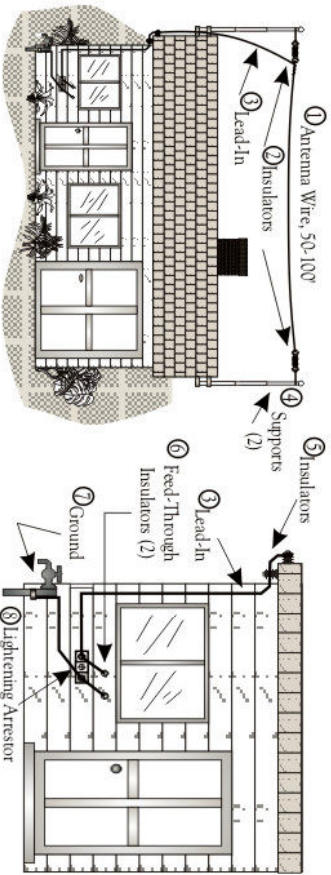


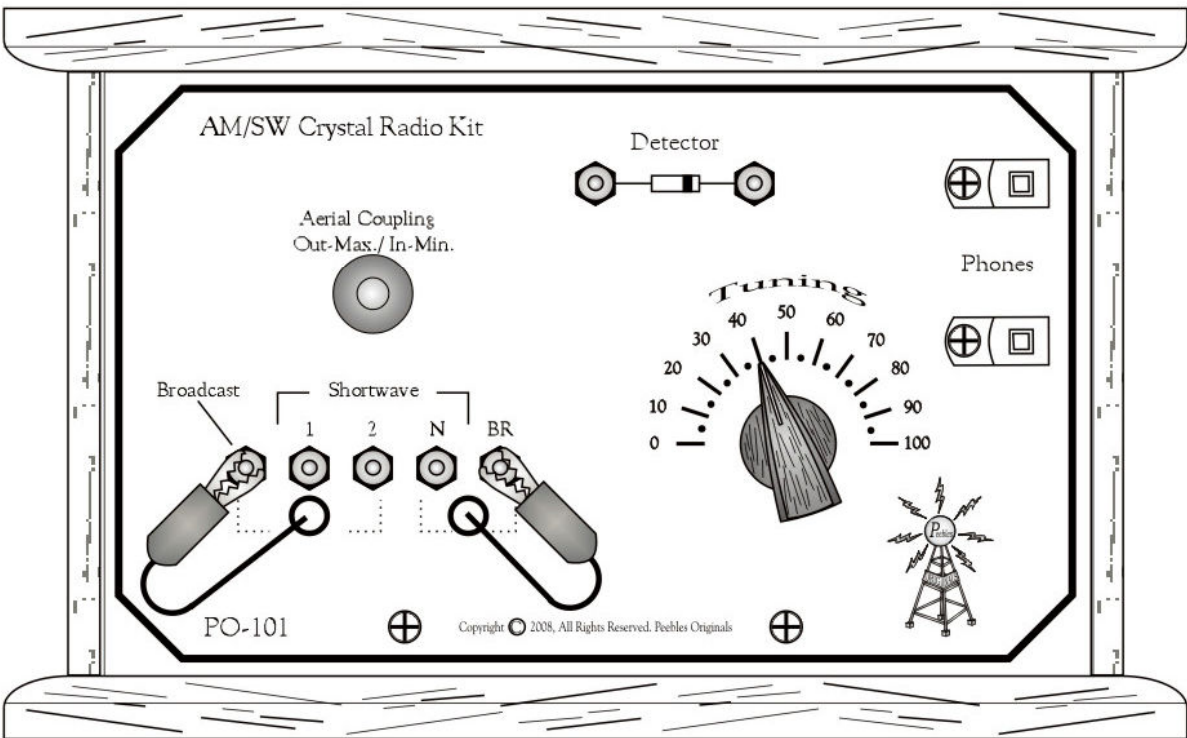
Antennas and Grounds

A substantial antenna and ground are an absolute must, for the ultimate pleasure of crystal radio experimentation. See the diagrams below, for the following explanations:

- 1) **Antenna Wire, 50-100'**: 14 gauge/stranded wire is the most practical, here. The wire can be insulated or uninsulated and if 14ga. isn't handy or practical, then use what you have that would be a close substitute.
- 2) **Insulators**: Any style that is fit for an antenna application may be used, here. Make certain that the antenna wire and 6-8" pieces that tie to the Supports are mechanically sound. These connections should be tightly wrapped around each-other and securely soldered.
- 3) **Lead-In Wire**: This should be of the insulated variety, or could be 52-72ohm coaxial cable. Make certain the shielding is securely grounded. See #7 on grounding. If a single wire is used, then it should be of as heavy gauge as possible and very well insulated. See #5 on insulators.
- 4) **Supports**: I have used 15' antenna mast, as shown, for my antenna (Illustration looks like the front of my house). The supports could be a tree, another building or any object that is as high as possible. Your supports should be as high as absolutely possible, if you live in a "fringe area", and not so important in areas that have a large amount of powerful stations, nearby. A very, very important factor here, is to keep your antenna and lead-ins clear of utility lines of all types.
- 5) **Insulators**: Your lead-in wire should be insulated from all objects, even though the lead-in, itself is insulated, the wire should still be run-through insulators. Radio Frequencies have a habit of finding a path to ground, easily. When working with very weak signals as we do in radio experimentation, we need all the signal, we can obtain, to the set.
- 6) **Feed-Through Insulators**: Should be used to run the wires through the wall, into radio room.
- 7) **Ground**: This should be a solid path to "earth". This can be accomplished via water-pipes or other direct paths to "earth" ground. Do-not use Gas pipes, here.
- 8) **Lightening Arrestor**: This is a very sensible, safety precaution and should be used.



Antenna/Ground Details



PO-101, AM/SW Crystal Radio Kit
Assembly Instruction and Operating Manual

PO-101, AM/SW Crystal Radio Kit Introduction:

You have just made a wise purchase with the PO-101 kit, one of the many in the series offered by Peebles Originals. The PO-101 has a quite unique design, not only AM/SW and with Spider-Web coils also very selective. Not a beginner's project however, not extremely difficult either. A fine companion to this kit: "Radios That Work For Free", and PO-103 Antenna Tuner/Trap Kit. The kit requires soldering and can be built easily with the aid of a few basic Hand-Tools:

- * #2 Philips Screw-driver
- * Awl or Ice Pick
- * Knife or Wire-strippers
- * Medium-size Needle-Nose Pliers
- * Medium-size Wire-Cutter
- * 3/8" Nut-driver(optional), or use Needle-nose
- * Paper Paste
- * Fine Sandpaper, 100-150 grit
- * Acrylic, Clear-Coat, Spray or Brush, or "Coil-Dope"
- * Soldering-Iron, low wattage, Rosin-core solder

PO-101 ASSEMBLY:

- 1) Locate: "Parts List". Spread-out all the Parts in front-of you and sort them following the Parts List. Make certain they are all there. Sorting the parts into an empty Egg Carton, or similar device. Familiarize yourself with ALL the PARTS.
- 2) Follow each step carefully and Check-Off each box, as you go-along. Start with winding the Coils. This is a MOST CRITICAL part of the assembly procedure. Make certain windings are TIGHT & EVEN.

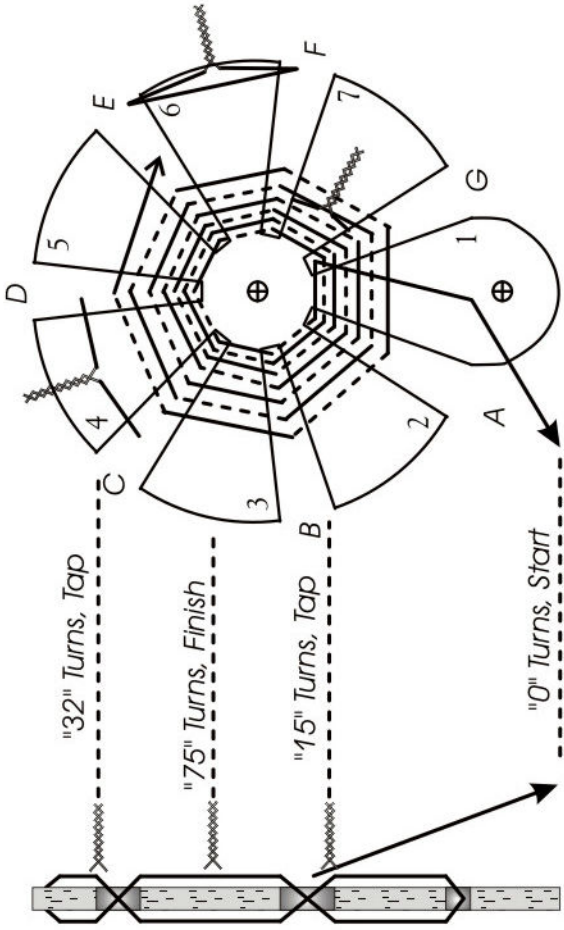
1 Locate: 2-spider-web coil forms and supply of 28ga. coil wire. See Figure #1 and follow the directions accompanying the illustration. Critical items to take note of, here: 1) L-1 and L-2 are wound "clock-wise" with shiny-side of form facing you; 2) Winding the wire around the form, in and out of the "wings" ("posts") and slots, from "wing" #1 and back to "wing" #1 is ONE FULL TURN; 3) Count the wires appearing on both sides of the form, to obtain total number of turns, and; 4) Make certain that coils are mounted with the windings facing each-other in the same direction. You may choose to coat the coils with Acrylic clear-coat or "coil dope". Use tape on taps, so as not to coat them.

2 See Figure #6, Locate: Dial Panel and Dial Plate. Cutout the Dial-Plate and paste the Dial-Plate onto the front of the Dial-Panel, making certain all the holes lineup. Cutout the larger holes with a sharp knife and punch-out the smaller holes with an awl or ice-pick.

3 Locate: 2/6-32 x 3/8" machine screws, 7/6-32 x 1/2" machine screws, 11/6-32 nuts, 9/#6 solder lugs & 2/#6 fahnstock clips. See Fig. #3 & 6. Mount the fahnstock clips at "phones" with 6-32 x 3/8" screws and shown hardware, as per illustrations. Mount the 7/6-32 x 1/2" screws, at: "detector" and "J-1, J-2" positions, through panel assembly with shown hardware, as per illustration. The two remaining nuts are used for mounting diode at "detector", later. Turn loosely onto "detector" screws, for now.

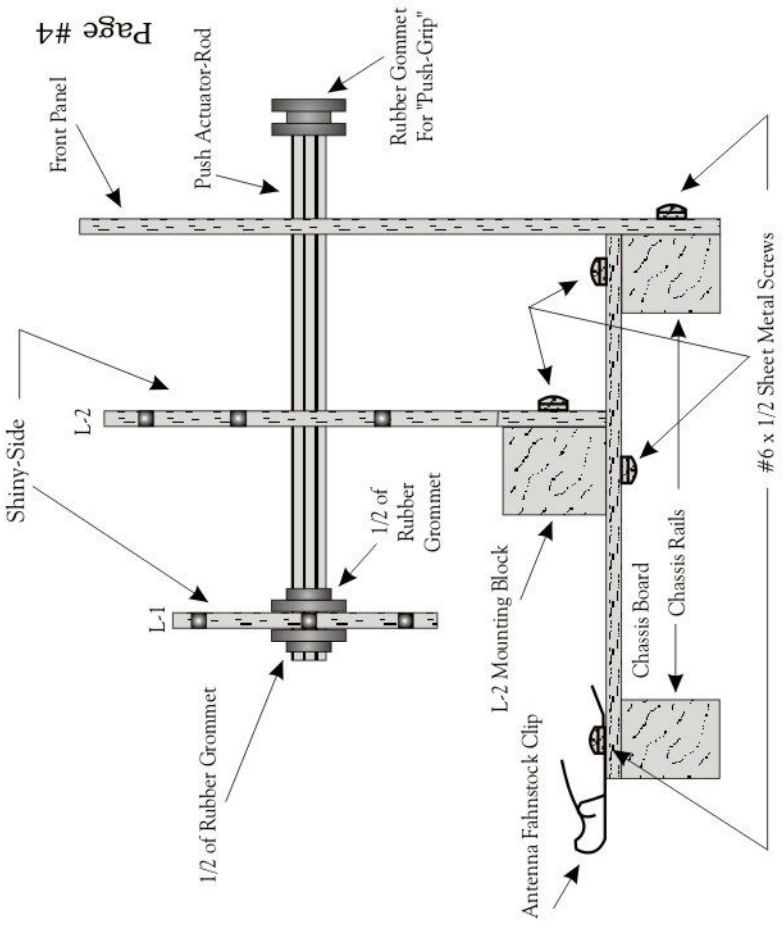
4 Locate: Chassis-Board, 2/Chassis-Rails 2/#6 Fahnstock Clips, 3/#6 Solder-Lugs, #6 Lockwasher, 2/6-32 x 1/4" Machine Screws, 4/#6 x 1/2" Sheet-Metal Screws and (C-1) 365pf. Variable Capacitor. See Figure #2, 3, & 5: Mount Chassis-Board to 2/Chassis-Rails w/#6 x 1/2" Sheet-Metal Screws, as shown. The 5/8"-side of Chassis-Rails mount to the bottom-side of Chassis-Board.

5 See Figure #3: Mount the 365pf. Variable Capacitor, as shown. The two 6-32 x 1/4" are mounted to bottom-side of Variable, through the chassis, from the bottom-side of Chassis. A #6 Solder-Lug and a #6 Lockwasher is mounted between the Chassis-top and the bottom of Capacitor. This is very important, as to not damage the Capacitor and to provide (a) Soldering point. DO-NOT OVER-TIGHTEN THESE TWO SCREWS as you may damage the Variable.



Note: Coil-form L-1 and L-2, both have 7 "wings" or "posts" and 7 "Slots". The "wings"(posts) are numbered: 1-7. The "slots" are lettered: A-G. Coil-form L-2 is shown and the same applies for L-1 with the exception that L-1 has 20 turns and no "Taps". Also, at the "start" and "finish" of L-1, leave 6" of wire at the "start" and "8" at the "finish". L-1 and L-2 are both wound in a "clockwise" direction and the "shiny" side of the form should be facing you. Start the windings at "wing" (post) #1 by wrapping the wire around the "post" and looping it back-under itself, twice on the front-side of the "post". Leave 3" of coil-wire at the "0" turns, start of L-2. Start winding the coil by running the wire through "slot" A, under "wing" 2, up-through "slot" B, over "wing" 3, through "slot" C, under "wing" 4, up-through "slot" D, etc., until you reach "Slot" A. The aforementioned is ONE FULL TURN. Proceed, 15 FULL TURNS, wind-on to "Slot" F and cut supply of coil-wire, leaving about 1-1/2" of wire protruding from "slot" F. Using a fine sandpaper, clean-off the enamel insulation from about 1" of protruded wire. Clean-off, about the same amount of insulation from the supply of wire and tightly twist-together the two 1" clean-bare wires and "tin" with solder. Note that if you count the windings here, you would count the wires appearing on top of the form and count the wires appearing on the bottom of the form, you would notice that you have 8 wires on the bottom and 7 wires on the top, for a total of 15 TURNS. Proceed with the turns, until you reach the 32rd-turn, wind-on to "slot" C, make "Tap" "32" as you did "15", proceed to "75". To finish at "75", wrap the wire around the post, cut-off the supply of wire and leave about 1-1/2". Sand the insulation from about 1" and twist-together, with the tinned wire at "75" and solder. This will secure the end.

Figure #1, Coil Winding Data.



Mount L-2 to L-2 Mounting Block, at the Center of the Block, and Coil-Form, Bottom, even with the Bottom of the Block. Mount the Assembly to the Chassis Board with 2-Sheet Metal Screws, so that the PUSH ACTUATOR-ROD, Lines-up with the Hole in the FRONT PANEL. Use the Rod for Checking. Mount L-1, on the end of the Actuator Rod, as Shown, in the Diagram, with 1/2 of Rubber Grommet, L-1, and the other 1/2 of Rubber Grommet, in that order. Make Certain that L-1 & L-2 are Facing each-other, with their WINDINGS in the Same Direction.

Figure #2, L-1, L-2 Assembly.

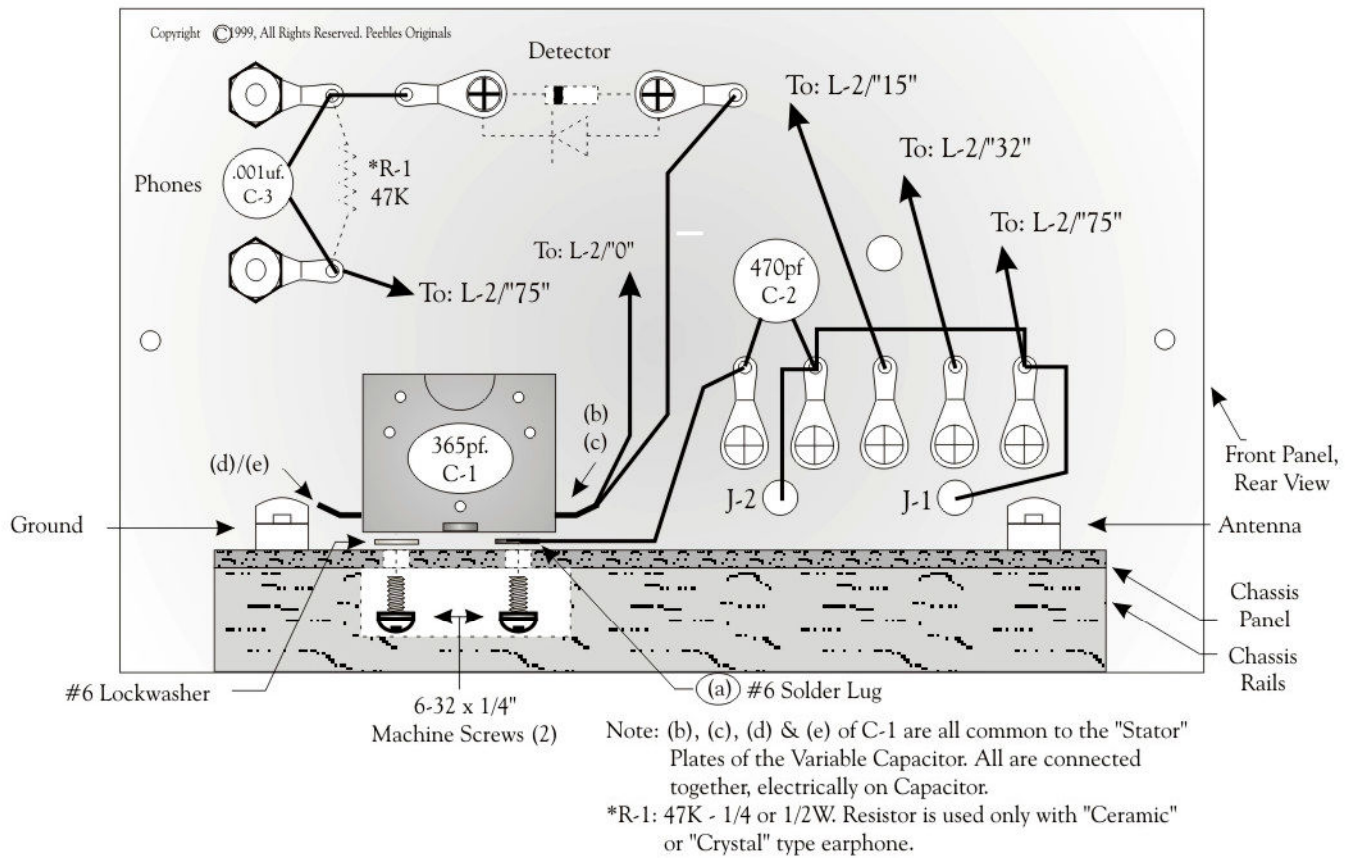


Figure #3, Wiring & Parts Placement, Rear View.

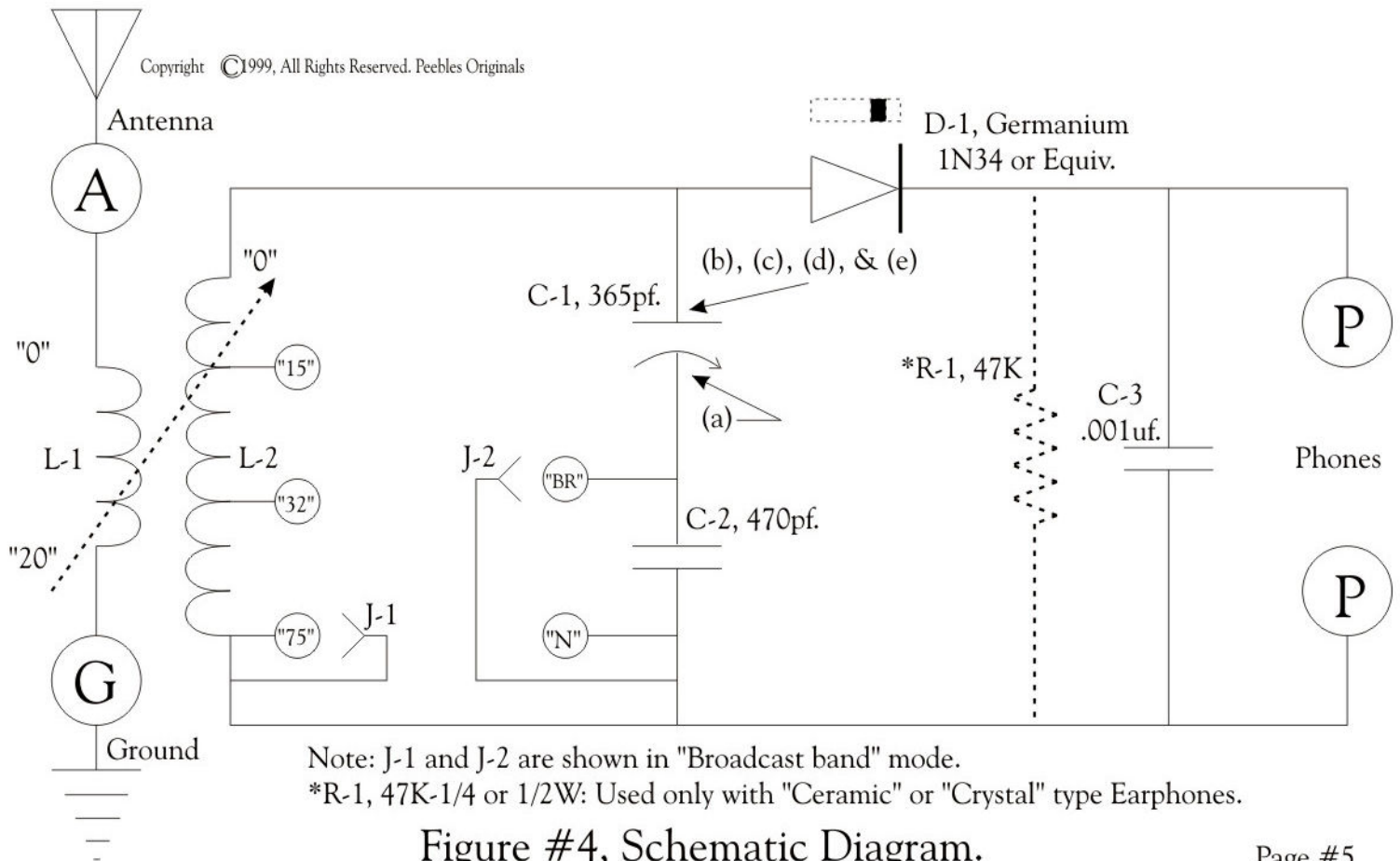


Figure #4, Schematic Diagram.

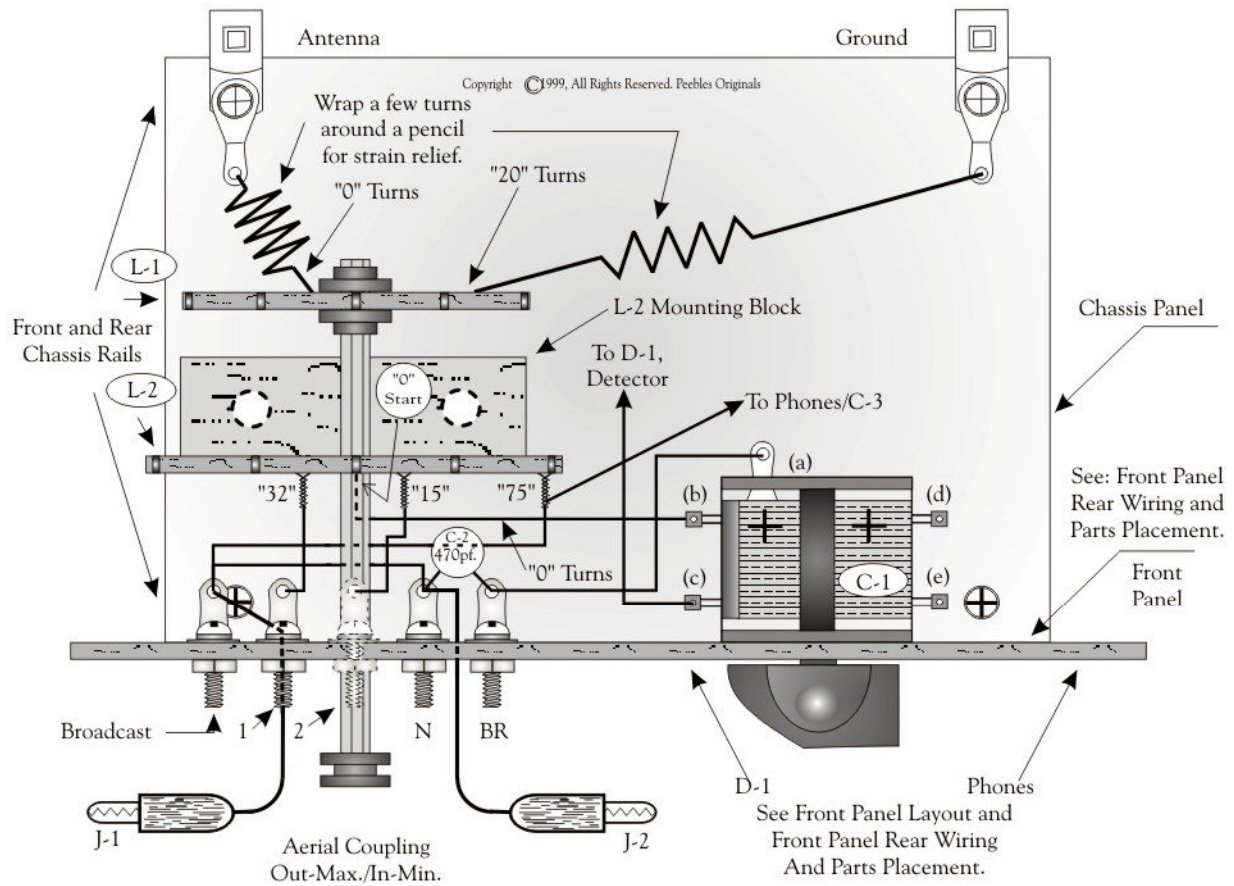


Figure #5, Chassis Parts Layout & Wiring.

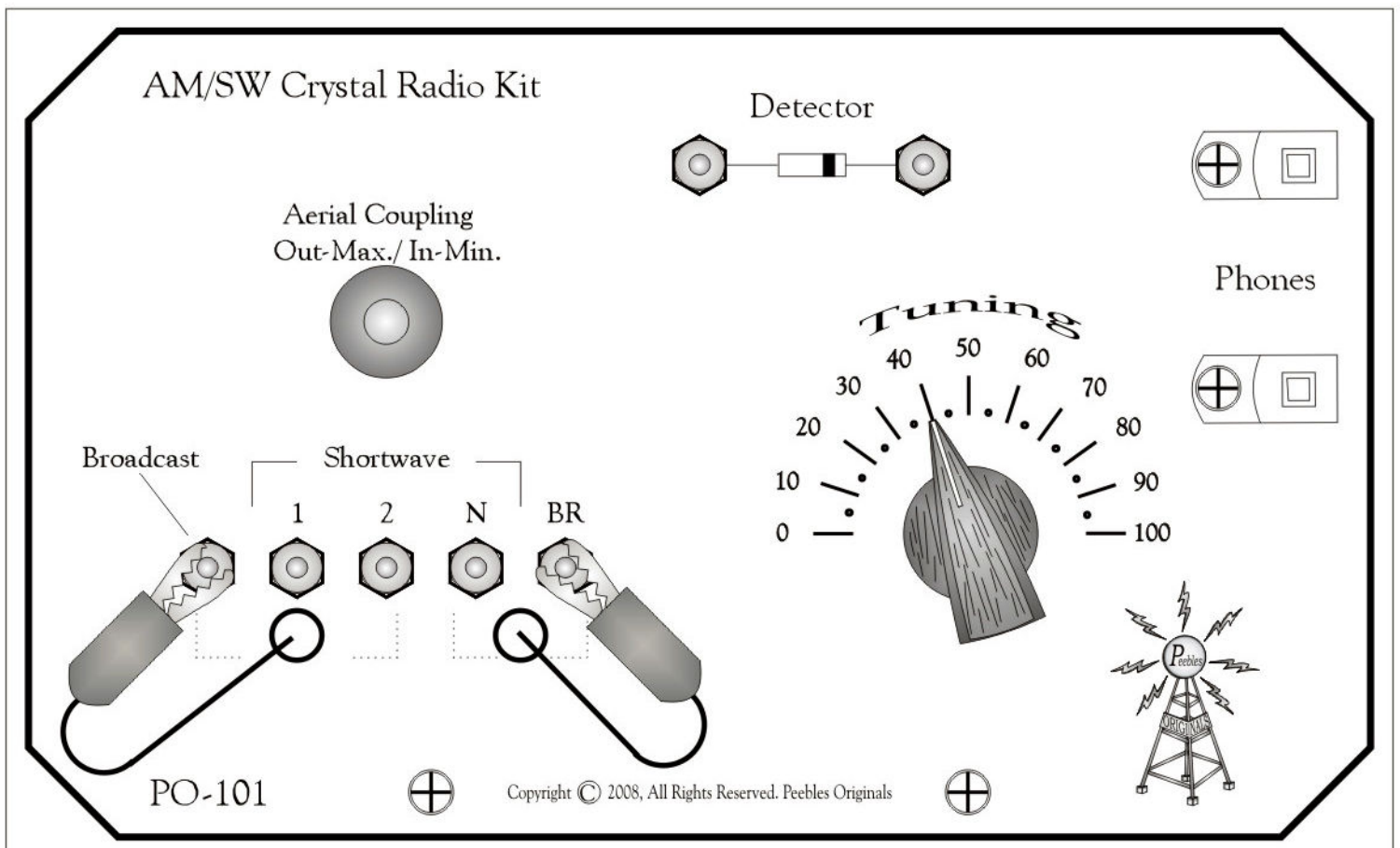


Figure #6, Front Panel Assembly.

PO-101, AM/SW Crystal Radio Kit, Parts List:

- | | |
|--|---|
| <p>1 Cap, Variable, 10-400(365)pf, (C-1)</p> <p>1 Cap, Disc Ceramic, 470pf, (C-2)</p> <p>1 Cap, Disc Ceramic, .001uf, (C-3)</p> <p>1 Diode, Germanium (equiv), (D-1)</p> <p>48' Wire, Magnet, 28ga, (L-1, L-2)</p> <p>2 Wire, Clip-Lead, 6", (J-1, J-2)</p> <p>18" Wire, Hook-Up</p> <p>4 Fahnstock Clip, #6</p> <p>12 Solder-Lug, #6</p> <p>1 Knob, Black-Pointer</p> <p>9 Screw, Sheet-Metal, #6x1/2"</p> <p>2 Screw, Machine, 6-32x1/4"</p> <p>1 Lockwasher, #6</p> | <p>2 Screw, Machine, 6-32 x 3/8"</p> <p>7 Screw, Machine, 6-32 x 1/2"</p> <p>11 Hex-nut, 6-32</p> <p>2 Grommet, Rubber, 1/4" I.D.</p> <p>1 Coil-Form, Spider-Web, 3"x3-3/4"x1/8" Thk</p> <p>1 Coil-Form, Spider-Web, 2-1/2"x1/8" Thk</p> <p>1 Coil-Mount, 3/4"x3/4"x2-1/2"L.</p> <p>1 Chassis-Board, 4-3/8"x6-3/8"x1/8" Thk</p> <p>1 Dial-Panel, 4-3/4"x7-3/4"x1/8" Thk</p> <p>2 Chassis-Rails, 5/8"x3/4"x6-3/8"L.</p> <p>1 Actuator-Rod 1/4"x3-7/8" Dowel</p> <p>1 Instruction Manual</p> <p>1 Ceramic Earplug</p> |
|--|---|

Cut-out with sharp knife, inside dark border (4ea.) :

Dial Plate: (Cut-out on Outside of Dark Border)

