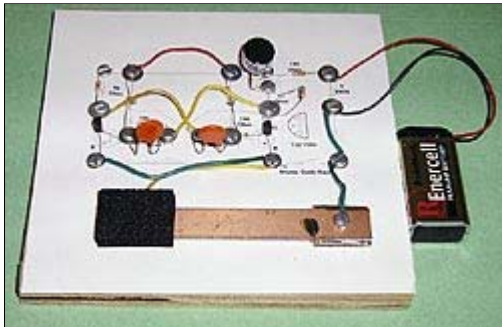


A One-Hour, No-Solder Code Practice Oscillator

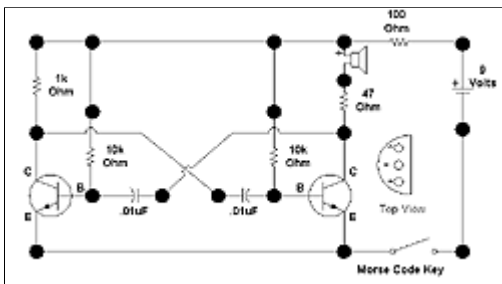
By Mark Spencer, WA8SME and Dave Hassler, K7CCC
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Looking for a simple, cheap and fun entry-level ham radio project that will appeal to kids? If so, look no further than this no-solder code practice oscillator.



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common NPN transistors (such as 2N2222, 2N3904 or 2N4401), five 1/4 W resistors (two 10 k Ω , and one each 1 k Ω , 100 Ω and 47 Ω), 17 flat head wood screws and washers, a 9 V battery connector, a small speaker of 4 to 16 Ω and some hookup wire, and you're all set to start construction.



The completed no-solder code practice oscillator. Note the jumper wire at the rear of the circuit board "key" to allow for a closed circuit when keying. Click on this image to get a full-size drawing to print out.[Mark Spencer, WA8SME, Photo]

own projects on boards with screws.

With such a fun and simple project at hand, there's no time like the present to get started.

We have received numerous requests for just such a project and the result is this oscillator. It's perfect for clubs, schools and groups that want to stimulate interest in the early stages of an Amateur Radio course, especially if you're teaching on a shoestring. During interviews with Big Project teachers, we've found that kids still really love Morse code and this little project seemed like a natural to cultivate interest. The code practice oscillator would be great for anyone looking for science fair-like ideas, and it will soon be included in the Big Project curriculum as a suggested activity.

The parts list is minimal. A strip of heavy copper or a piece of copper-clad circuit board will serve as a key.

Gather up a pair of .01 μ F disc capacitors, a pair of

common NPN transistors (such as 2N2222, 2N3904 or 2N4401), five 1/4 W resistors (two 10 k Ω , and one each 1 k Ω , 100 Ω and 47 Ω), 17 flat head wood screws and washers, a 9 V battery connector, a small speaker of 4 to 16 Ω and some hookup wire, and you're all set to start construction.

To obtain the schematic/layout, click on the image here to get a full-sized picture. Print it out and affix it to a piece of pine, fir or 3/4 inch plywood. Then, start building! It's often helpful to make a small "starter hole" with a drill, awl or nail where each screw will go, especially if your board is made of hardwood. When you're finished, attach a battery and start sending code!

We are firm believers in kitchen sink science, providing learning opportunities that kids can duplicate at home. An instructor or adult at home can teach children what the circuit diagram symbols mean, which components are which and what they do, explain complete and open circuits, present transistors as valves, and many other things. Plus, innovative kids can use this as an example to duplicate other simple circuits at home and build their

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