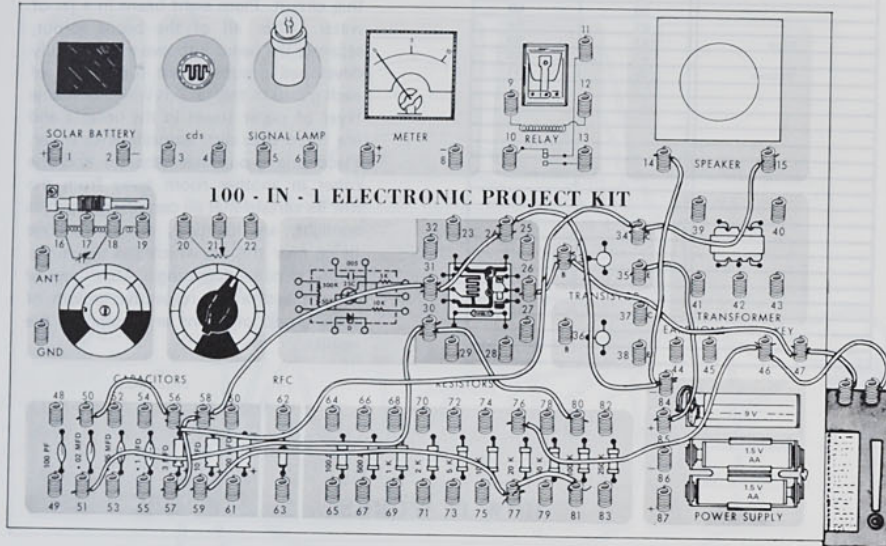
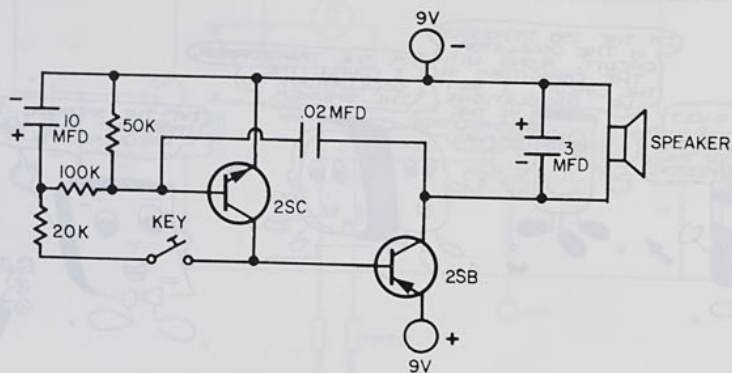


PROJECT NO. 20 ELECTRONIC SIREN

Here is a simple electronic siren that realistically simulates the actual sirens of emergency vehicles. The circuit is a basic oscillator which uses two transistors to produce the audio signal, and a capacitor to control the rise and fall rate.



SCHEMATIC



WIRING CHART

COLOR	FROM	TO
Red	14	84
	15	34
	24	31
	24	84
	26	33
	30	80
	31	58
	33	47
	35	85
	46	76
Blue	50	56
	57	58
	77	81
	30	51
Yellow	59	77
	34	56

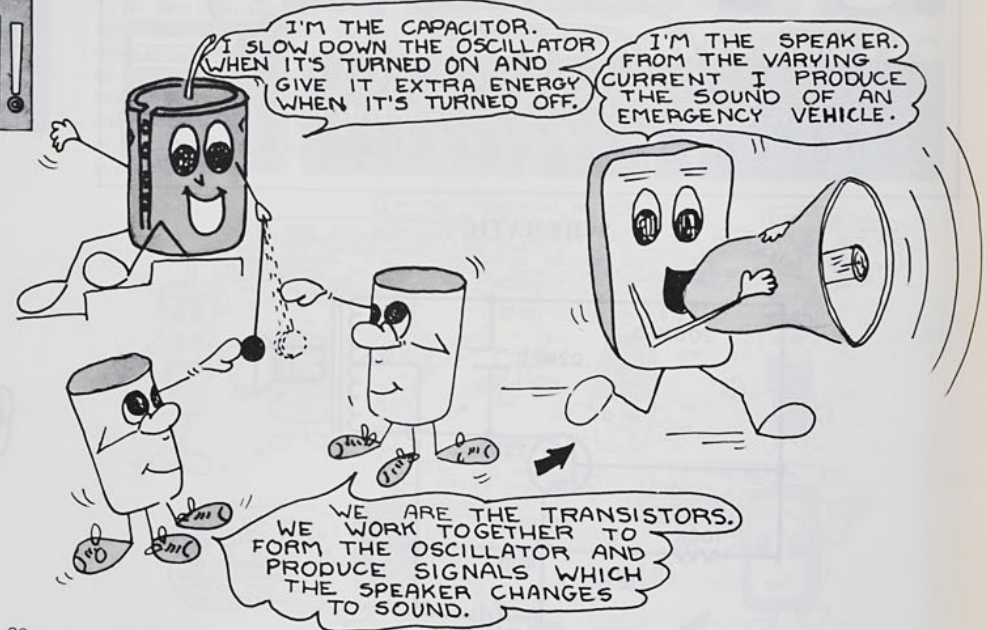
OPERATION

- () Complete wiring as seen in the wiring chart.
- () Connect yellow leads from the key to terminals 46 and 47 of the kit.
- () To operate, depress the key alternately at a proper rate to simulate a siren.

HOW IT WORKS

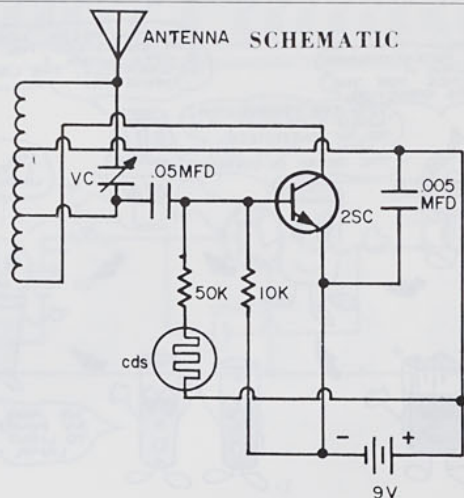
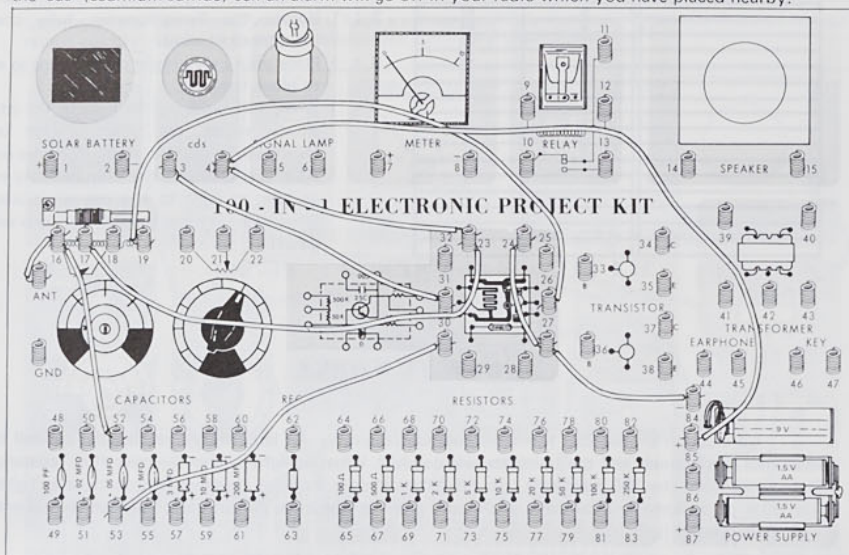
The electronic siren consists of a basic oscillator. The outputs and inputs of transistors 2SB and 2SC are so interconnected as to produce a regenerative feedback. This feedback causes the transistors to oscillate at a rate which you can hear: in this project the tone of a siren.

This audible signal varies in pitch like a siren due to the action of the 10 MFD electrolytic capacitor. When the circuit is turned on with the key, this capacitor charges up and the audible tone rises. When the key is released, the capacitor slowly discharges, allowing the tone to fall gradually.



PROJECT NO. 24 LIGHT OPERATED WIRELESS BURGLAR ALARM

This burglar alarm can be used to guard anything you store in a dark place, such as in a dresser drawer or closet. When anyone tampers with the drawer or closet door and light is exposed to the cds (cadmium sulfide) cell an alarm will go off in your radio which you have placed nearby.



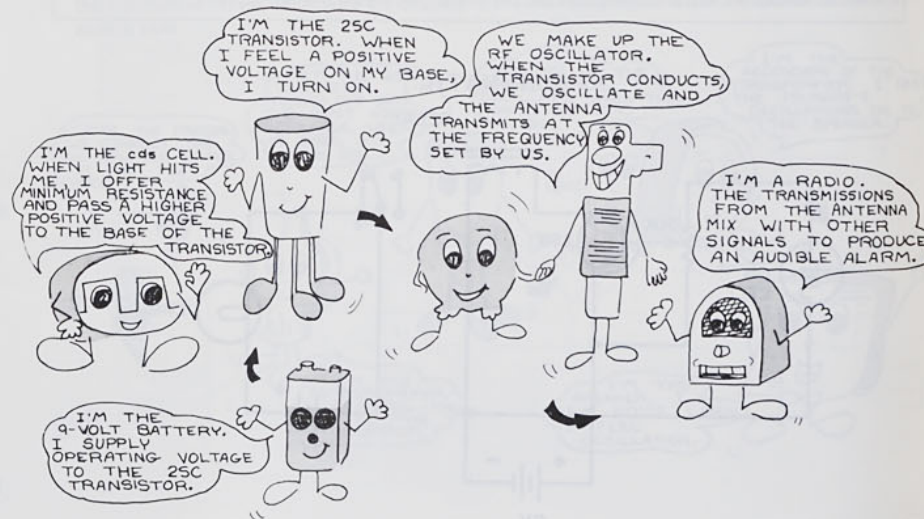
WIRING CHART		
COLOR	FROM	TO
Red	4	23
	16	52
	16	27
	24	84
Blue	3	31
	4	85
	17	23
	19	26
	30	53

OPERATION

1. () Complete wiring as seen in wiring chart.
2. () Connect an insulated wire not to exceed 18 inches to ANT. terminal of the kit. This wire is utilized as an antenna in this project.
3. () Turn on a radio in the room where you're working now.
4. () Tune the variable capacitor in the kit until a tone or interference is heard on the radio.
5. () Place your finger over the cds so as to block the light. Carefully readjust the variable capacitor until no interference is heard.
6. () When you remove your finger the interference should be heard again.
7. () Now you can place the kit in a dark place you want to protect. When any light hits the cds cell you can hear the interference in your radio monitor.

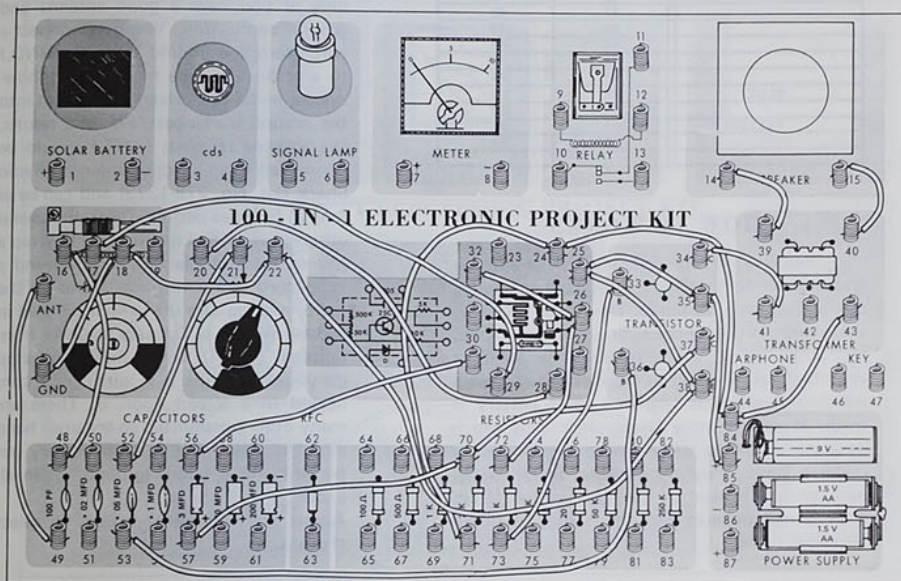
HOW IT WORKS

The cds (cadmium sulfide) cell is in the base circuit of the 2SC transistor. The cds cell controls the bias of the transistor by permitting it to conduct when light hits the cell. The cds offers minimum resistance and a higher positive voltage is felt on the base of the 2SC transistor allowing it to conduct. Conduction is through a portion of the antenna coil. With the aid of the variable capacitor, the frequency of transmission from the antenna can be varied. This variable frequency which is transmitted is picked up by your radio as a tone or interference.

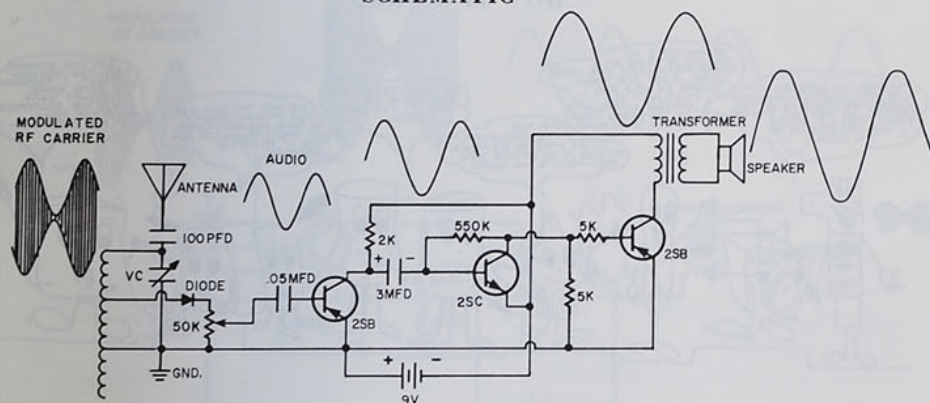


PROJECT NO. 65 THREE TRANSISTOR AM RADIO

The three transistor radio offers the same complete radio package as the two transistor radio, but with the addition of more amplification and sensitivity. The three transistor circuit provides enough power to pull in the major stations of your area with clarity and selectivity.



SCHEMATIC



WIRING CHART

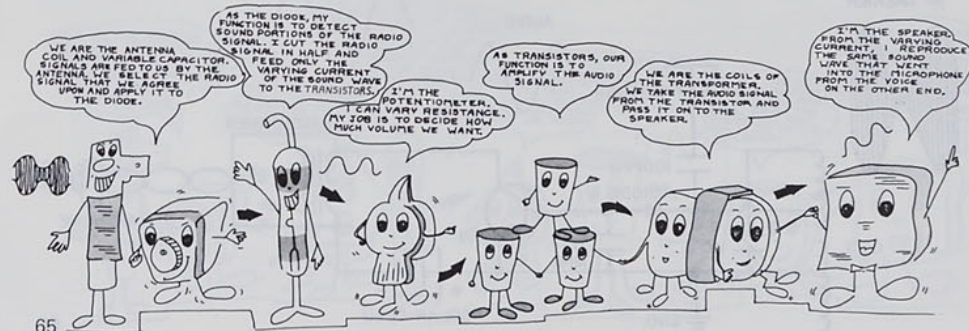
COLOR	FROM	TO
RED	ANT.	49
	GND.	18
		16
		18
		21
		30
		26
		24
		25
		25
		26
		33
		34
		35
BLUE		37
		57
		14
		15
		43
		20
		17
		22
		24
		36

OPERATION

- () Complete wiring as indicated in the wiring chart.
- () This radio will work at top efficiency only if you have a good antenna and ground connection. You may connect a wire from the ground terminal (GND.) to a cold water pipe for a ground, however, a metal rod driven 2 to 4 feet into the ground works best. For best results, the antenna terminal (ANT.) should be connected to an outdoor antenna (Radio Shack Cat. No. 278-1373) and can be as long as facilities permit. There are several other ways to make antennas: a. Wrap a five or six foot piece of wire around a lamp cord and connect one end to the radio, making sure the lamp is plugged in and turned on. b. Connect the wire from terminal (ANT.) to the metal dial stop on your telephone. c. A wire can be connected to a screen door. d. There are many other possibilities so try your hand at other ideas. The antenna is very important and a good "ground" is invaluable.
- () Adjust the variable capacitor to select stations.
- () Adjust the potentiometer for volume.

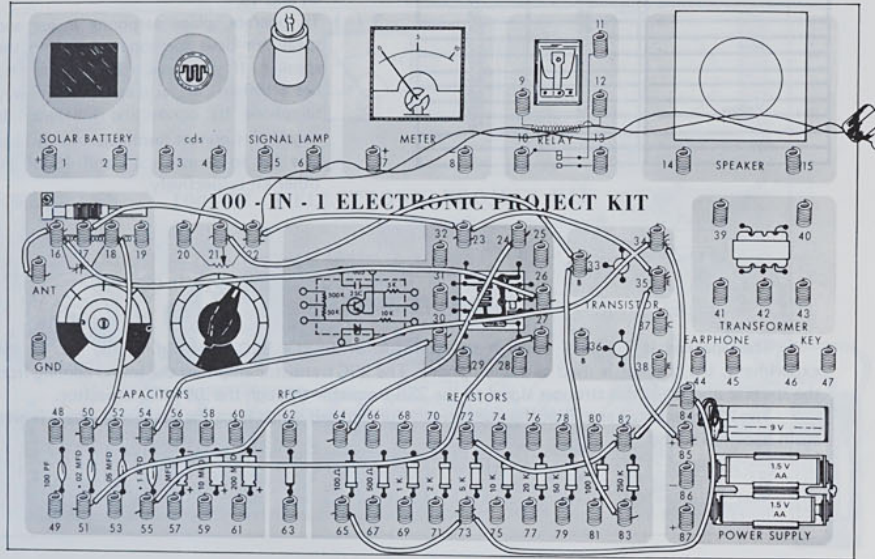
HOW IT WORKS

Radio signals are picked up by the antenna and applied to the diode through the antenna coil and variable capacitor. The diode "detects" the sound portion of the radio signal and applies this audio signal across the potentiometer which varies in resistance (thus varying the volume). The small audio signal is then applied to the first transistor where it is amplified. It is then coupled through a capacitor to the second transistor where it is amplified again to a usable level and is then directly coupled to the third transistor where it is amplified once more. Finally this stronger signal passes through the primary transformer coil which induces an exact copy of the signal in the secondary coil which drives the speaker.

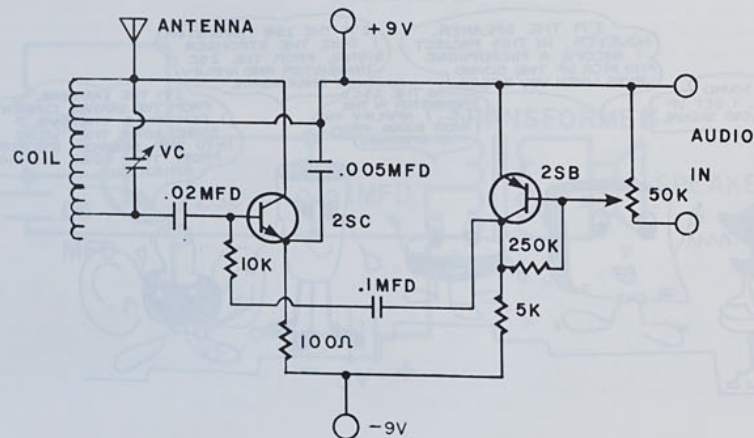


PROJECT NO. 70 WIRELESS AM TRANSMITTER

This wireless AM (amplitude modulated) transmitter may be used to transmit audio signals which you can hear on your AM radio. These AM signals have been classified as A3 emissions by the Federal Communications Commission (FCC). The wireless transmitter makes use of an audio amplifier and an oscillator which produce AM signals when you talk into the mike.



SCHEMATIC



WIRING CHART		
COLOR	FROM	TO
Red	ANT	16
	17	22
	18	50
	22	23
	23	35
	24	64
	33	83
	34	82
	35	85
	65	73
Blue	72	82
	73	84
	16	26
	21	33
Yellow	27	55
	30	51
	34	54

OPERATION

- () Complete the wiring assembly as seen in the wiring chart.
- () Place your AM radio receiver near the 100-IN-1 Kit.
- () Connect an external antenna (maximum of 10 ft.) to antenna spring terminal (ANT.).
- () Place the earphone mike near your radio speaker and tune the radio so that you can hear feedback. You may now talk into the mike.

HOW IT WORKS

This AM (amplitude modulated) transmitter operates in the 510-1,600 kilo-Hertz frequency band. The transmitter contains two basic circuits; an audio amplifier and an RF (radio frequency) oscillator.

The audio amplifier consists of a PNP transistor and 50K variable resistor (potentiometer) volume control. Transistor 2SB amplifies variations in current flow from the mike. The amplified audio signal is coupled from the collector of 2SB to the base of transistor 2SC in the IC through the .1 MFD capacitor and the 10K resistor. NPN transistor 2SC, and the resonant tank circuit (the coil and variable capacitor) form the RF oscillator.

In the RF oscillator the audio signal is mixed with the RF carrier to form an amplitude modulated signal which is radiated from the antenna to your near-by radio receiver.

