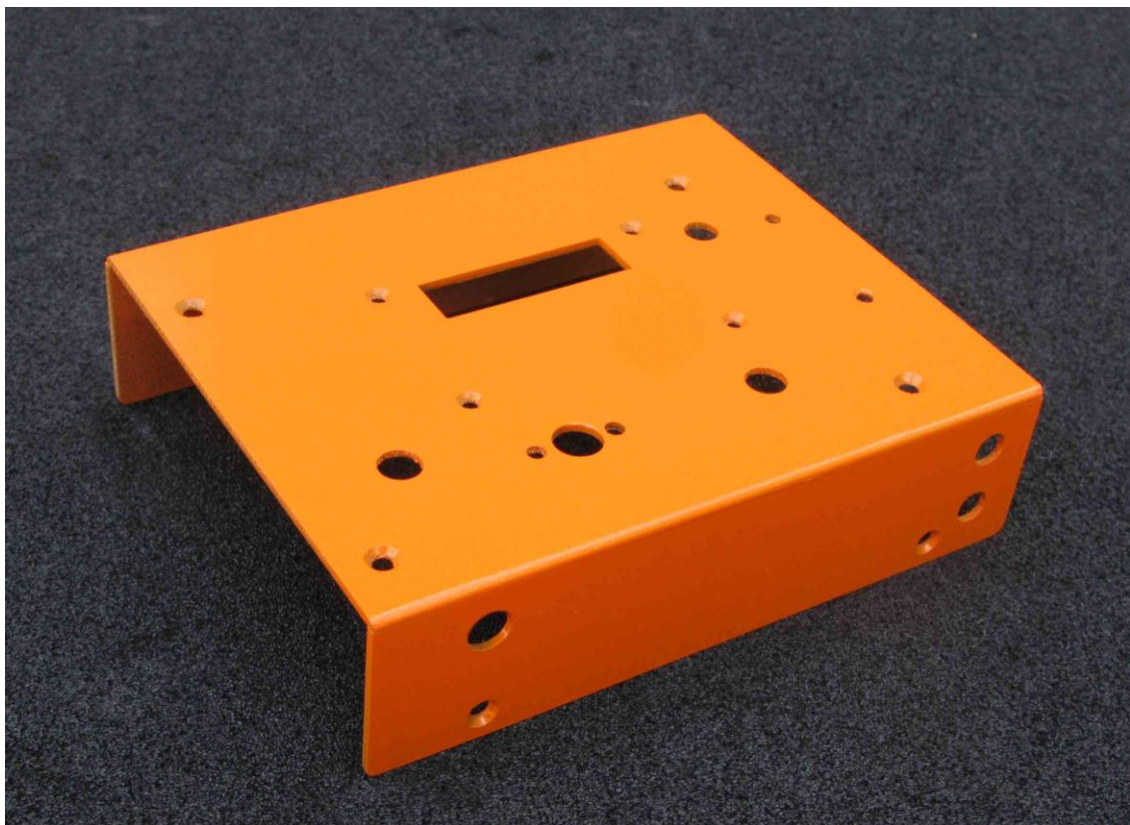
Chassis parts sized, cleaned, and ready for assembly



Soldered cover and base assemblies



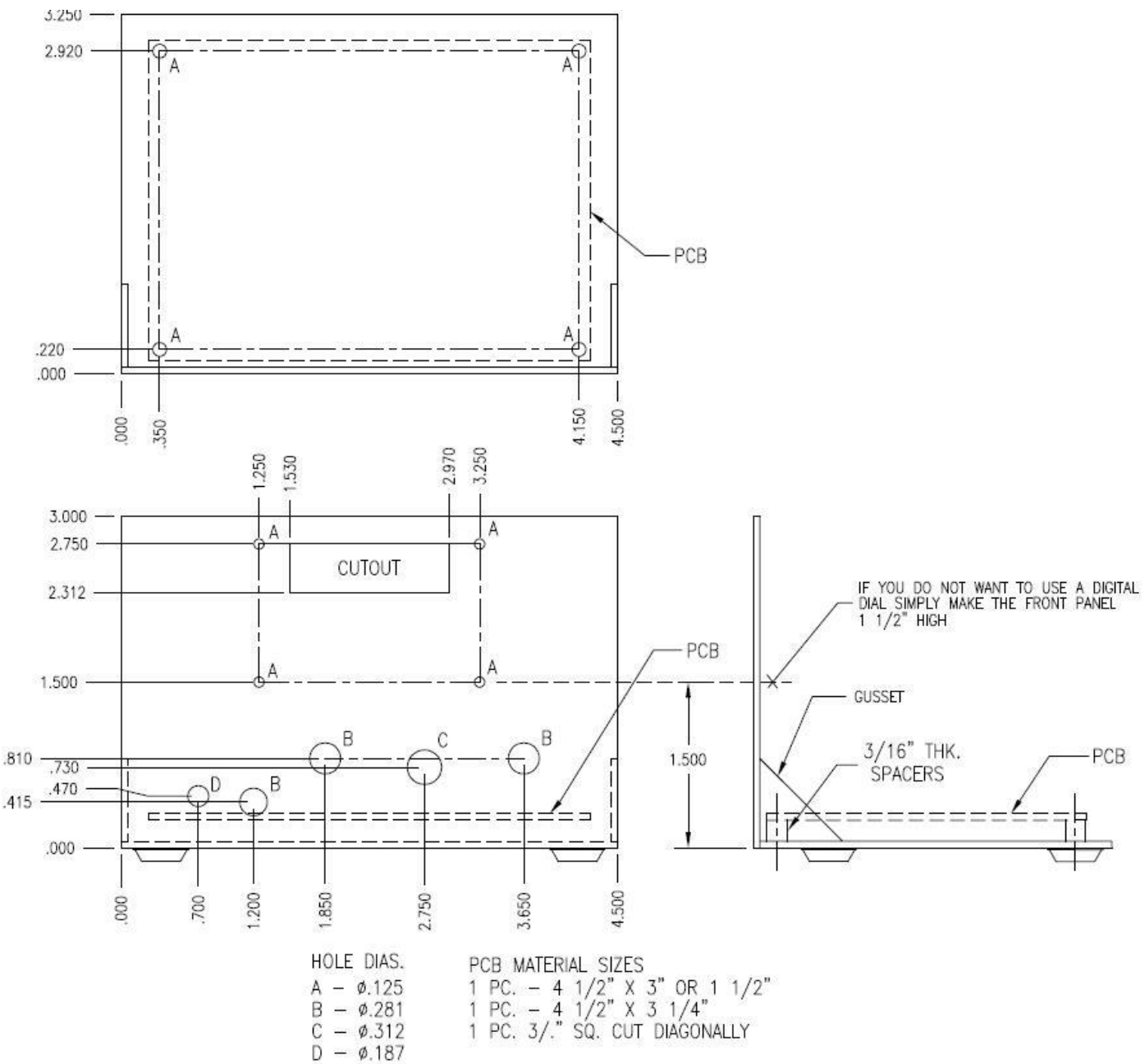
Cover and Base fitted together, ready for holes



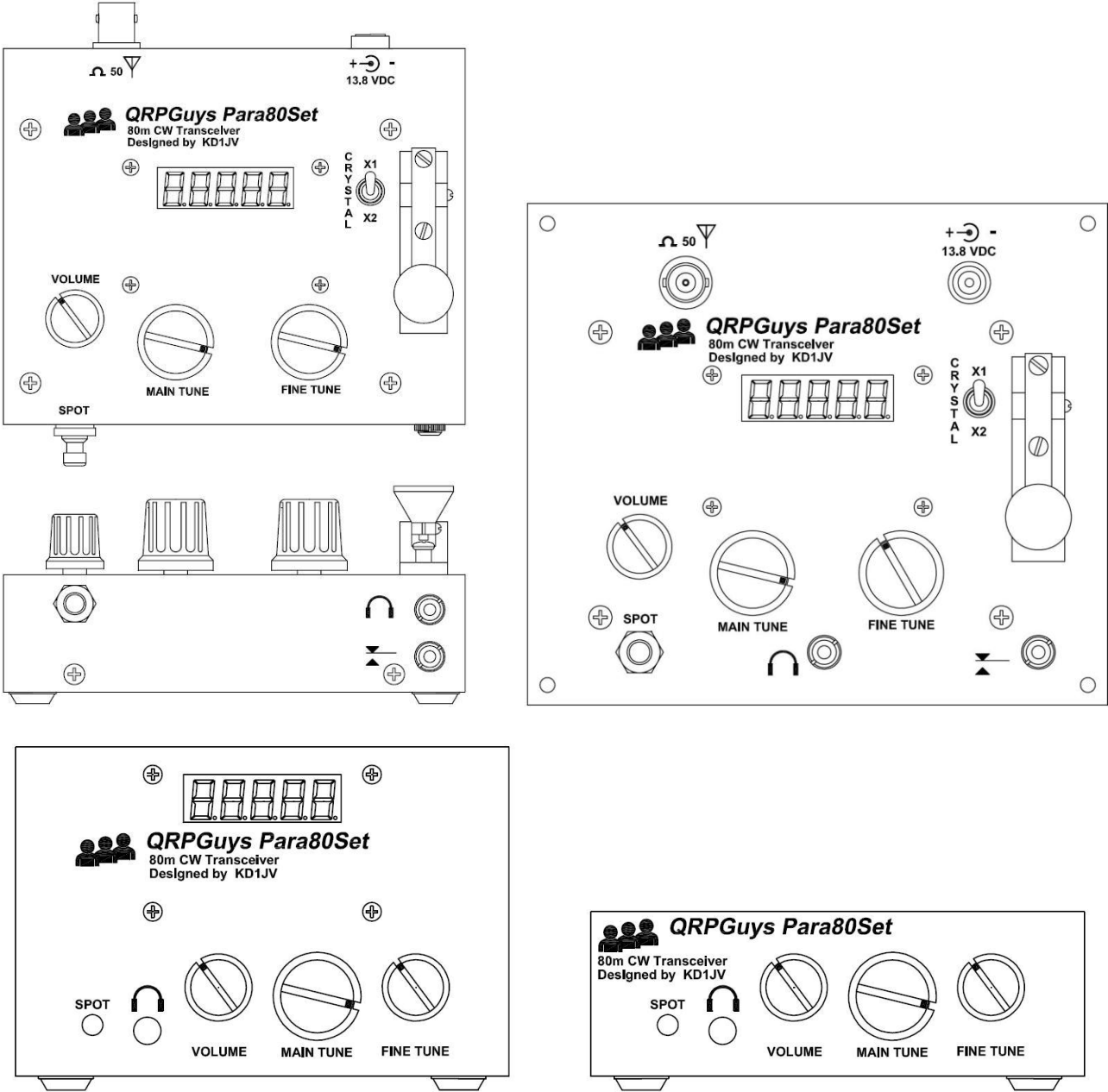
Cover drilled and painted

Simpler open style pcb chassis option:

This option shows a simple “L” chassis that will accommodate our digital dial, and with all the controls still mounted on the pcb. Remember to not let the common connection of the earphone jack touch ground. You can easily put a small section of heat shrink on the threaded barrel to isolate it from the pcb foil. Use 3/16” thick spacers to space the Para80set pcb from the bottom. To join the pcb parts, refer to the guide in the “Misc. Files” section of the web site.

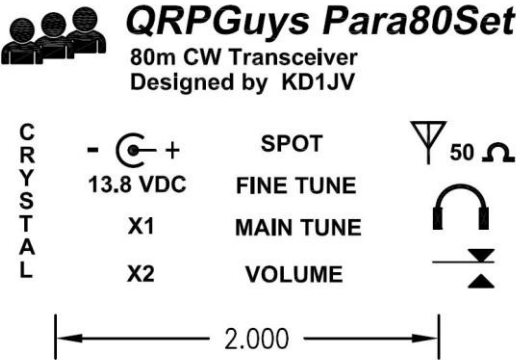


Decals:



Use the above graphic as a guide for decals if used.

Use a good quality spray paint of your choice for the either option. If you want to use decals, the decals show up better on a lighter color cover.



Print out the above onto laser decal paper. I use Papilio Item# PAS48511G. Practice on plain paper to achieve the correct printer scaling.

Thoroughly clean the painted surface of the panel to remove any oils or contamination.

The decals are applied the same as model decals. Cut around each group of text you wish to apply. It doesn't have to be perfect as the background film is transparent. Apply the decals before you mount anything to the chassis. Plan ahead and decide where you want them to be placed. Have the controls knobs handy. It is easy to place the decal too close to a hole and have a decal partially covered by a control knob.

Trim around the decal. After trimming, place the decal in a bowl of lukewarm water, with a small drop of dish soap to reduce the surface tension, for 10-15 seconds. Using tweezers, handle carefully to avoid tearing. Start to slide the decal off to the side of the backing paper, and place the unsupported edge of the decal close to the final location. Hold the edge of the decal against the panel, with your finger, and slide the paper out from under the decal.

You can slide the decal around to the right position, as it will float slightly on the film of water. Use a knife point or something sharp to do this. When in position, hold the edge of the decal with your finger and gently squeegee excess water out from under the decal with a tissue or paper towel. Work from the center, to both sides. Remove any bubbles by blotting or wiping gently to the sides. Do this for each decal, and take your time. Allow to set overnight, or speed drying by placing near a fan for a few of hours. When dry, spray two **light** coats of matte finish, Krylon, clear to seal and protect the decals, and allow the spray to dry in between coats.

Notes:
