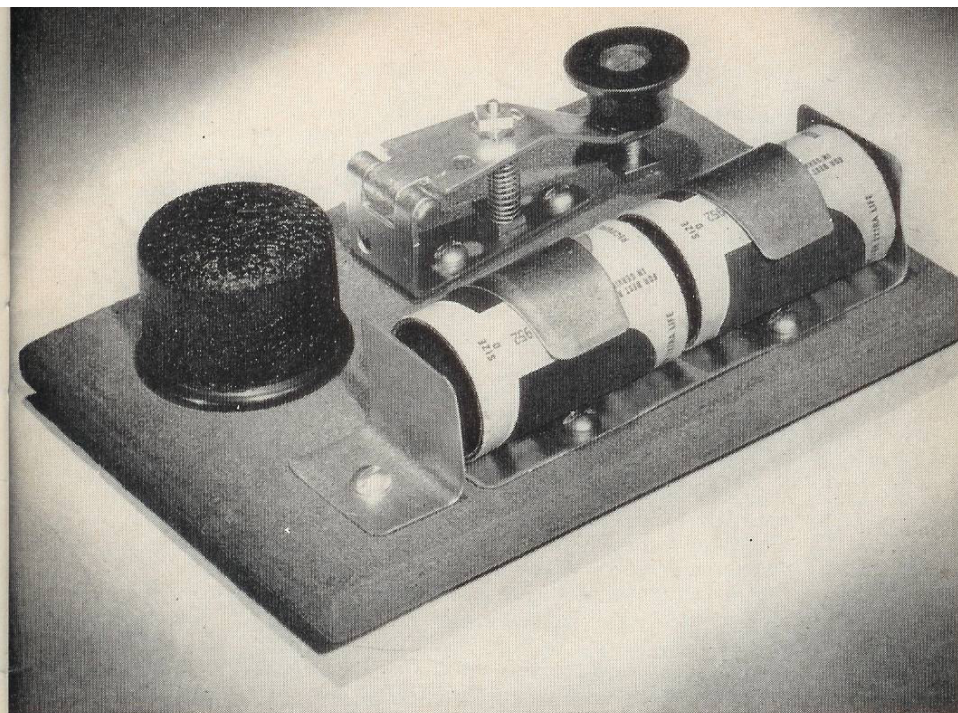


Signaling Merit Badge Requirement 1:

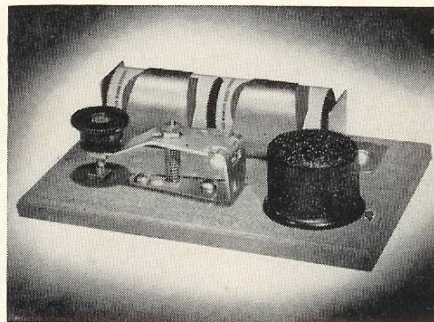
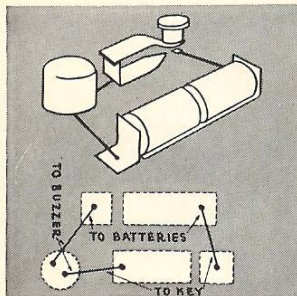
1. Make an electric buzzer outfit, wireless, blinker, or other signaling device.

While you may choose to make your own device, say by wiring together a flashlight bulb, battery and makeshift key, it is recommended that you learn the code by audible tone. Learning by ear is much more useful, especially if you want to become a ham radio operator* or military signalman. The following diagrams and text show you how to make a useful and inexpensive device that radio operators would be proud of. It all starts from an article in a Scout's favorite magazine the *Boy's Life* and reprinted in the 1964 printing of the Boy Scout Signaling Merit Badge booklet.



The finished buzzer is shown above. Note that the battery holder is made of two separate pieces of metal. The small bracket holding the front end of the batteries does not connect with the large bracket that forms the back part of the holder and clamps around the batteries. Below at left is a wiring diagram, including a bottom view of the hook-up. In the view at right below you will see that the key does not strike the hinge, but instead strikes a bolt that comes up through the board from the bottom, separate from the hinge.

(Illustrations courtesy of BOYS' LIFE)



Make a modern version by using a “piezo buzzer” and a nine volt battery. The key is made from a door “strap” hinge. The parts list is as follows:

One of the following first two buzzers.

- 12 Volts DC Piezo buzzer, Radio Shack part number 273-0059 (\$3.49). Best choice. It has the best tone that approximates what you would hear on a shortwave radio.
- 12 Volts DC Piezo buzzer, Radio Shack part number 273-0060 Okay, but has a different tone (\$4.49)
- Do not use 1 to 3 Volt Radio Shack Mini Buzzer part number 273-0053 (\$3.49). It has a bad tone.
- Any good 9 volt battery. Other battery voltage values should work okay, but may change the tone, but 9-volt battery works well enough even though it calls for 12 volts.
- One 9 volt battery snap connector Radio Shack 270-0325 (\$1.99 pkg of 5). Note unit pictured uses ½ of a test clip lead. Use what you have.
- Strap hinge such as the Stanley 14-0460 4 inch (Lowe’s 315667) (\$2.98 for pkg of 2).
- Generic Delta Faucet Seat Spring kit (Lowe’s # 175863) or equivalent. (\$1.09) Use one of the two larger springs. Stretch it longer to provide spring-back of the strap hinge telegraph key.
- Use number 8 hardware screws and nuts or equivalent depending on what you have in your junk-box.
- Cabinet knob or equipment foot for key knob.
- Cap nut (optional) # HM 8-32 (Lowe’s # 58111) or equivalent.
- Miscellaneous hookup wire
- Wooden base block. Photo below shows a pinewood derby car display block leftover from 2006.

Other notes:

The stretched faucet spring might be a little stiff as compared to a professional key, but it suffices quite nicely. Experiment with lighter springs if you have them.

If one is comfortable around resistors, capacitors, transistors and other electronics and soldering irons, check the internet for “code practice oscillator” circuits that can be purchased or built. The Electronics Merit Badge booklet shows a code practice oscillator sample circuit on page 29 even though some components are not labeled. Share multiple parts with a fellow scout.

A garage vice helps in bending the door hinge or you can use a pair of vice-grips.

*Note: Ham radio licenses no longer require code proficiency even though code is still used regularly in day to day operations. Knowing code adds romance and mystery to radio communications.

