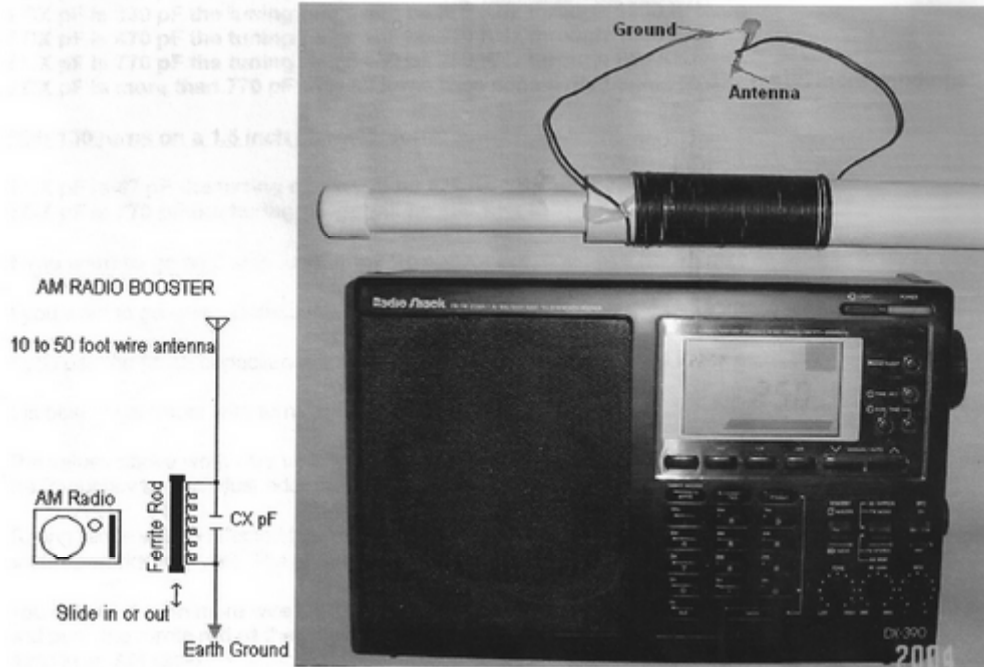


AM / Longwave Radio Booster



This simple radio booster -GREATLY- increases received signal strength! Some AM and Long wave radios offer poor selectivity and sensitivity! This booster will greatly boost even the cheapest radio, making it have the narrow selectivity and sensitivity of a much more expensive radio! It will allow your top-of-the-line radio (like the one shown) perform to its fullest potential!

The antenna gathers the signals and the ferrite rod concentrates the signals and feeds them into your radio's built-in bar-core antenna. All AM and long-wave radios have a built-in bar-core antenna.

Just place the radio a few inches away from your coil and ferrite rod and when tuned right, signals will go from a "+1" to a "+40" -or more- on your radio's signal meter! This radio booster really brings in the weakest signals! The long-wave band will 'come alive' with those 'weak' signals you have never heard before! Usually long wave needs a long antenna, but with the ferrite rod, you can 'get away' with a short 20 to 50 foot antenna wire and get great reception!

If you want to hear extremely weak low frequency signals, then you should build this simple radio booster! Best of all, no power or battery is needed!!

Wind 60 turns of 22-size copper wire on one end of a 1.5 -inch diameter form. Use a 12-inch long piece of PVC pipe or a cardboard mailing tube. Make sure the ferrite rod can slide tightly into the coil.

<http://www.stormwise.com/v1f1574amlwboost.htm>

3/15/200

With 60 turns on a 1.5 inch diameter form:

f CX pF is 220 pF the tuning range will be 530 KHz through 1710 KHz.

f CX pF is 330 pF the tuning range will be 380 KHz through 1200 KHz.

f CX pF is 470 pF the tuning range will be 310 KHz through 1000 KHz.

f CX pF is 770 pF the tuning range will be 250 KHz through 850 KHz.

f CX pF is more than 770 pF with 60 turns then sensitivity begins to drop: Add more windings:

With 130 turns on a 1.5 inch diameter form:

f CX pF is 47 pF the tuning range will be 530 KHz through 2300 KHz.

f CX pF is 770 pF the tuning range will be 150 KHz through 530 KHz.

f you want to go higher in frequency (to shortwave) then see [Shortwave Antenna Tuning](#).

f you want to go lower in frequency then add more turns or increase capacitance to 940 pF.

f you use too much capacitance value, then the signal gets adsorbed in the capacitor.

It is best to use more wire turns and a lesser capacitor value.

The values above work very well. You can see from the above that doubling the windings does not quite drop the frequency by half. Just add more turns to go lower.

Tuning range will be affected by ground moisture and how long the antenna wire is. A 50 foot horizontal long antenna works very well. The antenna need not be vertical.

You can wind even more wire (200 turns for longwave) and then obtain a 365 pF air-gap variable capacitor and push the ferrite rod all the way in to the center of the coil, then use only the capacitor to tune, just like is done in an AM radio.

Always use a good earth ground with your antenna and do not use the antenna during thunderstorms!

Do -NOT- use teflon probe hookup wire! The thick insulation will alter performance in a bad way.



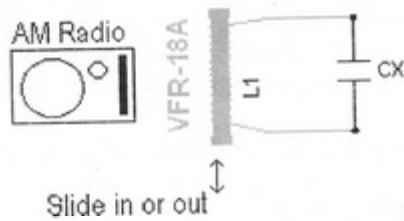
Notice that there are no connections to the radio. The AM booster sends the signals into the radio's internal ferrite-core antenna. Position the top of the radio near the booster for maximum signal.

The booster works alone off the ferrite rod, or you can connect an antenna and ground to the locations indicated by the two blue dots in the photo. Received signals -really- increase when a 50-foot antenna is connected along with an earth ground rod. In the above photo, the antenna should be connected to the black wire side and the ground should be connected to the red side of the wire. This method gives best performance.

If you don't want an outdoor antenna, then some wires draped across your room will greatly increase reception.

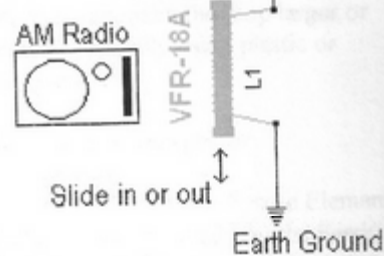
AM / LONG-WAVE Radio Boosters

Radio Booster 1



Radio Booster 2

10 to 50 foot wire antenna



Some portable AM and LONG-WAVE radios have very poor reception simply because they lack an external antenna, or their internal antenna is small. Some of these radios also lack good selectivity: If an antenna is connected then several stations or too much interference is received.

This AM / LONG-WAVE booster solves this problem. **Shown above are two different methods of improving reception.** Try the one shown on the left (1), which works portable, before trying the one on the right (2), which is more for permanent use.

This simple tuned antenna captures AM and LONG-WAVE radio waves and sends them into your radio's internal antenna: Just place the radio nearby. It allows you to hear weak and distant stations clearly without distortion from strong local signals.

WEAR EYE PROTECTION WHEN WORKING WITH WIRE OR ELECTRONIC PARTS.

The coil is 50 turns of 22-size copper wire on a 1.5 inch mailing tube. CX is a capacitor with a fixed value of 47 pF to 220 pF.

For # 2, connect one end of the winding to an antenna wire of 10 to 50 feet long, at least 10 feet above ground. Connect the other end of the winding to an outdoor earth ground rod.

To use the AM Booster, place your AM radio near the coil and slide the ferrite in and out until you hear a great boost in signal strength. You may have to experiment with the number of turns until you get the best results. The more turns you use, the lower the frequency. The less turns you use, the higher the frequency. A capacitor of 47 pF to 220 pF value can be placed across the coil to obtain desired lower frequency without needing to wind more wire turns or outdoor antenna. Rotate the coil and the radio for best reception.

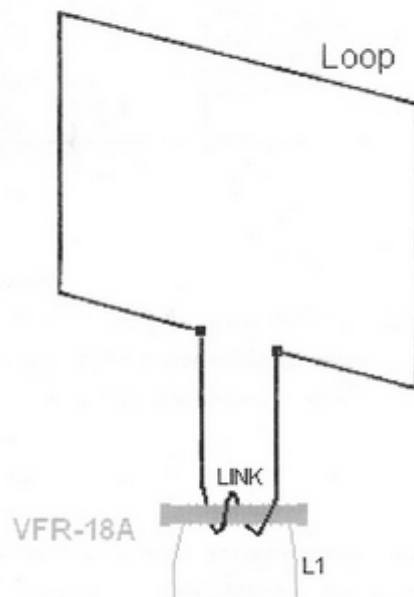
Outdoor VLF Loop Antenna

The Ferrite Element by itself has an excellent signal pickup-quality and directionality. If you want to really 'dig down' into VLF band for extremely weak signals, then you need to add an external vertical loop receiving antenna.

A vertical loop antenna can be made from 40 feet of # 18 gage wire or any large size wire. The loop shown below is 10 feet square using a single turn of wire. You can make the loop larger or you can add more turns to the loop. Suspend the loop antenna wire vertically using plastic or metal poles. **Adjust the orientation of the loop for best reception.**

Install this antenna as far as possible away from power lines for best reception.

Coupling to your receiver: Wrap 10 to 50 turns (LINK) around the **middle** of the Ferrite Element to couple the signals into your receiving coil (L1). If your L1 coil is wound directly on the Ferrite Element, then wind 10 to 50 turns (LINK) around the middle of the Ferrite Element. Adjust number of turns in LINK for desired reception.



CAUTION:! Disconnect this outdoor antenna when not in use, as nearby lightning strikes can generate strong signal spikes that can damage your receiver or tape recorder's input.

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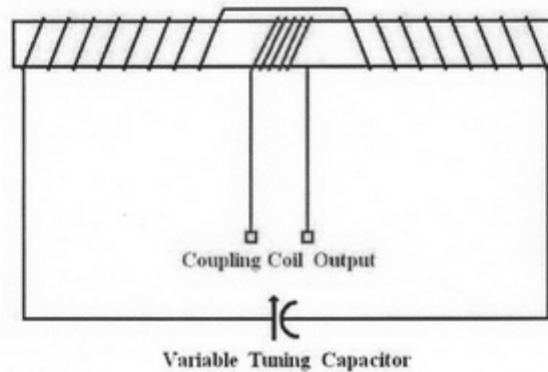
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Ferrite Rod Balanced Loop Antenna



Balanced Ferrite Rod Loop
 Posted: 13-Mar-2004 · Resolution: 400 x 288
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