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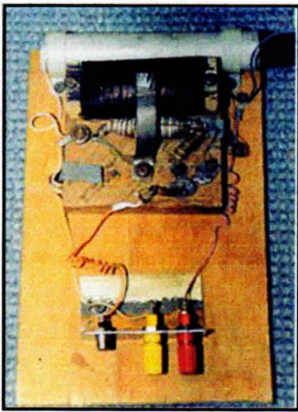
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K4IVK's Gutter Radio

By W. D. "Dick" Whetstone III, AD4U
January 9, 2001

If challenged, could you construct a working radio receiver from trash left lying in the street or gutter? K4IVK did.



The Gutter Radio.

At a meeting not long ago of the Edisto Amateur Radio Society (EARS) in Orangeburg, South Carolina, the after-dinner discussion turned to the "lost art" of home brewing. The consensus was that the main reason so few hams now do not homebrew gear is because parts are not available or because the projects are too complex.

One of our members, Vic Shorten, K4IVK, took issue with that premise. Vic said that anyone who was really dedicated to home brewing could find or make the necessary parts. To prove his point, he declared, "I can build a working radio by next month's club meeting from nothing more than junk I will find in the streets and gutters of St Matthews."

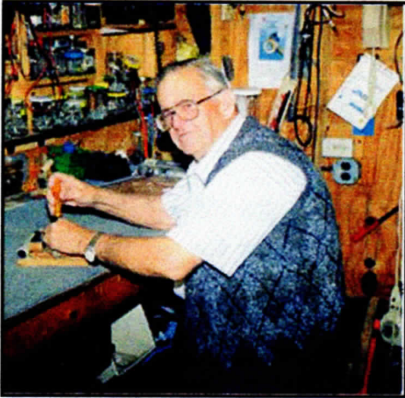
Our first mistake was to underestimate Vic's ability. He is one of those unique individuals who can fix just about anything by using only basic tools and often without any schematics or drawings. His only piece of test equipment is a volt-ohm meter.

Vic's government career was in White House communications. His job required him to travel the world, often to remote and exotic places, to set up and maintain communications for the presidential party. This was many years before satellite communications, even at the presidential level. The equipment was mostly tube-type Collins radios. When a transmitter or receiver broke down in the middle of nowhere, he had to "make do," using his imagination and whatever material was at hand.

The day after the club meeting, Vic began his search for "parts" to build his gutter radio. The first component was a lead wheel weight, which was lying in the street in front of the local tire company. Soon after that, he found a small rusty spring buried in the dirt. In the next few weeks he gathered up: a scrap of very old plywood, a hard pine board, a few rusty bolts and screws, a piece of metal strapping, metal foil wrappers from two discarded cigarette packs, a piece of string, two scraps of different diameter metal tubing, and the yoke coil from a discarded TV set. This was the entire "parts list" from which he would build his radio.

Vic melted the lead weight in a spoon over a flame, adding a small amount of powdered sulfur, which he had to buy, to "dope" the molten lead and made a crude but perfectly workable crystal. He then removed the foil from the cigarette packs, placed pieces of the cellophane wrapper between them, and rolled them into a cylinder to create a capacitor of some unknown value. He wound the wire from the TV picture tube yoke around a piece of wood, forming a tuning inductor. Finally, using two pieces of discarded metal tubing, he made a variable capacitor.

All the "components" were mounted on the piece of scrap plywood using the various bolts and screws he found in the street. Rust and lacquer was scraped from the metal strapping, and it was bent to form the "slider" that tuned his tuning coil. The lead-sulfur mix crystal was screwed into the plywood, and a small rusty spring was bent and used as a "cat's whisker." Finally, he used some scraps of wire to connect the "components" together.



Vic At Work.

The next club meeting was a picnic in the park, and Vic was ready to demonstrate his radio. After the picnic dinner he strung some of the TV yoke wire between two trees to make an antenna, and he used a short piece of wire to connect the radio to a galvanized water pipe. Finally the moment of truth arrived. Vic put an earphone to his ear and moved the "cat's whisker" around on the lead-sulfur crystal until he found a "sweet spot." Then he slid the smaller piece of tubing in and out of the larger piece of tubing, and adjusted the slider on the tuning coil. A grin came over his face.

He connected the radio's audio output to a Bogen amplifier and then to a speaker from a stereo radio, all of which he'd found in the dump.

As Vic increased the volume on the amplifier, we were amazed. We were treated to sound from the local AM broadcast station that rivaled that of console radios costing hundreds of dollars. In fact it sounded so good that some club members accused Vic of hiding an expensive commercial radio chassis inside the amplifier cabinet. He just grinned and lifted the cat whisker off the crystal. The radio stopped playing. When he put the cat whisker back onto the crystal, the radio started playing again.

Because of its proximity, the 5000 W local AM broadcast station was all we could hear at the beginning of the demonstration. After sundown, the station went off the air, however, and Vic was able to tune in perhaps 30 different stations. Several were hundreds of miles away. The best DX of the evening was a Cuban AM broadcast station located approximately 900 miles south of St Matthews.

Vic's "gutter radio" was a hit! Every component used to construct the radio, except the sulfur and earphone, was found in the streets and gutters of St Matthews. Vic told us that if it had been absolutely necessary, he could have made the crystal and the earphone entirely from "gutter material" as well. We don't dare dispute him.



Vic Shorten, K4IVK, and his wife Marie, K4IVG. [All photos by the author.]

Many people, myself included, have offered to buy the "gutter radio," but it's not for sale. Of course his answer is, "homebrew one yourself!"

Vic called recently to tell me to come over and pick up two antique radios he had repaired for me. I noticed a pile of very strange looking parts on his workbench. It looked like nothing more than a pile of junk one would pick up in the street. Vic would not say what he intended to do with it. He just grinned. Perhaps he plans to build a matching transmitter.

***Editor's note:** Walter "Dick" Whetstone III, AD4U, is the city administrator for St Matthews, South Carolina. In addition to his ham activities and collecting really old radios, Dick now has a complete collection of Zenith Transoceanics. Occasionally he and Vic will make a joint presentation to interested social groups explaining the development of radio in this country and the enjoyment of the hobby of Amateur Radio. Vic, K4IVK, can usually be found on the low end of the 40-meter band operating high-speed CW when it's around sunrise in South Carolina.*

Page last modified: 02:15 PM, 09 Jan 2001 ET

Page author: awextra@arrl.org

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