

MRL No 1 - DX CRYSTAL SET

A Detail Print
by
Modern Radio Laboratories.

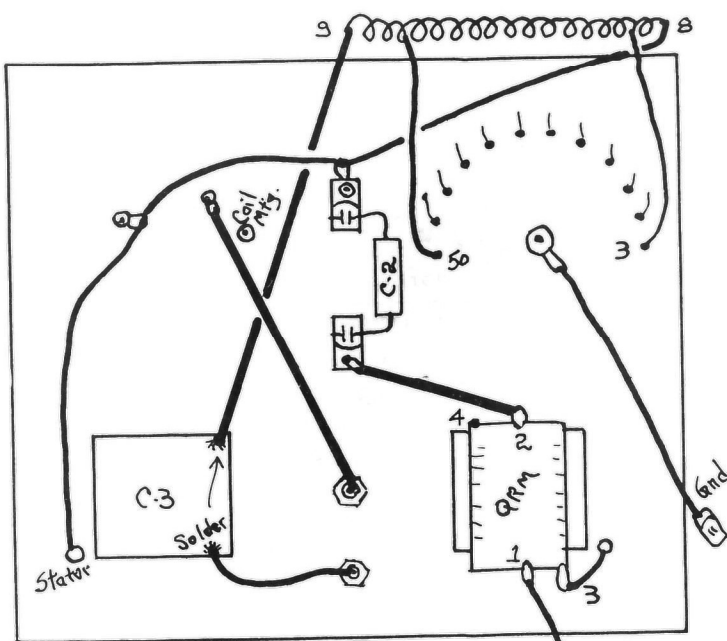


Fig. 2. Rear Pictorial Wiring. 1/4" - 1"

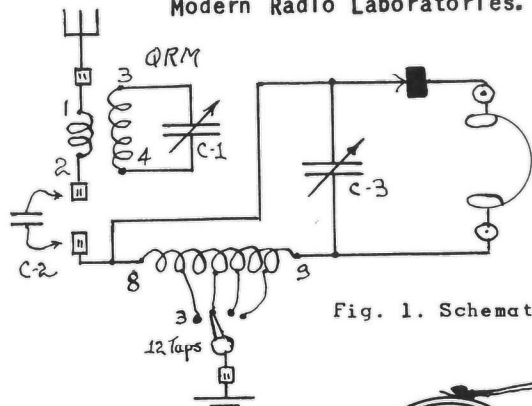


Fig. 1. Schematic

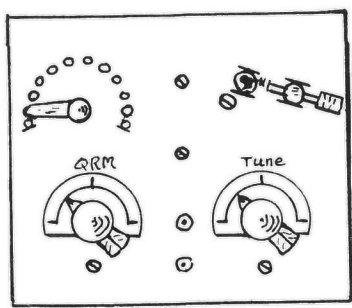


Fig. 3. Panel Layout 1/4" - 1"

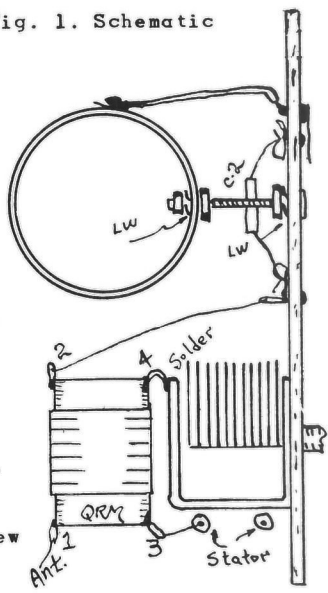


Fig. 4. Side View Showing Coils.

PARTS LIST:

- C-1 .00035 variable condenser.
 - C-2 .0001 to .002 mica condenser
 - C-3 .00035 variable condenser.
 - 1 Compo. panel 6" x 7".
 - 1 QRM Coil (see text).
 - 2 1 1/2" Bar knobs & dial scales.
 - 1 Switch lever.
 - 12 " points & nuts.
 - 2 " stops.
 - 2 Phone tip jacks.
 - 1 Crystal stand.
 - 4 Fahnestock clips.
 - 1 Steel galena or Diode Xtal.
 - 6-32 x 1 1/2" mach. screw/nuts.
 - 1 MRL #1 Crystal set coil, or 50' #22 DCC wire.
 - 1 Cel. or Bak. form 2" x 4 1/2".
- Hookup wire, hardware, etc.

have since found that if one mounts it parallel and held away from the panel by the 1 1/2" mach. screw and nuts that you get a much easier job of wiring to the switch points.

Most of our sets are built around Celluloid coil forms. We have found these best for long distance reception. Thick celluloid forms are taboo - but when used .015" thick, as we use, we find them most efficient. Other forms may be used if desired.

Starting at the end of the form with the small ring - wind 75 turns of #22 DCC as follows. Hold first turn down with a pc. of friction tape around the turn and held down by the second. Tap it by running a piece of light cardboard under each turn to be tapped. Tap coil at 3-6-9-12-15-20-25-30-35-40-45-50 in 12 taps. Keep winding to 75 turns and secure last turn with tape around it - held down by next to last turn made tight. Paint a light coil cement along the edges of the winding and alongside paper tapping strip to make it rigid. Before mounting the coil sandpaper the taps and tin them with the iron for easier soldering. Use #22 flexible hookup wire for leads to points. Do not use any soldering paste on the coil. The winding space of wire is about 2-3/4" long. Be sure coil clears condenser plates. Further data on winding forms see HB-17.

QRM COIL. On a 1" fibre form 1-5/8" long - wind 110 turns #32 enameled wire and bring leads to eyelet lugs. Paint with a light coil cement. Over this space-wind 20 turns #24-28 DCC and to lugs. When mounting this coil one lug

(4) may be soldered right to the frame of C-1. This saves a mounting screw and connection. Run (3) to the stator, as shown, but use busbar to make it rigid. We used to mount the QRM coil inside the tuning coil but believe this method is better.

Bothersome stations may be partly or entirely eliminated by adjustment of C-1. While you may use a trimmer - we prefer a variable as the set is so much more flexible, especially on DX. Take the loudest station and tune it in good. Gradually run C-1 until it is trapped out. Leave it on this setting. If a powerful station - it will still be of sufficient volume.

The Series trap (QRM) has some deadening effect on the circuit, but this is offset by the many advantages of QRM elimination.

CRYSTAL. Crystal Diodes may be used if desired to amplify loud stations with no adjustment. But we prefer a Galena or Steel galena with fine catwhisker for DX stations. The selectivity is also improved with the Galenas, Iron pyrites, Silicon or Carborundum (with 1 1/2 v. batt.). Compare!

AERIAL. For the city we recommend a 50' Ant. and ground. In some congested areas you may cut out the ground but the QRM coil doesn't work right. Country reception may use 100-150' Aerial, high as possible, and ground. DX is always better in far country.

TRANSISTOR amplifier may be added to this set at phone con. Use hi-impedance phones.

Many good DX records have been piled up with this set due to the close coupling to the Aerial and its efficient construction. Good volume is also had on local stations that emit good.

Selectivity is regulated by adjustment of C-2 condenser as to size. The smaller capacity of condenser the more selective the set becomes. The switch lever is also helpful in getting the best operating condition. The condenser size is regulated by nearness to loud stations and the length of your Aerial-ground circuit. Once you get the correct capacity you leave it in circuit.

ASSEMBLY. We have found the layouts shown to be the best but not critical. Drawings are to scale so not difficult. Be sure all joints are tight. After you solder up - yank each wire to be sure it is soldered well. Mount and wire all parts but the coil which is done last.

COIL. Our original plan called for mounting the tuning coil at right angles to the panel. We