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Easy Electronics Projects You Can Build

This page provides details on how to build and use three electronic devices that may aid in your research. The first is an EMF Wand. This device seeks out Dynamic EM Fields and with an amplifier and headphones, allows the user to hear the sound of an EM Field it may be encountering. The second device is a Headphone Phase reverser. It can be useful at pulling out some of those EVPs that just aren't quite audible. And it accomplishes this without in any way altering the original audio recording. The third device is a Raudive Diode Detector. Much controversy exists about how effective this is, but the plans are here, and you can build it and conduct your own experiments! When you are done with the projects, close the window to return to where you left off.

Dynamic EM Field Pick Up Wand

This pickup, provides a very sensitive Dynamic EM Field Monitor. It is a relatively easy project to assemble. While designed for use with the High Gain Amplifier available for purchase on this website, it will work well with any similar amplifier.**(You can find out more about ordering the High Gain Amplifier at our Store when you are done reading here.)** You may also connect it directly to the Remote Mike input of most cassette recorders if you wish to record the audio component of any AC Electromagnetic Field you detect. Note that it will not detect Static Fields.

Refer to the drawings on the left while constructing your EMF Wand. Materials required are:

- Piece of 1/2 inch copper pipe 10 inches long.
- Small ferrite rod 1/4 inch in diameter about 3 inches long. (You might find one like that in an old junk AM radio as the antenna.)
- About 70 feet of #28 or #30 guage enameled copper wire.
- 8 feet of two conductor shielded mike cable.
- 1/4 inch Phone Plug (OPTION: You may substitute another plug type to match the amplifier you intend to use the wand with.)
- RTV Sealant. DOW 732 or equivalent.
- Plastic tape (Scotch 35 or equiv.)
- 3 inch piece of #22 stranded hookup wire.

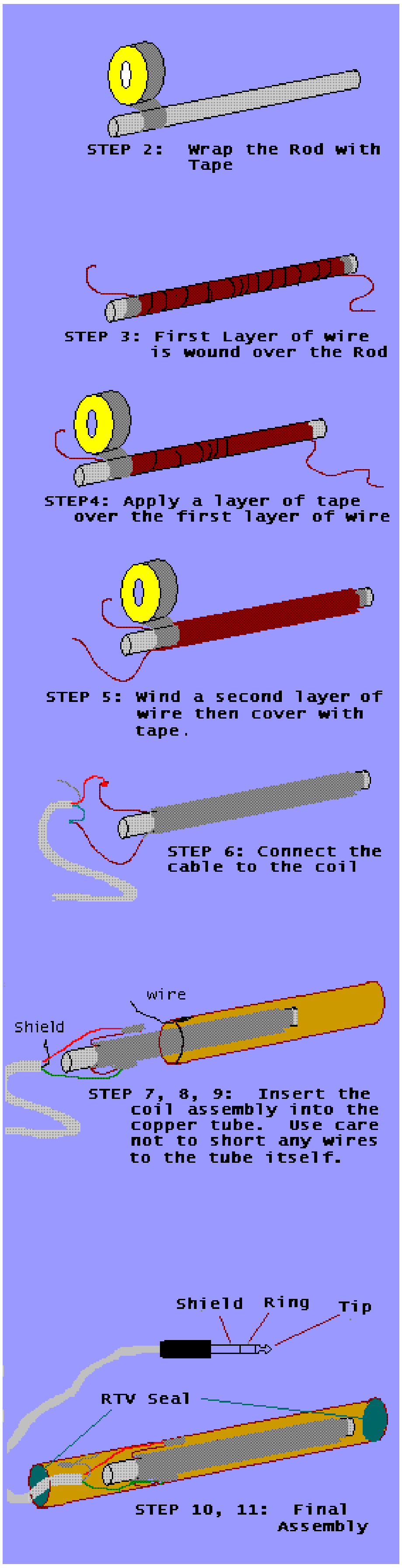
STEP 1. If you are using an old ferrite rod from a radio, remove all the wire from the rod and discard. Clean wax or any residue from the rod to insure the rod is smooth so the tape will adhere to the surface.

STEP 2. Wrap a single layer of plastic tape over the ferrite rod. This will provide a bed to lay the winding over. Cover the entire surface of the rod. The ends may be left exposed.

STEP 3. Wind the coil using the enameled copper wire. Leave about 2 inches of wire at the starting end to make your connections later. Windings should be in a single layer with each tightly against the other. Do not pull the wire so tight that it snaps. Begin about 1/4 inch from one end of the rod and wind the length of the rod until you reach about 1/4 inch from the other. The exact number of turns is not critical, however the more you get the more sensitive the wand will be. In any case you should get at least 100 turns on each of the two levels of windings. (200 total)

STEP 4. Wrap a single layer of plastic tape over the wire allowing the wire to extend from the tape so you can continue winding the coil.

STEP 5. Wind a second layer of wire back over the tape as you did the first. When you reach the end of the rod, allow about two inches of wire to extend then cut the wire from the spool. Be careful not to allow the wire to unwrap



before you get it taped! Wrap a layer of tape over the entire assembly to hold the wire in place and protect it.

STEP 6. Strip the insulation from one end of the shielded cable and expose the two inner conductors. Connect the two ends of the coil to the two conductors of the shielded cable. Leave the shield connection exposed for now.

STEP 7. Tape the connections making sure that they are covered and cannot short together or are exposed where they could touch the outside tube when the assembly is inserted later. Also be certain the tape and coil diameter is not so large as to not fit inside the tube.

STEP 8. Solder a piece of #22 gauge hookup wire inside the copper tube, Place it near the end of the tube. It will be attached to the shield in the next step.

STEP 9. Slide the coil assembly into the copper tube. Once it is inserted, solder the other end of the #22 hookup wire to the shield of the cable. Make sure that there is no possibility for a short between conductors, then push the shield and cable inside the tube leaving only the cable to extend out from the end.

STEP 10. Fill both ends of the tube with RTV to seal the wand. Put it aside and let the RTV cure for 24 hours. The RTV will provide strain relief as well as prevent anything from getting inside the tube.

STEP 11. Connect the 1/4 inch phone plug as shown in the drawing. The Tip is connected to one side of the coil lead, the Ring is connected to the other coil lead. The shield is connected to the outer shield of the plug. (You may adapt this configuration if you are using a different type of connector.) If your amplifier uses a single ended input, connect the ring and shield together in the plug. Once this is done the wand is ready for use.

Connect the wand to your recorder or amplifier. Plug a set of headphones in and monitor the output. When you turn the volume up you may hear a hum or other sounds. This is the result of an EM Field. By moving the wand in different positions you will be able to determine the nature and location of the field.

One of the first things you will find is that the wand picks up fields eminating from the sides of it rather than the end. Thus you will obtain best results by holding it sideways rather than pointing it at suspected magnetic sources. It is best just to use it and learn by experience. The angles are somewhat determined by how the field is generated as well as how the wand is positioned. Have fun!!!

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A Phase Reverser for your Headphones

A common problem with EVP occurs when you return from the field and spend hours trying to decipher what the voice you hear in the background actually says, if anything at all. You listen repeatedly and still you are not quite sure. If only there was a way to clarify it a bit more. Well there may be. But first, a little about listening in general.

Experience has shown that you should listen for only a few minutes at a time. Otherwise the sound becomes imprinted and you may not hear it as it actually is, rather what you perceive it to be. The constant background noise on the tape as well as its repetitive nature can tend to blur your ability to hear certain characteristics of the sound. This will impair your ability to properly determine the EVP. To minimize this you should keep your sessions to less than 15 minutes at a time. Take a 15 minute (or more) break between each session.

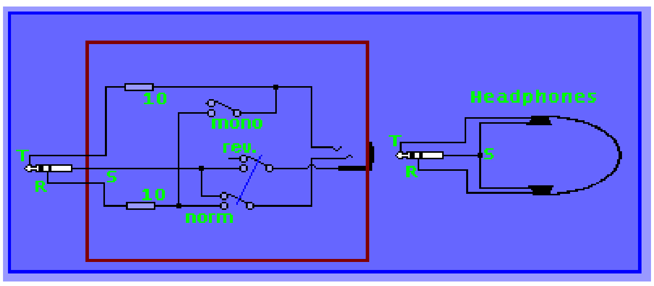
Secondly, you should use headphones, not loudspeakers, to reproduce the audio. Speakers tend to fill a room with sound. This can create echoes from walls and other items in the room. The general acoustics of the room also becomes a factor. This is undesirable because in most cases you are not in the same room in which you captured the EVP. The tape containing the EVP has also captured the acoustics of the room in which it was made. Combining the two creates a false environment and can lead to problems. While it may be alright to play an EVP over speakers for multiple listeners to hear, it is not advisable when you are actually working to decipher it for your research. Use headphones for this.

The type of headphone is also important. You should avoid the cheap kinds that do not cover the ears. These allow outside noise to intrude on your EVP and create problems getting the true sound reproduced for you to hear. They also do not transfer all frequencies linearly, lacking especially in the low end. Larger headphones that completely cover the ears do not exhibit these undesirable characteristics. The improved sound transfer makes EVP much easier to hear and understand. This is the primary reason many researchers use "noise canceling" headphones. These are much more effective at blocking ambient noise than regular headphones.

So now that you are using good quality headphones and doing so in short sessions, is there anything else that might help? Actually there is, that is the purpose of this report. When sound arrives at your ears, it is generally in phase. It strikes both ears at about the same time. The sound pressure will act on both eardrums simultaneously, pushing them in and out together. This is how we normally hear sound. In the case of an EVP recording they work together. The EVP and any background noise cause the eardrums to respond in phase with each other. But there may be an advantage to shifting the phase of one ear.

Much noise is random in nature. The brain is conditioned to accept sound in phase. So if one ear is placed out of phase with the other the brain will not respond as well to those signals which have been shifted. This is the concept behind the phase shifting adapter for your headphones. It will cause the sound to one ear to be shifted out of phase with the other ear. In so doing, certain sounds will be attenuated by the best processing device available, your brain.

Another benefit of using a phase shift is being able to change between modes easily. This minimizes the hypnotic effect of the background noise since switching between modes breaks up the monotonous sound. It will allow you to remain more alert as you go through your tapes. You will be able to better utilize your sessions since you will be more attentive.



This is the schematic of the headphone adapter. Two switches are provided. The first changes the output from normal to reversed mode by placing both earpieces in series (mono) and out of phase.

An additional switch allows a stereo signal to be combined into a monaural one so both channels may be shifted together. Resistors prevent the combined signal from reflecting back into the amplifier driving the box.

This method was chosen for simplicity and to allow any conventional headphone set to be used without any rewiring of the headphone since most use a common return from both earpieces. Thus true stereo phase reversal is not done.

Construction is straight forward. Simply mount the switches and jack in a box to protect the components. Wire the switches and jack according to the schematic above. The unit should be placed in a shielded enclosure to insure against outside interference if it will be used in an area subject to strong electromagnetic fields. Otherwise any plastic or metal enclosure will suffice. If you place the Phase Switch in the Shift Position, you will notice a change in the sound characteristics. Besides a slight drop in volume, it will seem as though the sound has positioned itself inside your head. This is a result of the phase shift. Listen to your EVP in this mode and you may notice it has cleaned itself up somewhat. You should note that not all EVPs will respond in this manner. Some may actually be less clear. This is a characteristic of the EVP. The Phase Shifter is only a tool and in some cases will help and in others it is not effective. The only reliable way to know for sure is to try it on your EVP.

The Monaural Switch allows two channels to be combined if the unit is used in a stereo system. It will also provide a signal to both ears on those players which do not have provisions for a dual earpiece headphone. It may be used in conjunction with the Phase Shift switch to try to bring out EVP if difficulty is encountered.

In short, this unit may help you hear your EVP more clearly. There are not any set guidelines as to when to use what function. EVP is an unknown in itself; What works on one may not work on another. It will do what it is intended, that is create the phase shift between your ears on a set of headphones. Beyond that, no promises are made.

Happy hunting, and many good EVPs!

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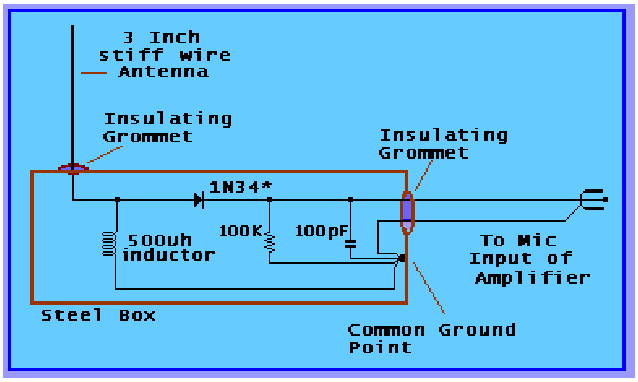
Raudive Diode Detector

This is one of the more controversial methods of obtaining EVP. Named after Latvian psychologist Konstantin Raudive who did the early work in this field, the concept involves using an untuned RF receiver which is fed into a recorder. There supposedly voices can be heard. Since this is basicly just an AM demodulator which unlike a radio is untuned, any amplifier should work to boost the signal. The high gain amplifier available here provides more than adequate gain to accomplish this.

The circuit for the detector is very easy to construct involving minimal cost and parts. One can search online and find various applications of this, some better than others. In many cases construction methods leave much to be desired. The project here has attempted to take into consideration what effect stray fields might have on the device and has taken steps to reduce the probability that the device is simply picking up AM radio broadcasts. However due to its nature this possibility cannot be eliminated. It will be up to user to devise methods that control this possibility.



The schematic of the Raudive Diode Detector is shown to the left. Construction is quite straight forward. There are a few points to consider as you build it.

First the circuit specifies a 1N34 diode. This is not crucial, however it **IS ESSENTIAL** that a germanium diode be used. The more common silicon type will not work as they have a much higher barrier voltage and will block any low level signal which might come through.

The antenna and signal cables must be insulated from the box. These insulators should be snug however to prevent RF leakage at those points.

The detector uses a single point ground technique. All leads tied to ground should connect to the box near the signal cable and at the SAME POINT. This prevents eddy currents which could cause false detection.

The 100 PF capacitor is optional. The original device as built in the 1960s did not use this, however most detectors use one here to block any stray RF on the audio leads. This could cause artifacts further downstream unless it is removed, which is the purose of this capacitor. In addition it bypasses any stray RF which could get in the audio line. Such a signal would compromise the effectiveness of the steel shielding enclosure.

While on the subject, the steel box is required. It is an integral part of the shielding acting much as a Faraday cage to prevent unwanted signals from interfering. Any box about 4 inches square will do, however it is imparative the cover fit tight and make good electrical connection when it is in place. A plastic project box WILL NOT SUFFICE! It must be steel or copper.

The audio cable must be a shielded type. Full shielding is prefered., including a metal plug for connection to the amplifier. A 1/4 inch phone plug is ideal.

Note that the antenna must be a stiff wire 3 inches long. Extending it any longer will allow the box to pick up radio signals. (More on this in a second...) The 3 inch design was specified by the original designers to prevent this.

Finally the inductor in most of these devices is an air core type. I see no reason why a ferrite core would not work, but to maintain the original design I would recommend staying with the air core.

Now about that antenna. I realize many technicians who read the previous statement about a short antenna blocking radio began scratching their heads in disbelief. Just so you know, I agree with you. Even a short antenna in the presence of a strong RF field will pick up a signal. I have done enough shielding work to realize that. This was simply the claim made for the original detector as built in the 1960s and 70s. So I repeat it here. It will be up to the user to decide whether he has a strong shortwave station or a ghost on the other end when he picks up something!

Will all this work? Actually I have serious doubts. It is my opinion that even the original experiments were flawed in that they simply picked up stray EM Fields. But there is an interest, and many believe it is a "telephone to the dead." So I am putting this project out as simply another tool to try. In fact when used along with the high gain amplifier it may very well serve as an extended band EMF detector. It could be used in that manner much as an EM Field monitor is used to track down stray RF fields. So for that reason alone it may be worth building. But in my opinion I don't expect many ghosts to phone in. If you build it and have success, let me know!

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