

# A Scavenger's Radio

*Using it is easier than building it.*

This little receiver is actually a combination of two other previously-published (and therefore copyrighted) projects. The rf oscillator (Fig. 1) was built from scratch, following the schematic given in one of Radio Shack's "101-in-ONE Electronic Projects" kits. The detector/amp (Fig. 2) was originally described as a "High-Performance Transistor Radio," a souped-up "crystal set" from *Elementary Electronics'* supplementary publication entitled *101 Electronic Projects* ("for under \$15—all easy to build"), 1978 edition; the radio was project #12, page 21.

The model I'm using now is a prototype and I'm sure it can use considerable improvement. I discovered

quite by accident that holding the oscillator (at that time powered by its own battery) near the JFET radio (which already had its short-wave L<sub>2</sub>/L<sub>3</sub> coil) would increase the gain and sensitivity an amazing amount. I suspect it's a regenerative effect, like the old "tickler coil" sets.

I found by experiment that the JFET radio's band coverage could be extended above and below the standard broadcast AM band (550 kHz to 1600 kHz) by using interchangeable coils of different sizes. This was before I added the oscillator. The selectivity is fairly good, and a double-tuned tank using a ganged padder capacitor might improve the selectivity. I described the above combination using

the old TV coils because it works so well. Note: the oscillator needs some improvement to remove a tendency to break into audio oscillation at a couple of places on the position of L<sub>1</sub>'s tuning slug. Otherwise it's an amazing, easily constructed project that many others may find fun to try.

L<sub>1</sub> and L<sub>2</sub>/L<sub>3</sub> are recycled coils from a broken TV set. They are slug-tuned with ferrite cores, approximately 1/4 inch in diameter on plastic forms. No markings are visible on L<sub>1</sub>, but it's wound with very fine enameled copper wire with a winding length of about 7/8 inch and is center-tapped. The two coils on L<sub>2</sub>/L<sub>3</sub> have fewer turns and slightly thicker enameled copper wire with the winding interlaced; they were originally soldered to-

gether at a pin on the coil's base, making a center-tap, but to isolate the windings I resoldered one lead to an unused pin. L<sub>2</sub>/L<sub>3</sub> has the code number TLS-51003.2 063V printed on its base. The distance between L<sub>1</sub> and L<sub>2</sub>/L<sub>3</sub> is about 2 inches, but this could be varied.

Both sections of the circuit were built into a plastic box—metal might work better. External input jacks were provided for connecting the antenna and ground. I found out that the receiver actually works better without the ground, however. The circuit is powered by an ordinary 9-volt transistor battery, and the oscillator was left in the sardine can when it was put in the plastic box. Most of the parts were recycled from old TVs and radios. ■

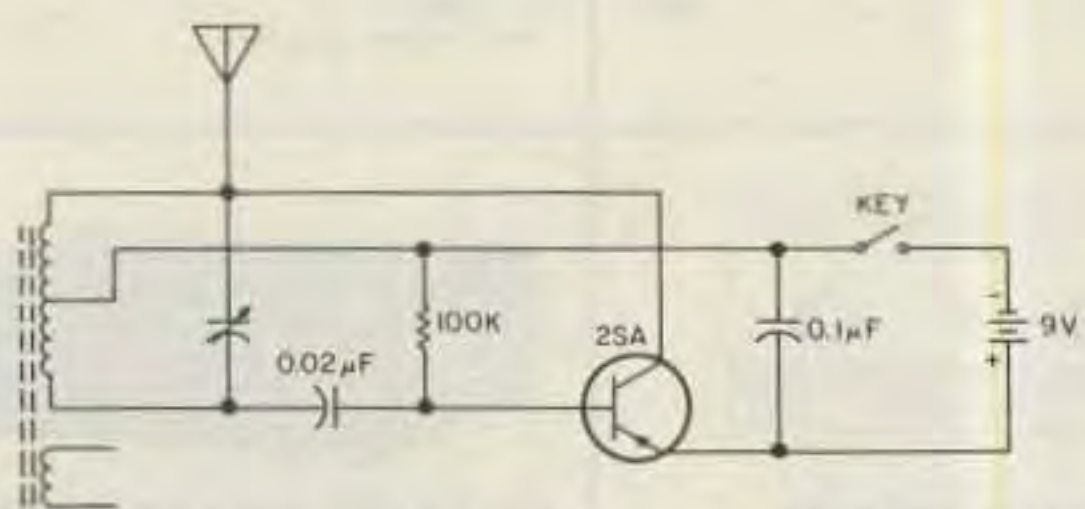


Fig. 1. The original rf oscillator circuit.

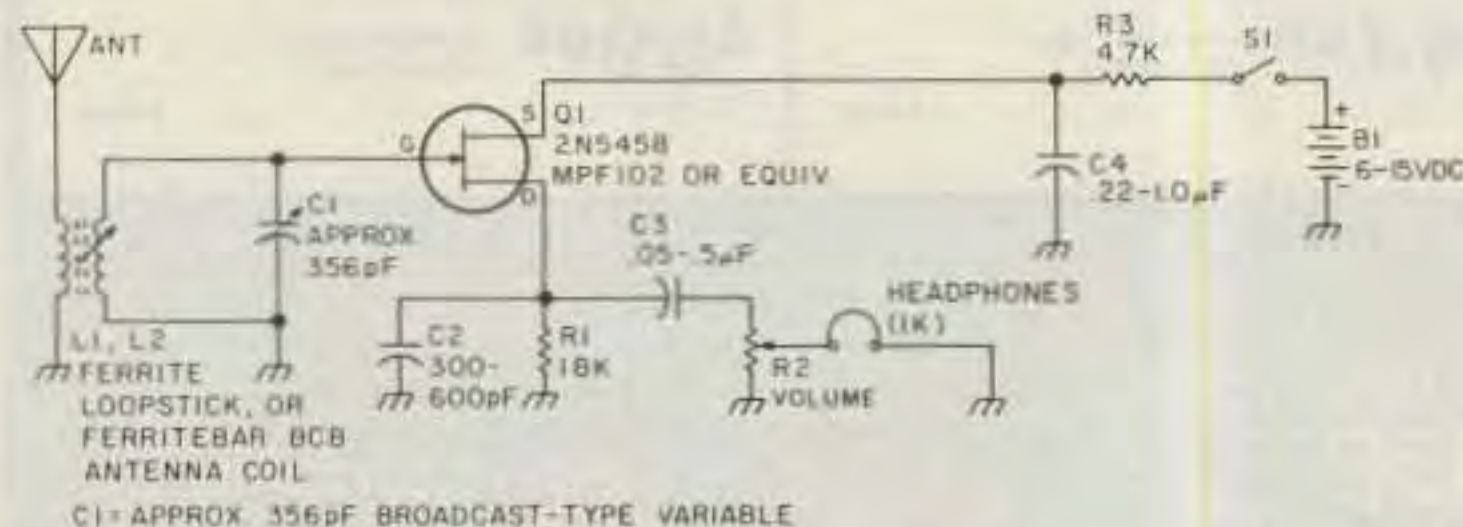


Fig. 2. The detector/amp, here disguised as a transistor radio.

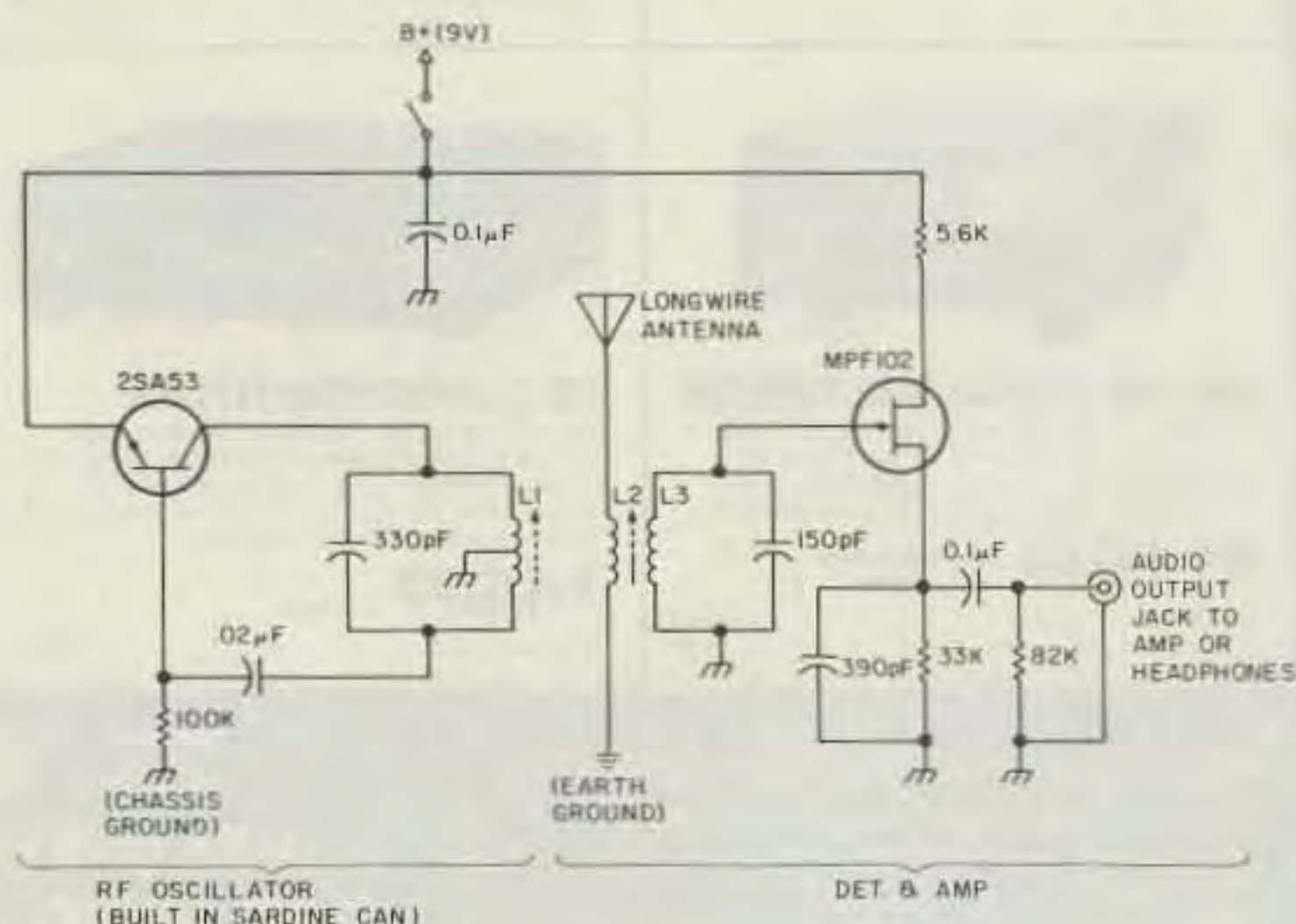


Fig. 3. A simple shortwave receiver. For more fun, use interchangeable plug-in coils.