

# BUG DETECTORS

HERE ARE TWO DETAILED SCHEMATICS ON HOW TO BUILD GOOD BUG DETECTORS USING EASY TO GET MATERIALS.

THESE DETECTORS ARE VERY NICE. THEY ARE SIMPLE, HIGH QUALITY, VERY EASY TO BUILD AND WORK.

THE FIRST ONE USES LED'S TO SIGNIFY THAT A BUG'S SIGNAL IS DETECTED, MORE LED'S MEANS A STRONGER SIGNAL WAS PICKED UP.

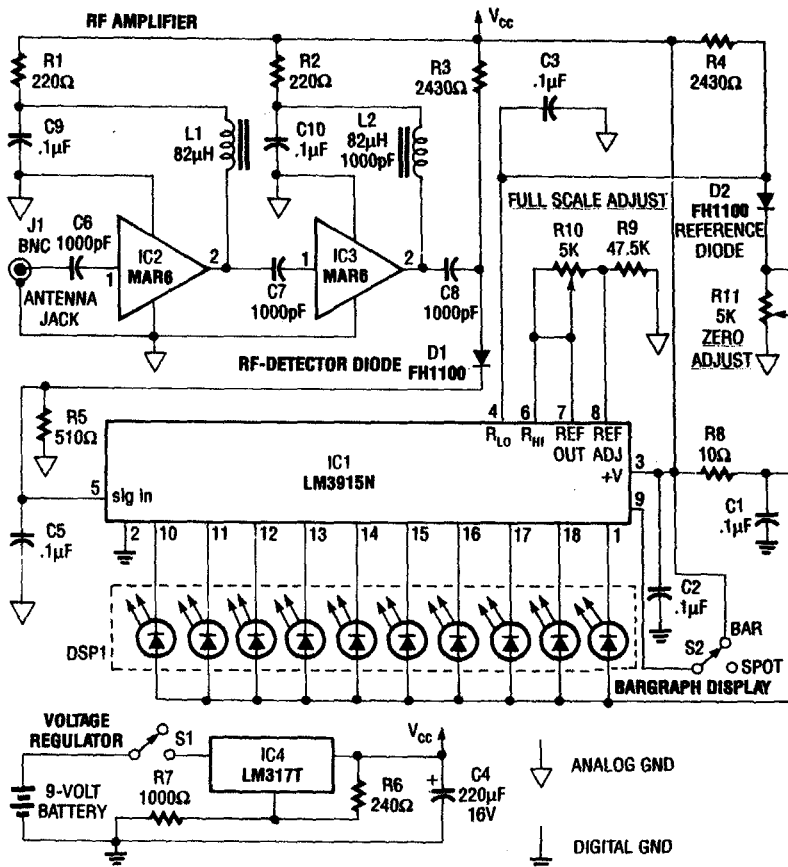
THE SECOND ONE USES A SPEAKER FOR AUDIO OUTPUT. OR YOU CAN FIND PIN 4 OF U1-A AND PIN 7 OF U1-D AND CONNECT THEM TO A MICROAMMETER FOR A MORE VISUAL DISPLAY.

BUGS SUCK WHEN THEY ARE BEING USED ON YOU, SO FIGHT BACK.

THESE CIRCUITS LOOK VERY PROFESSIONAL ONCE PLACED IN A RADIO SHACK PROJECT CASE.

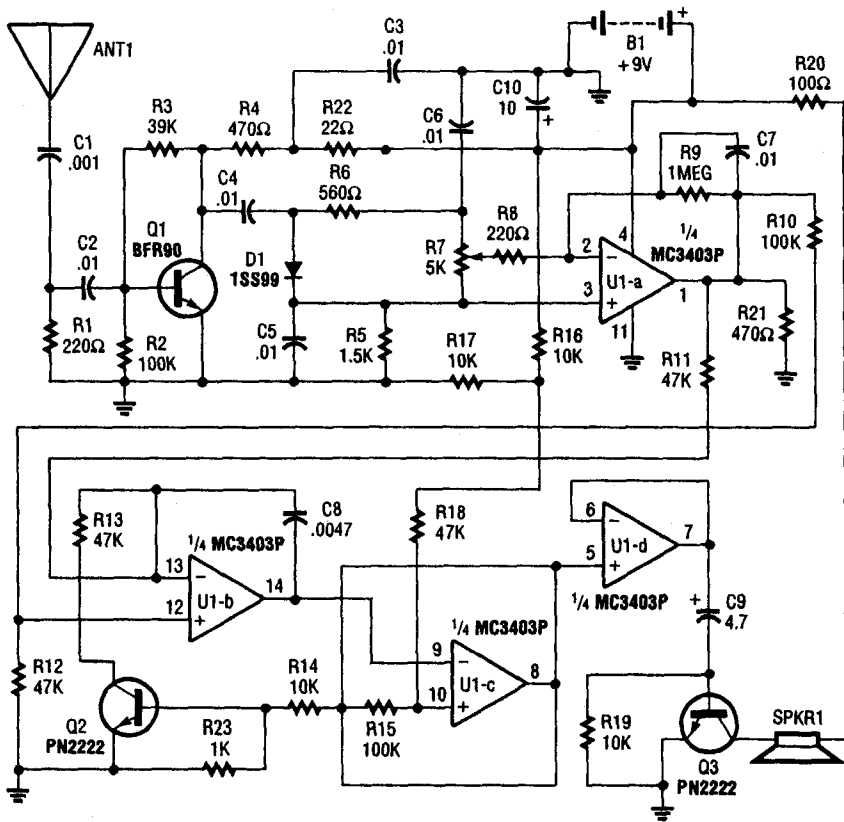
THE FIRST DETECTOR USES ONE NINE VOLT BATTERY, THE SECOND USES TWO.

UUE.



This rf detector can locate low-power transmitters (bugs) that are hidden from sight. It can sense the presence of a 1-mW transmitter at 20 feet, which is sensitive enough to detect the tiniest bug. As you bring the rf detector closer to the bug, more and more segments of its LED bar-graph display light, which aids in direction finding.

The front end has a two-stage wideband rf amplifier, and a forward-biased hot-carrier diode for a detector. After detection, the signal is filtered and fed to IC1, an LM3915N bar-graph driver having a logarithmic output. Each successive LED segment represents a 3-dB step.



The circuit, built around a single integrated circuit (U1, an MC3403P quad op amp), three transistors (Q1–Q3), and a few support components, receives its input from the antenna (ANT1). The signal is fed through a high-pass filter, formed by C1, C2, and R1, which eliminates bothersome 60-Hz pickup from any nearby power lines or line cords located in and around buildings and homes.

From the high-pass filter, the signal is applied to transistor Q1 (which provides a 10-dB gain for frequencies in the 1- to 2000-MHz range) for amplification. Resistors R2, R3, and R4 form the biasing network for Q1. The amplified signal is then ac coupled, via capacitor C4 and resistor R7's (the sensitivity control) wiper, to the inverting input (pin 2) of U1-a. Op amp U1-a is configured as a very high gain amplifier. With no signal input from ANT1, the output of U1-a at pin 1 is near ground potential.

When a signal from the antenna is applied to the base of Q1, it turns on, producing a negative-going voltage at the cathode of D1. That voltage is applied to pin 1 of U1-a, which amplifies and inverts the signal, producing a positive-going output at pin 1. Op amps U1-b and U1-c along with C8, R10 through R18, and Q2 are arranged to form a voltage-controlled oscillator (VCO) that operates over the audio-frequency range. As the output of U1-a increases, the frequency of the VCO increases. The VCO output, at pin 8 of U1-c, is fed to the input of U1-d, which is configured as a noninverting, unity-gain (buffer) amplifier. The output of U1-d is used to drive Q3, which, in turn, drives the output speaker.