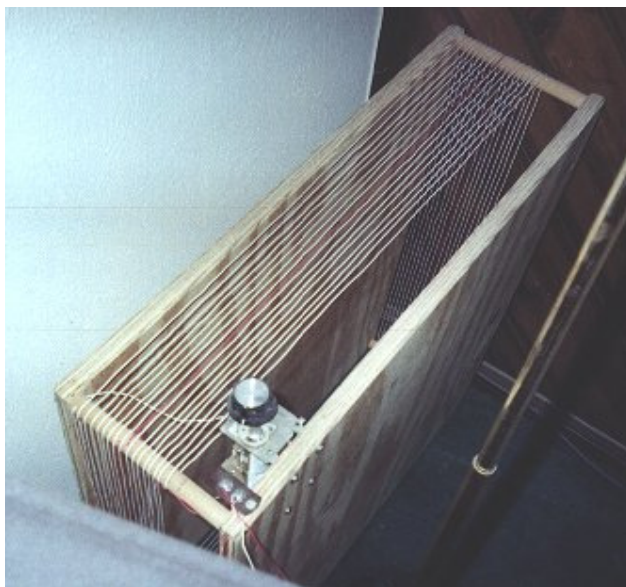


# The Two Foot Loop



The two foot loop nestled in a space against the wall, in back of my speaker and beside a lamp.

## Materials

A four foot by two foot piece of plywood discarded by a neighbor prompted a project - a two foot loop. Additional materials required were:

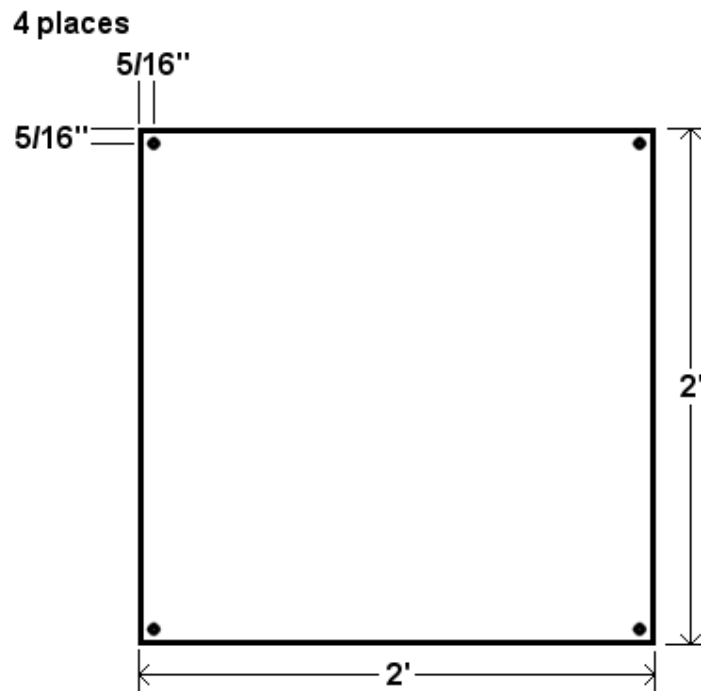
- A 2 foot length of 5/8 inch dowel.
- 150 feet of #20 gauge solid wire. The discarded conductor of the twisted pair doorbell wire used for the 4 foot loop was still available, and worked well. The reader who downloads the spreadsheet will notice that I include a calculation of the length for the main loop. The length is not fixed, as one reference suggests, but it is nearly constant for a number of loop antennas in the middle of the range. The length increases at the extremes.
- A 9.6 to 365 pF tuning capacitor – the large set of plates in a tuning capacitor salvaged from a junk radio. The 2 foot loop described here made use of a 9.6 to 500 pF capacitor, and part of the range is unusable.
- 8 wood screws.

## Construction

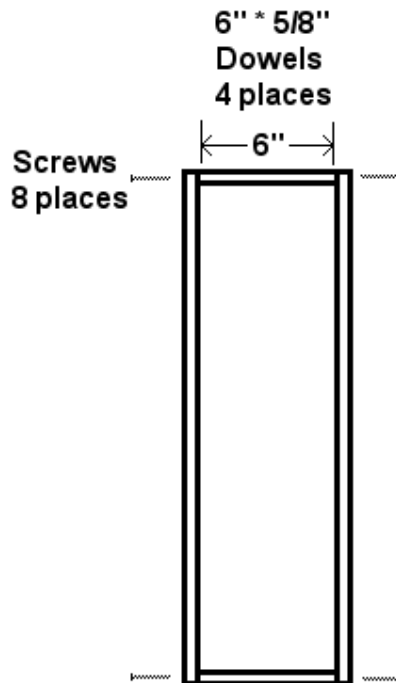
Admittedly - this description is brief. Anyone who has read through the article on constructing the four foot loop should have the idea by now ---

- Cut the 4 foot by 2 foot piece of plywood into two equal 2 foot by 2 foot pieces.

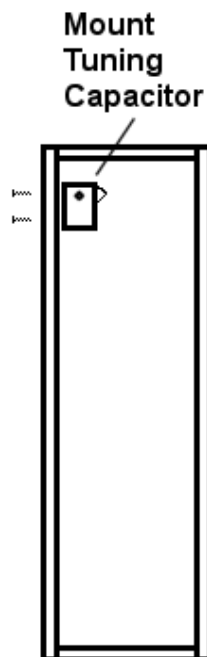
- Cut four 6 inch sections of dowel.
- Drill 4 holes in each corner of both pieces of plywood, 5/16 by 5/16 inch in from the edges.



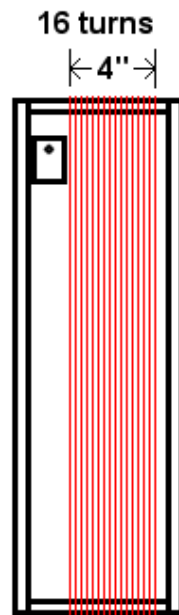
- Form the box by screwing through the holes in the corners of a piece of plywood into the end of the four pieces of dowel. It helps to pre-drill a pilot hole into the dowel. Otherwise - it has a tendency to split. Attach the other piece of plywood in the same way. The resulting structure is strong, but resist the temptation to lift it by the dowels.



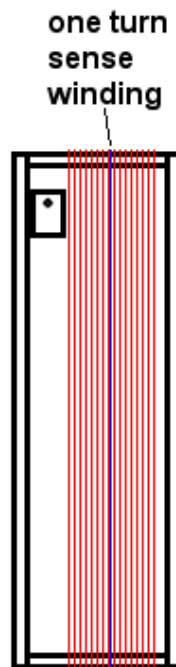
- Mount the tuning capacitor to the inside of one of the pieces of plywood, near one corner, but not where it would interfere with the mounting of a dowel.



- Wind 16 turns of wire on the dowels - space them out to occupy 4 inches of length on the dowel.

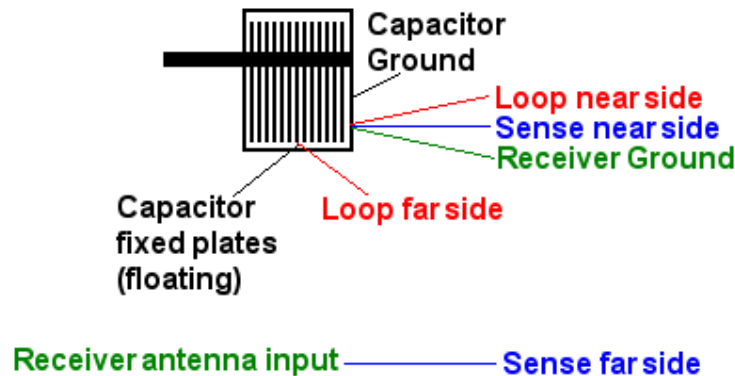


- Wind a single turn of wire between turns 8 and 9 of the main loop.



- Make the indicated connections.

## CONNECTIONS



## Test Results

As expected, the loop tuned almost the full AM band. It topped out, however, at 1650 kHz. There was some benefit, however on a weak station on 1680 kHz. Both the [UMR EMC lab](#) and [Joe Carr](#) calculators seem to indicate that it is easy to cover the entire AM band. Neither loop tested, however, can go anywhere near 3 MHz. This may be due to self capacitance of the windings. It is probably possible to tune the whole band by switching in an out a single turn of the loop. At some point, this will be tried and the results posted here. The wide range of the tuning capacitor may make it possible to leave out that turn permanently.

The low end of the AM band tuned when the capacitor was opened to approximately the 365 pF position.

There are weak stations in the DFW area on 550, 590, 600, 640, 680, and 750 kHz. There are also many weak stations located higher on the band, including some TIS stations from DFW airport on 1640 and 1680 kHz. Reception on weak stations improved markedly on the inexpensive receiver - some signals that were not present at all, like the TIS stations, appeared and were listenable. Reception improved slightly on the SR-3. The greatest effect was on more distant stations, and those like 550 kHz that are closely spaced to local stations. The presence of a tuned loop increasing signal strength on the distant signal had the effect of overriding the adjacent channel interference. This advantage alone would be enough to justify the use of the loop in the DFW area.