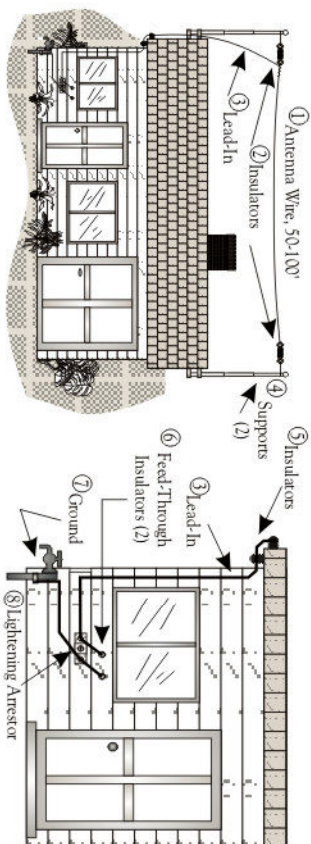


Antennas and Grounds

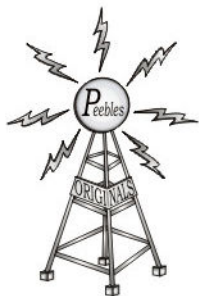
A substantial antenna and ground are an absolute must, for the ultimate pleasure of crystal radio experimentation. See the diagrams below, for the following explanations:

- 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) Lightning Arrestor: This is a very sensible, safety precaution and should be used.



Antenna/Ground Details

My First Crystal Radio Kit



L-1, Approx. 200Turns 28ga. Mag. Wire, See Text & Fig. #1

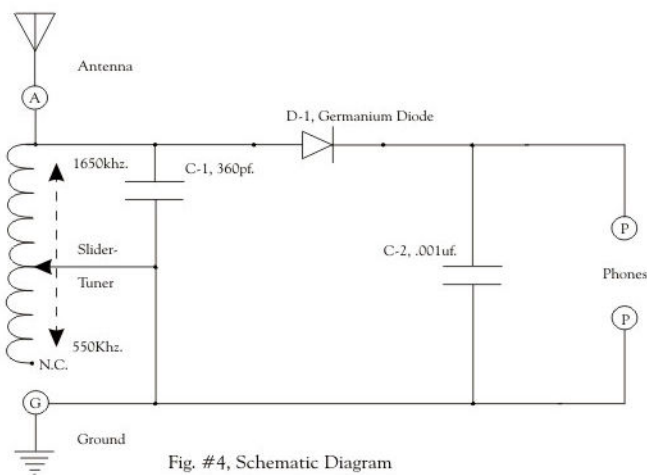


Fig. #4, Schematic Diagram

PO-102

Assembly and Operating Manual

PO-102, "My First Crystal Radio Kit", Introduction:

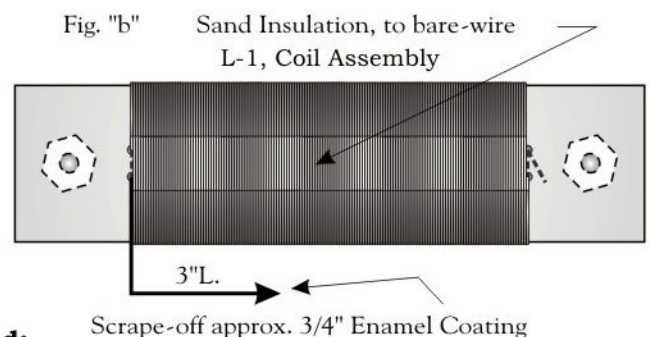
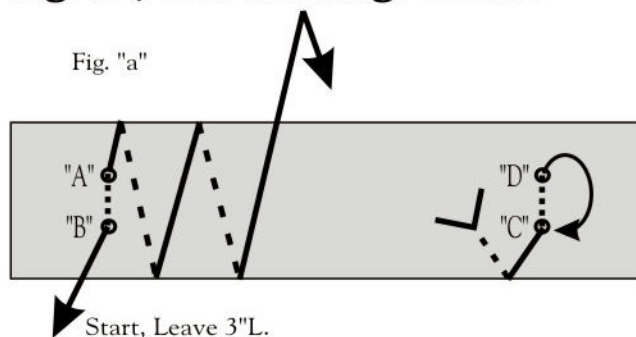
Thank you, you just obtained the: PO-102 , another fine kit offered by; Peebles Originals. This kit is primarily intended for first-time builders, Youth Groups, Schools, as well as avid crystal radio collectors. A fine companion, to this kit, would be: The book, at our site: "Radios That Work For Free". See other radio kits: <http://www.peeblesoriginals.com> E-Mail: peeblesoriginals@comcast.net The kit requires no 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"

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 something similar, might be handy. Familiarize yourself, with the PARTS.
- 2) Follow each step, carefully, and Check-Off each box, as you go-along. Start with winding the Coil, below. This is a MOST CRITICAL part of the assembly procedure. Make certain: Windings are; TIGHT & EVEN.

Fig. #1, Coil-Winding Details:



Coil Assembly, Check Boxes, as each step Completed:

- 1 Locate: 1-1/16" Dia. x 4-3/8" Coil-Form.
Locate: Supply of 28ga. Coil-Wire.
- 2 See Fig. "a", above, and insert end of Coil-Wire through hole "A", then back-through hole "B", leaving 3", as shown.
- 3 See Fig. "a", and start winding-wire around the Coil-form, in a clockwise-manner. Wrap the turns, tightly, closely & evenly, as shown in Fig. "b". Wrapping TIGHTLY & EVENLY-IMPORTANT.
- 4 When You've reached Holes "C" & "D", insert the remaining end of wire, through "C", back-through "D", then, loop-back through "C", pull-up tightly, and cut-off. See Fig. "a".
- 5 Coat the Finished Coil, with 2 or 3 coats of Acrylic-clear Laquer, and let thoroughly dry.
- 6 See Fig. "b", Use a fine sandpaper (approx 100 grit), and sand all the enamel insulation, from the wire, on the edge of the Coil, as shown. See Fig. "a" and sand insulation, as noted.

PO-102, Assembly, Continued:

- 7 See Fig. #2 & 3. Locate: Chassis-Board; 2/Chassis-Rails; 4/#6 x 1/2" Sheet-Metal Screws; 2/Fahnstock Clips, and Cut-out; Assembly Template. Paste Template to top of Chassis-Board. Make certain Holes align, and oriented, on top of Chassis-Board, properly.
- 8 Place the Front & Rear Chassis-Rail, on the bottom-side of the Chassis-Board, as shown. Use an Awl or Ice-Pick, and insert-it, in the middle of each mounting hole. Push-into Chassis-Rail, to provide a "pilot" hole to start the screws. Mount the Rear Chassis-Rail with two #6 Sheet-Metal screws, as shown. Mount the front Chassis-Rail with two #6 Sheet-Metal screws, through two Fahnstock Clips, as shown. Leave loose, at this time.
- 9 Locate: 3/Fahnstock Clips; 3/6-32 x 3/8" Machine Screws; 3/6-32 Nuts. See Fig. #2. Mount the Fahnstock Clips by inserting 3/8" screws through Fahnstock Clips, through Chassis-Board & secured on bottom-side, with 6-32 Nuts. Leave loose, at this-time.
- 10 Locate: 1/6-32 x 1-1/2" Machine Screw; 1/#6 Flat-Washer, & 1/6-32 Nut. See Fig. #2 & 3. Mount the 6-32 x 1-1/2" (Slider Pivot) with a Flatwasher, then through the Chasis-Board, from bottom, and secure with a Nut, on-top of board. Leave Loose, at this time.
- 11 Locate: Hook-Up Wire. Cut : 4/3" wires. Use knife or wire stripper, and remove 3/4" of insulation, from the ends of each wire. Be careful to-not knick the wire, and weaken, or break-it. Set-aside, for now.
- 12 Locate: 2/6-32 x 1/2" Machine Screws & 4/6-32 Nuts. See Fig. #2. From the bottom, of the Chassis-Board, insert the 1/2" screws, through the holes at each-end of: "DIODE" (D-1), and secure with a nut on-top of the Chassis-Board. Leave loose, at this time, and set the two remaining nuts, aside.
- 13 Pick-up 3" wires and wrap one-end, of each, around Slider-Pivot Screw, under the nut & Tighten the nut, so both wires are in the direction shown in Fig. #2. Make certain the Bare-Stripped end of each wire is making a good contact, under the nut.
- 14 Locate: 330pf. (C-2, marked "331") Capacitor. See Fig. #2. Wrap one-end of 330pf. Cap. around and under the head of Screw, at "Ground" Fahnstock Clip. Do the same, with the wire, from Slider-Pivot. Tighten this Screw, at this time, making certain of a good connection, of both wires, under the Screw-Head.
- 15 Locate:0.001uf. (C-3, marked "102") Capacitor. See Fig. #2. Repeat the above(14), at the "Phones" Fahnstock Clip, that runs from: "slider-Pivot". Install R-1 (47K) Resistor in the same manner. Note: 47K used only with Crystal (Ceramic) (supplied) type headphones, not used for Dynamic (2K and above) type phones.
- 16 Pick-up Coil Assembly. See Fig. #2 & 3. See Fig. #3, and mount the Coil -Assy., as shown, with 2/6-32 x 1/2" Machine Screws, 2/6-32 Nuts and 2/#6 Flat Washer, as shown. Tighten the two screws just enough, so Assy. cannot move-Not Too Tight.
- 17 Pick-up: 3" wire. See Fig. #2. In a similar manner to Step's: 12-14, secure wires at; "Short Antenna", both ends of "Diode", and remaining "Phones" Fahnstock-Clip. Make certain to include the wire from: Coil Assembly, and that the Enamel Insulation, is well-scraped, to the bare wire. See Fig. #2.
- 18 Locate: 47pf. (C-1, marked 47). See Fig. #2. Wrap both leads from Long Antenna to Short Antenna, around the two Screws, as shown, and secure, with the two 6-32 nuts, as shown.

PO-102, Assembly, Continued:

- 19 Locate: Diode (D-1). See Fig. #2. Wrap both leads from Diode, around the two Screws, as shown, and secure, with the two remaining nuts.
- 20 Locate: Slider/Tuner-Rod. See Fig. #2 & 3. Turn the Nut, attached to the Slider/Tuner-Rod, in a Clockwise rotation, onto the Slder-Pivot Screw. Turn, until the short-end of the Rod, Scrapes across the top of the Coil, snugly. and makes good contact with all the wires, on the Coil.
- 21 Locate: Dial-Panel & 2/#6 x 1/2" Sheet-Metal Screws. Cut-out the Dial-Plate, on the dotted-line, and Paste onto the front of the Dial-Panel, so the holes match, and properly oriented. See Fig #2 & 3.. Attach Panel, to the front of Chassis-Assy, in the Center, with two #6 x 1/2" Sheet-metal Screws.
- 22 Move the Slider/Tuner-Rod, Back & Forth, across the top of the Coil, and make certain the it rides, Snugly against, both the top of the Dial-Panel Assy, and the Coil Assy., If-not, then turn-it, clockwise, one-more time. Locate: Wire-Nut/Knob and turn clockwise, onto long-end of the Tuner-Rod.
- 23 You are, now finished with the Assembly Process. Re-Check ALL your work. Now Move-On to the Section, below.

Test and Operating:

Note:

We are now providing "Short" and "Long" Antenna options. If you live in an area with very strong, local AM radio stations, you may want to choose the "Long" Antenna Terminal. If you live in an area where the staion are not real near and weak, then you may want to choose the "Short" Antenna Terminal. Some experimentation is required here and the best thing is to choose the Antenna terminal that will bring you the most audible stations, that can be separated for your antenna/ground/area situation.

- 24 See the: "ANTENNAS & GROUNDS" Section, on the Back of the Manual. Connect your Antenna & Ground, to Fahstock-Clips, shown on Fig. #2. In the same manner, Connect High Impedance Head-Phones (1000 to 5000 ohms), or a Crystal-Type Earphone to "Phones" Fahstock Clips.
- 25 Put-on your Headphones (Stereo or Transistor-type will-not work). Slowly move the Slider-Rod, across the the Coil, from: "550" to "1650". You should hear some Local A.M. Stations, along the Way. Some Powerful/Close to each-other Stations, may be heard together. See; #27, for possible solutions.
- 26 If your Unit Does-Not Work, then make Certain: a) Your Coil is Wound Properly, b) The Insulation is scraped, properly, at noted points in the Coil-Assy. Procedure. c) Your wiring is correct, and d) Check to see that each wire-connecting point, has a good-tight, electrical connection.
- 27 It-is, sometimes difficult to separate Stations, with a Crystal Radio, as they are of the Earliest of Radio Design, and not very Selective, in nature. However, a Compromise-type of Fix is, that of: an ANTENNA-TUNER/WAVE-TRAP, PO-103 Kit. This Kit may be obtained from: www.peeblesoriginals.com, E-mail: peeblesoriginals@comcast.net Also, try different Lengths & heighths of Antennas. Sometimes removing the Ground-Wire helps. The Main Secret, is to not be afraid of EXPERIMENTING, and find-out, which works best, for you.
HAVE FUN, and we hope You'll try another Kit, and Get-Hooked, like WE ARE!!

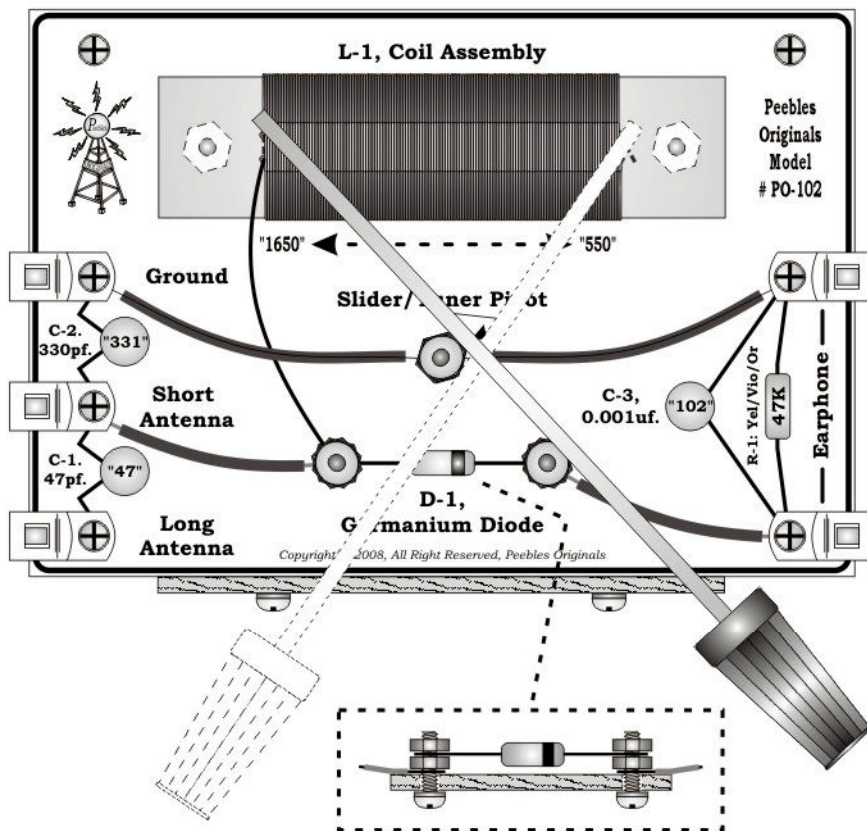
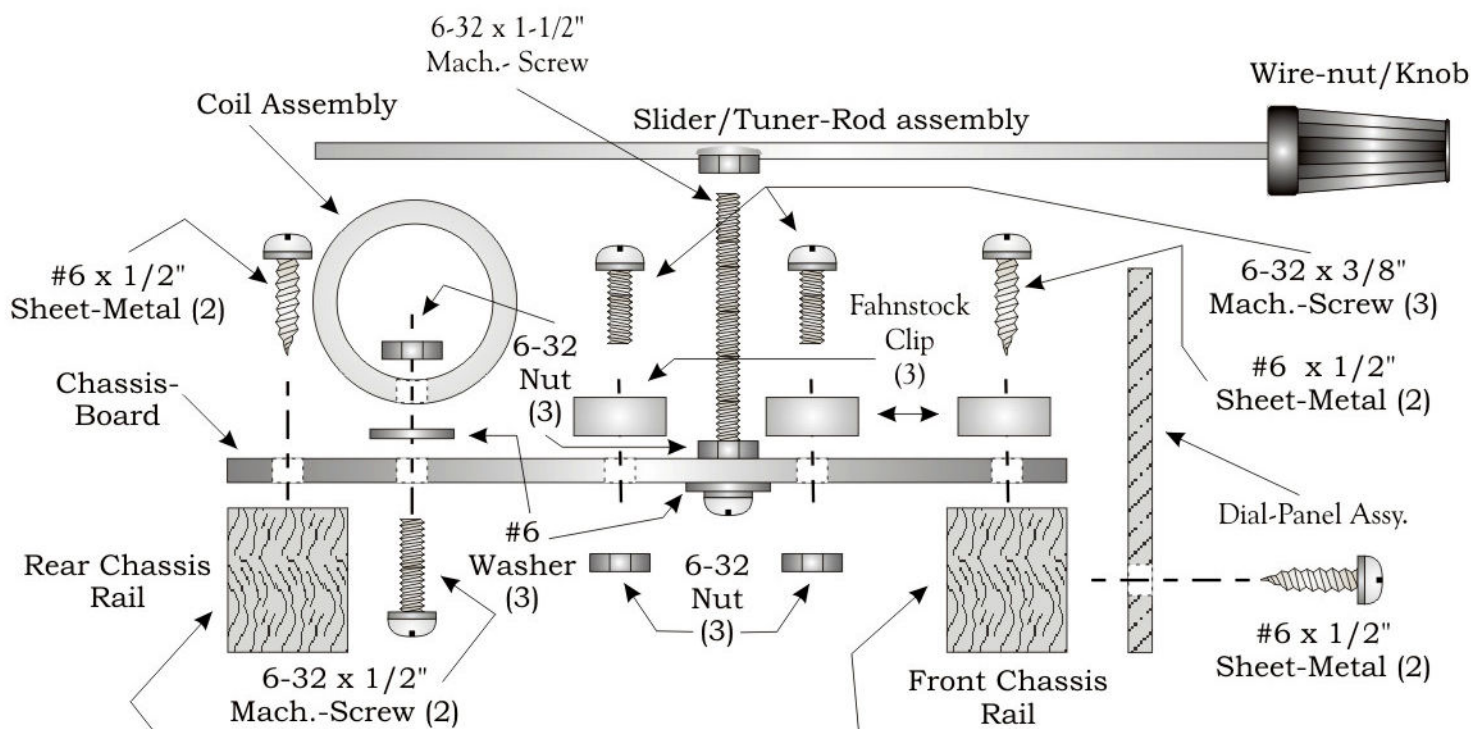


Fig. #2, Chassis Assembly, Top-View.



Note: Chassis-Rails are 5/8" x 3/4" x 4-3/8"L., the 5/8"-side mounts to bottom of Chassis-Board.

Fig. #3, Chassis Assembly, End-View.

PO-102, "My First Crystal Radio Kit", Parts List:

- | | |
|--|--|
| 1 Cap, Disc Ceramic, 47pf.(47), (C-1) | 3 Screw, Machine, 6-32 x 3/8" |
| 1 Cap, Disc Ceramic, 330pf.(331), (C-2) | 4 Screw, Machine, 6-32 x 1/2" |
| 1 Cap, Disc Ceramic, .001uf.(102), (C-3) | 10 Hex-nut, 6-32 |
| 1 Diode, Germanium(equiv.), (D-1) | 3 Flat-Washer, #6 |
| 1 Resistor, 47K (Yel/Vio/Org), R-1 | 1 Slider/Tuner-Rod Assy., Brass |
| 50' Wire, Magnet, 28ga., (L-1) | 1 Coil-Form, 3/4" PVC Pipe x 4-3/8"L. |
| 18" Wire, Hook-up | 1 Chassis-Board, 4-3/8 x 6-3/8 x 1/8" Thk. |
| 5 Fahnstock Clip, #6 | 1 Dial-Panel, 2' x 4-3/8" x 1/8" Thk. |
| 1 Knob, Black Wire-Nut | 2 Chassis-Rails, 5/8" x 3/4" x 6-3/8"L. |
| 6 Screw, Sheet-Metal, #6 x 1/2" | 1 Instruction Manual |
| 1 Screw, Machine, 6-32 x 1-1/2" | 1 Crystal (Ceramic) Earphone |

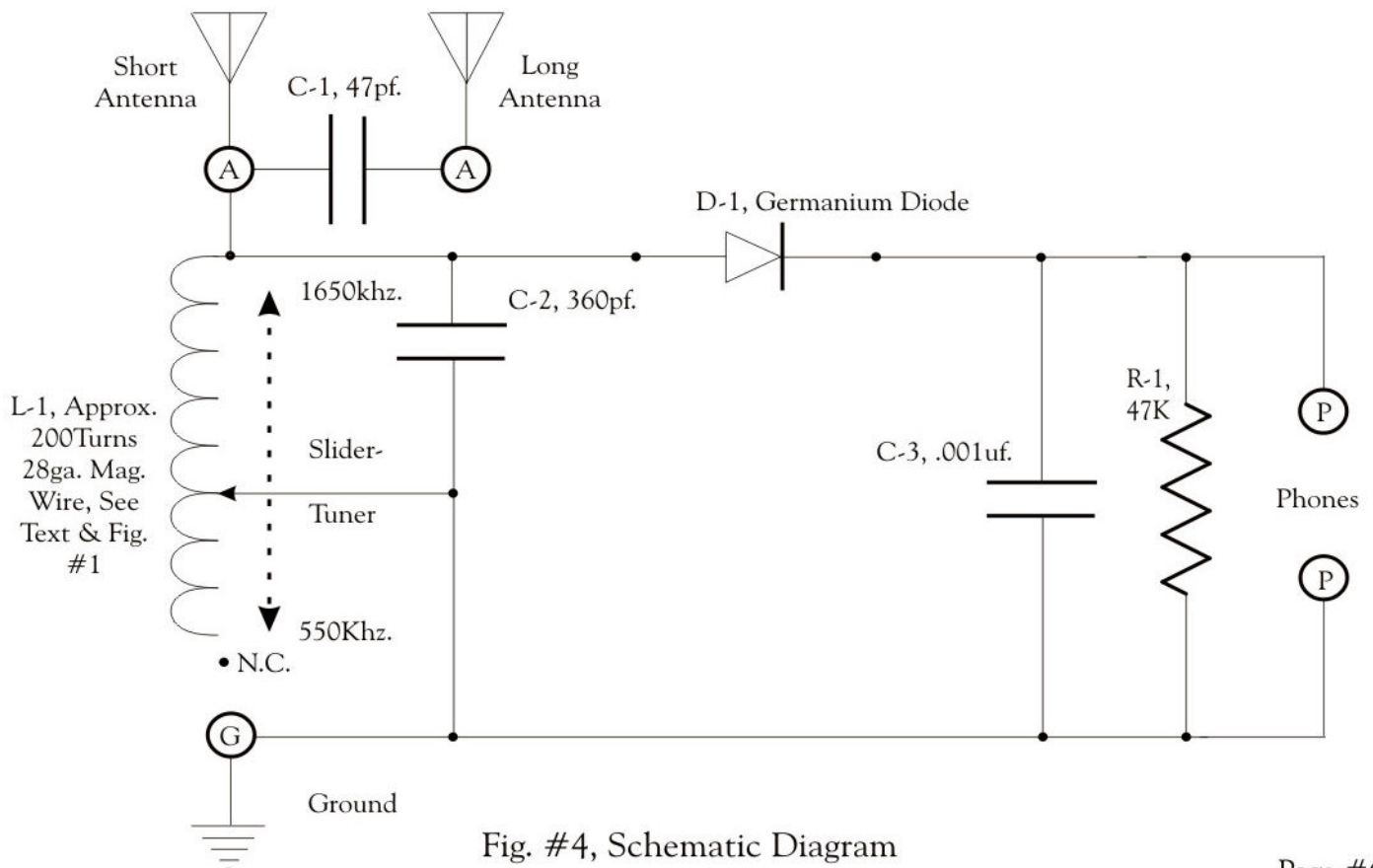
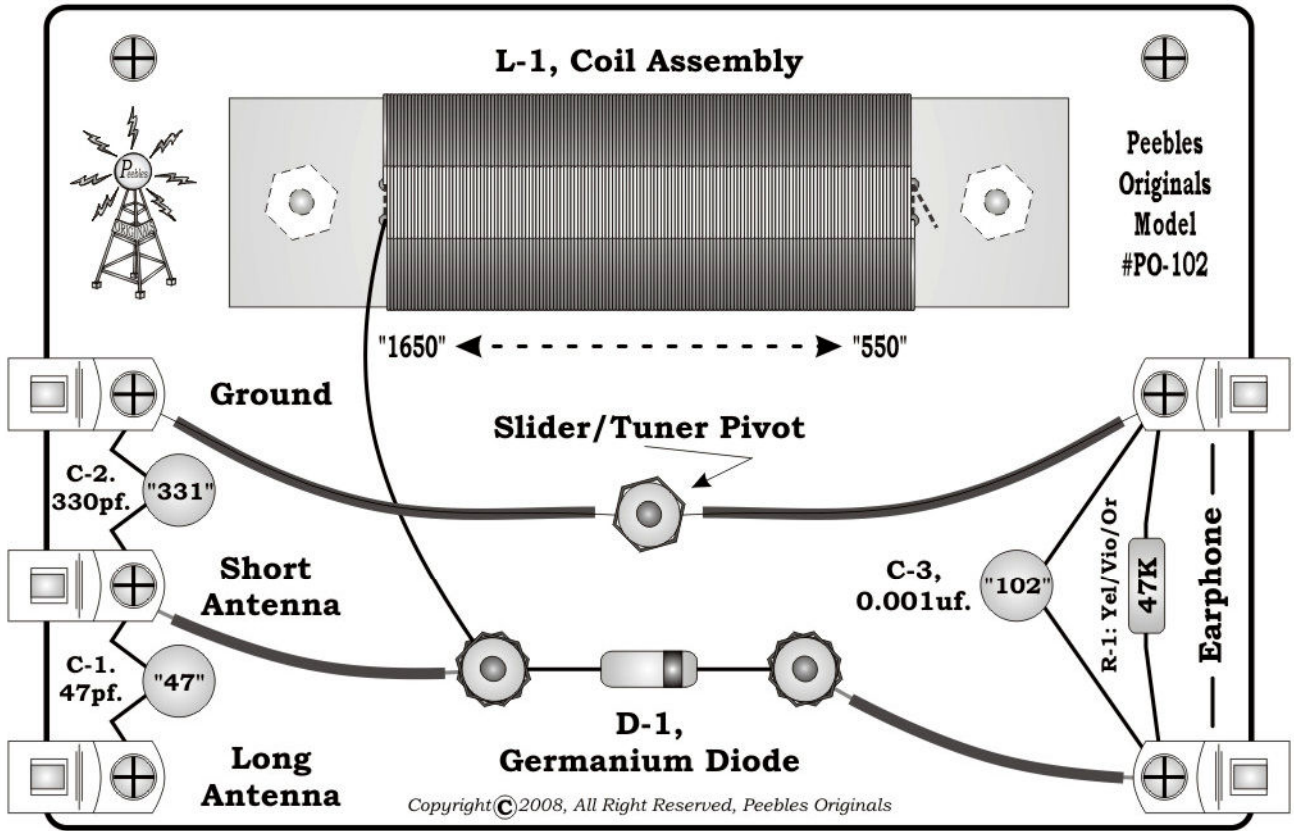


Fig. #4, Schematic Diagram

Assembly Template



↑ Cut-out, Outside of Heavy Line & Paste on-top Chassis-Board ↓

Dial-Plate



↑ Cut-out, outside of Heavy Line & Paste on Front of Dial-Panel ↓