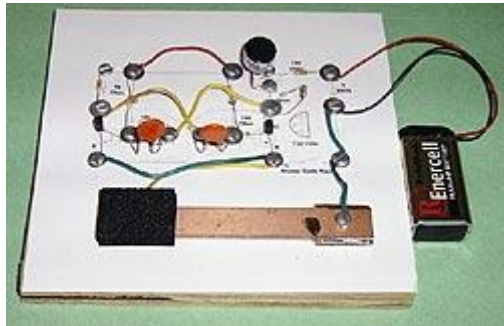
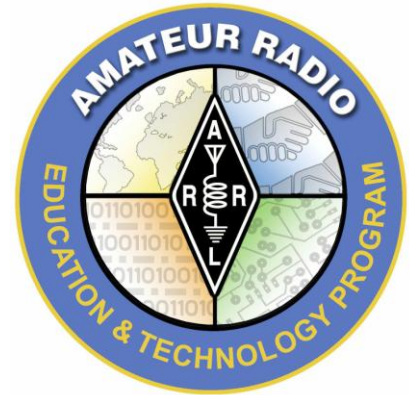


A One-Hour, No-Solder Code Practice Oscillator

By Mark Spencer, WA8SME and Dave Hassler, K7CCC

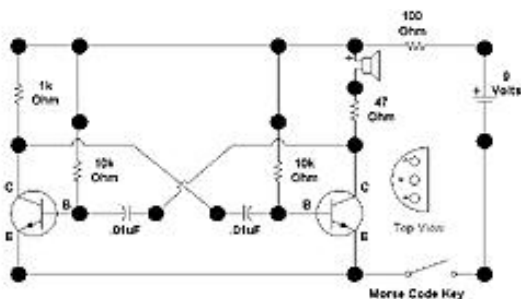
Looking for a simple, cheap and fun entry-level ham radio project that will appeal to kids? If so, look no further than this no-solder code practice oscillator.



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.

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.

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 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.



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. [Mark Spencer, WA8SME,

Photo]

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 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.

Mark Spencer, WA8SME, was ARRL's former Education and Technology Program Coordinator. Spencer designed this oscillator project.

Dave Hassler, K7CCC, authored this article. He was the former Assistant News Editor of QST and the ARRLWeb.

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