

Audio Induction Coil

Q I am 90 years old and have been reading Gernsback electronics magazines for many years. I once learned from your magazine how to hook up a Morse code key to a Model T spark coil to make a radio transmitter. It worked then, but today it would mess up a lot of people's TV reception.

My problem now is different. I need a schematic for a device to take the signal from a telephone circuit, amplify it, and feed it into a loop around a room. This should set up a magnetic field that can be detected by hearing aids with T coils. I know it has been done before. If you can be of any help on this, I and many of my senior friends would appreciate it.—H. B. A., Bay Village, OH

A What you describe is called audio induction. A large coil around the room and a small coil on the pickup unit form a big transformer, transferring the audio signal from one to the other magnetically. This isn't radio; little or no electromagnetic radiation is produced. (The coil is a monstrously inefficient antenna at audio frequencies.) Instead, what you're doing is exactly what goes on in transformers.

Some hearing aids use induction coils to pick up the signal from telephone receivers—it's more reliable than picking up the sound. Not having one of these hearing aids handy, we're not sure how sensitive they are, but Fig. 1 shows an audio induction circuit we've experimented with. The big coil has a resis-

tance of about 16 ohms and is fed with a few watts of audio, just as if it were a speaker. The small coil picks up a tiny audio-frequency signal, which is stepped up by the matching transformer and then fed to the microphone input of an amplifier. Pickup coils with substantially more turns may not need the transformer.

We trust you can adapt this circuit to your needs; you'll be using a hearing aid with an induction pickup in place of the pickup coil and amplifier. Others will find it useful as a way to transmit audio without wires to listeners who are free to move around and may even be on the other side of a wall.

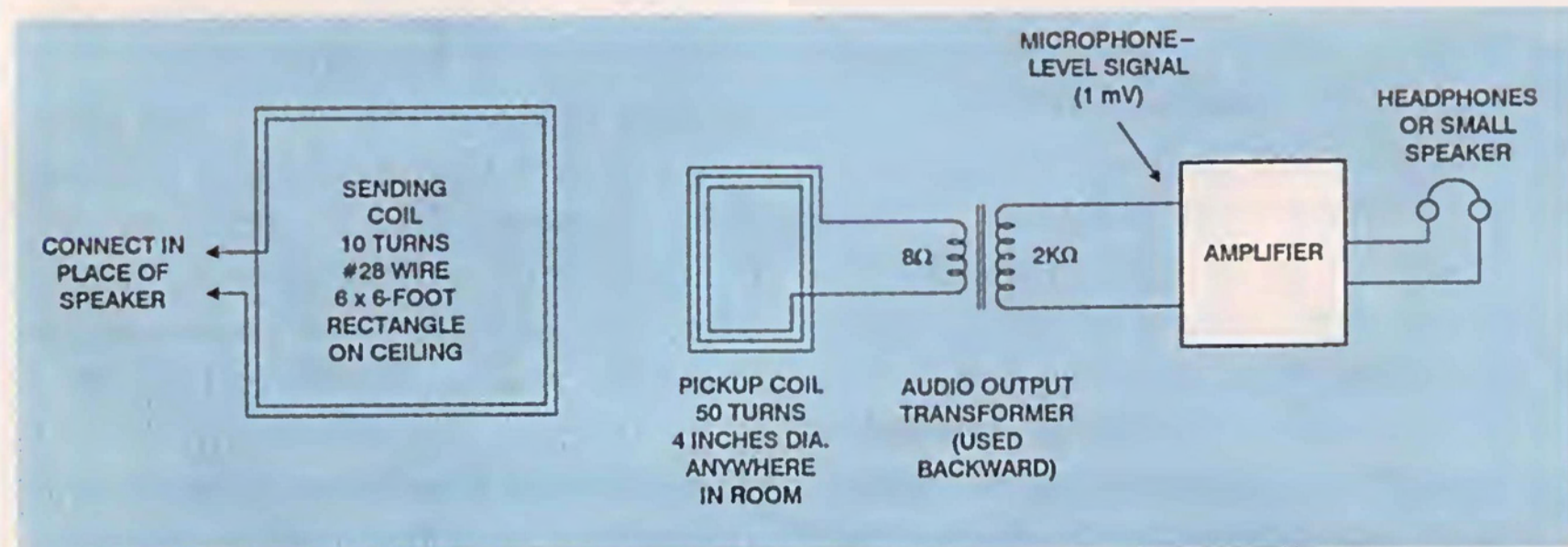


FIG. 1—AN INDUCTION LOOP transmits audio a few feet without wires. Experiment with different pickup coils; some might not need a transformer.