

*amateur radio license required to operate on the air!*

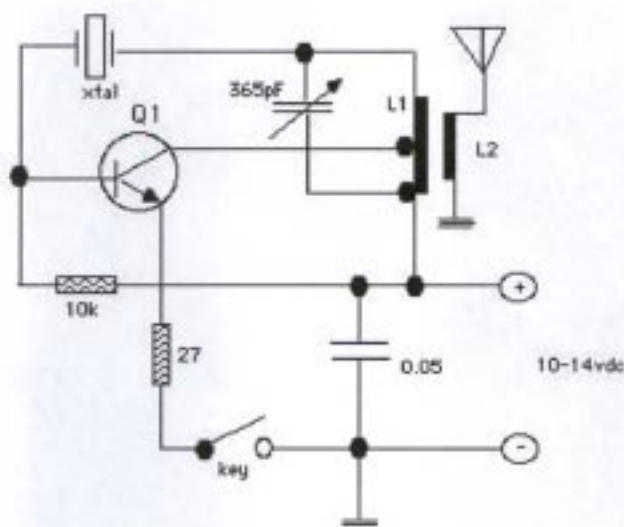


## 500mW CW TRANSMITTER

Cost estimate: \$10

A **very** quick and easy way to get on the air is to build a "Michigan Mighty Mite" CW transmitter for 160, 80, 40 or 30 meters originated by Ed Knoll, W3FQJ and developed by Tom Jurgens, KY8I. It can't get simpler than this! I made my very first QSOs with a 40-meter version (photo). It has very few parts, costs almost nothing, and **it works!**

Output power is about 500 milliwatts with a 12-volt power supply. To operate, attach 50-ohm dummy load or appropriate 50-ohm antenna (do yourself a favor and use a [half-wave dipole antenna](#) to avoid tuners and assure good results) and ground, insert crystal and close the key. Adjust the variable capacitor for the cleanest signal that has the most power (compromise). That's it! You're on the air, and can confirm that it's working with [field strength meter](#). Power output can be figured with a common multimeter by using a very simple [wattmeter](#) circuit.



### Q1:

2N3053, 2N2222, SK3265 or similar inexpensive general-purpose NPN transistor. I use a plastic-case transistor that came in a bargain-pack from Radio Shack - works fine. Use heat sink - try an alligator clip if you don't have a heat sink handy.

### TANK COIL:

use a 1.25" diameter form (35mm film canister, pill bottle, etc.) and #20 - #22 AWG enameled ("magnet") wire. To make tap, wind L1 to the "tapped at" number of turns (see table below). Make a loop about 1 inch long, twist it a few times and finish winding. Sand the insulation off the end of the loop. This is your tap. After winding L1, wrap it with a thin layer of masking tape and wind L2 on top of the tape **in the same direction** as L1. Secure L2 with more tape and finish by sanding insulation off remaining leads.

#### L1:

(primary/collector windings)  
160m--60 turns, tapped at 20  
80m--45 turns, tapped at 15  
40m--21 turns, tapped at 7

#### L2:

(secondary/antenna windings)  
160m-- 8 turns  
80m---6 turns  
40m---4 turns

30m--15 turns, tapped at 6

30m---4 turns

**XTAL:** fundamental-mode crystal for desired frequency.

About that variable capacitor - the unit in the photo is a discontinued item from Radio Shack, but **NO PROBLEM** - salvage one from an old transistor AM Radio or try a trimmer capacitor. Of course, a fullsize variable will work - but it will also be bigger than the rest of the transmitter! Tracking down variable capacitors at a good price is a noble challenge and part of the game.

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