

Club Project Ideas

KCØRPS & WØLIC

AUGUST 2, 2014

Project Approach



- ▶ Where to Build
 - ▶ Build at meeting
 - ▶ Build at home
- ▶ How to Build
 - ▶ Scratch built
 - ▶ Kit built

Club Meeting Projects



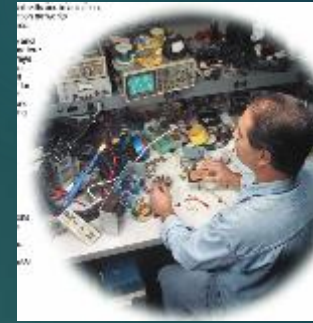
- ▶ Simple satellite operations – HT, DIY antenna or inexpensive hand held antenna
- ▶ 300 ohm twin lead J-Pole 2 meter antenna for HT, use antenna analyzer to tune
- ▶ Trouble shoot existing equipment (bring in to meeting with test equipment, work through troubleshooting process)
- ▶ Baluns (1:1, 4:1, etc.)

Scratch Built Ideas



- ▶ Active Load like <http://freecircuitdiagram.com/2008/08/26/variable-high-power-resistor-for-power-supply-testing/>
- ▶ RF field strength meter
- ▶ Battery Monitor in QST 6/2013
- ▶ Baluns (1:1, 4:1, etc.)
- ▶ Battery tester/plotter
- ▶ Antenna Tuner like “A 100-W Compact Z-Match Antenna Tuner” 2013 ARRL Handbook p. 24.1
- ▶ “Measure Inductance and Capacitance with a DVM” 2003 ARRL Handbook p. 26.25, 2010 ARRL Handbook section 25.5.4, two circuit boards that interface with DVM/VOM

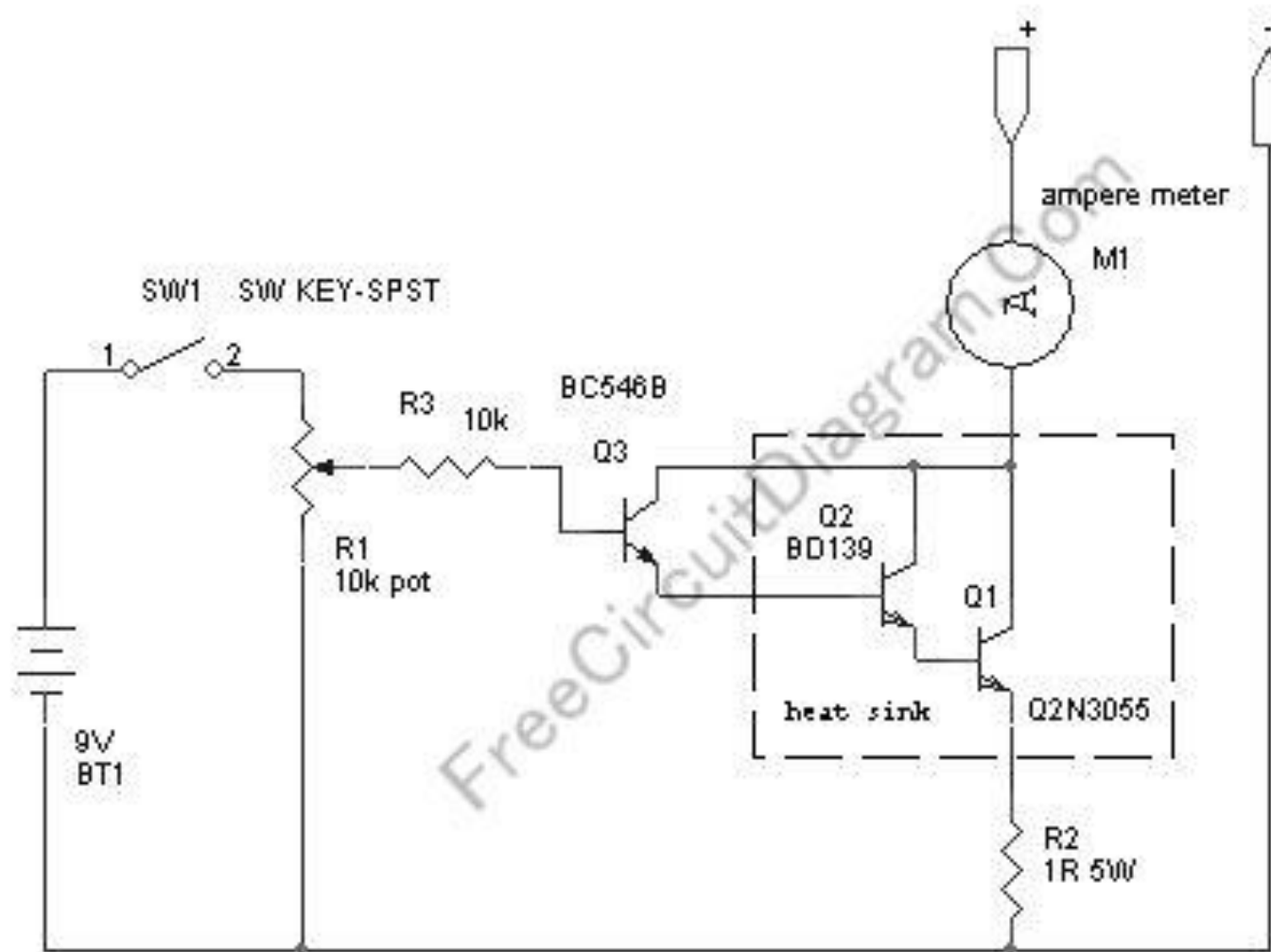
Kit Ideas



- ▶ We could order a kit (for example the RockMite][, <http://www.qrpme.com/?p=product&id=RM4>) of some sort for around \$30 - \$50.
- ▶ Analog QRP Transceiver (such as the OHR-100A, <http://www.ohr.com/ohr100a.htm>) ~\$179
- ▶ WSPR receiver and/or transmitter kit. Transmitter at: <http://w5olf.site11.com/>. ~\$50 A receiver kit from someone else shows up on eBay from time to time.
- ▶ Elecraft XG3 signal generator kit \$89 http://www.elecraft.com/elecraft_prod_list.htm#xg3
- ▶ Code Practice Oscillator like <http://www.mtechnologies.com/misc/ttone.htm> \$25 (or maybe a combo straight key and electronic keyer practice oscillator)

THE END

Active Load



100W Compact Z-Match Antenna Tuner

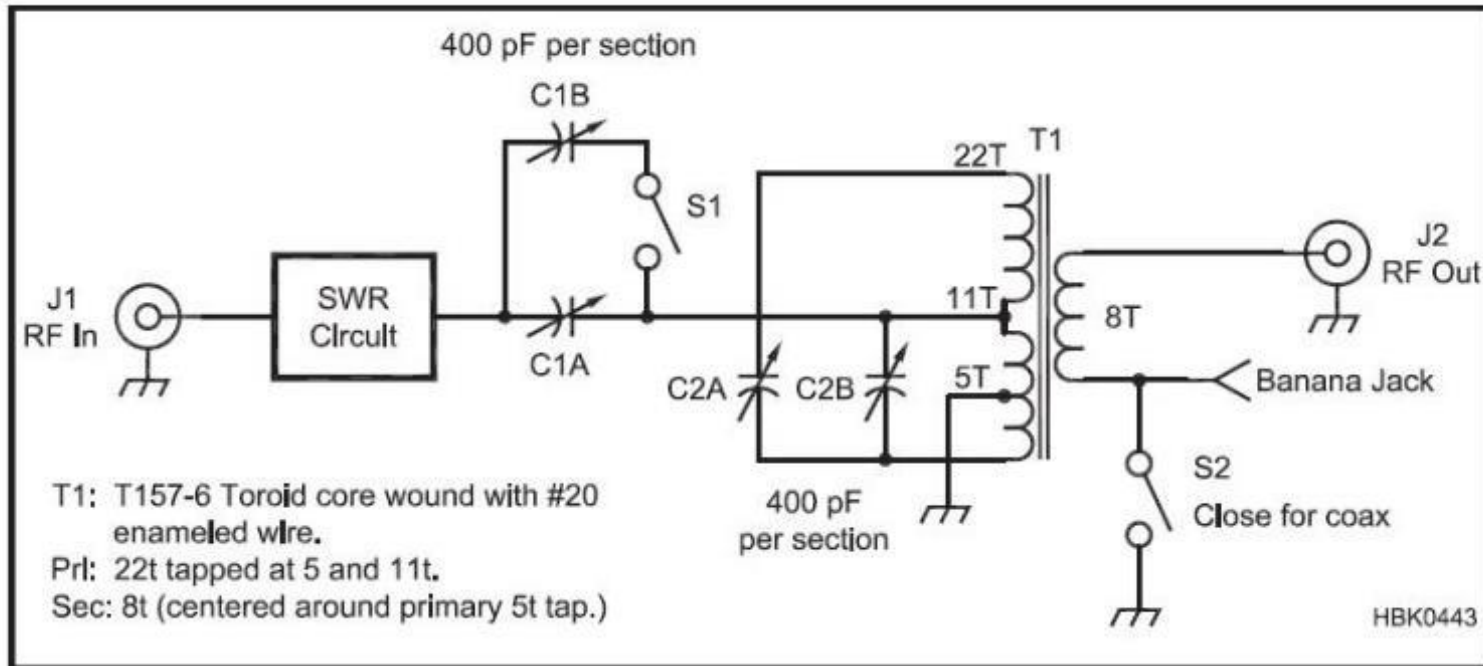


Fig 24.2 — Schematic of the 100-W Z-Match tuner.

C1, C2 — 400 pF per section, 2-section variable capacitor (Oren Elliott S2-399, www.orenelliottproducts.com). If you substitute another variable capacitor, use one with at least 350 pF per section, rated at 500 V RMS minimum.

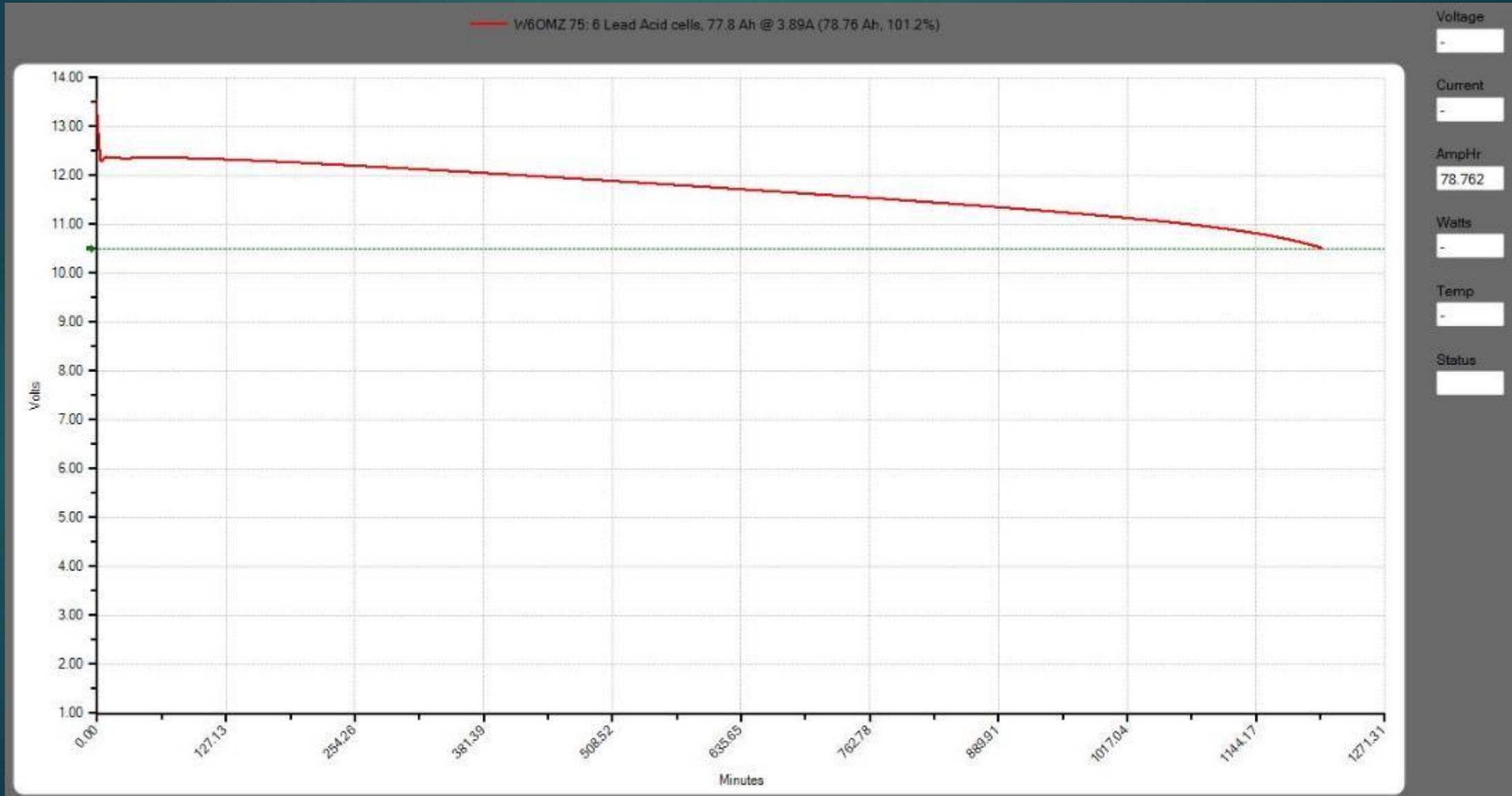
J1, J2 — SO-239 connectors.

S1, S2 — SPDT mini-toggle switch.

T1 — Primary: 22 turns #20 AWG enam wire tapped at 5 and 11 turns. Secondary: 8 turns, with 4 turns either side of the primary 5 turn tap. Wound on T157-6 toroid (Amidon Associates, www.amidon-inductive.com).

Enclosure (Eagle, 40UB103 from www.mouser.com).

Battery Test/Plotter



Measure Inductance with a DVM

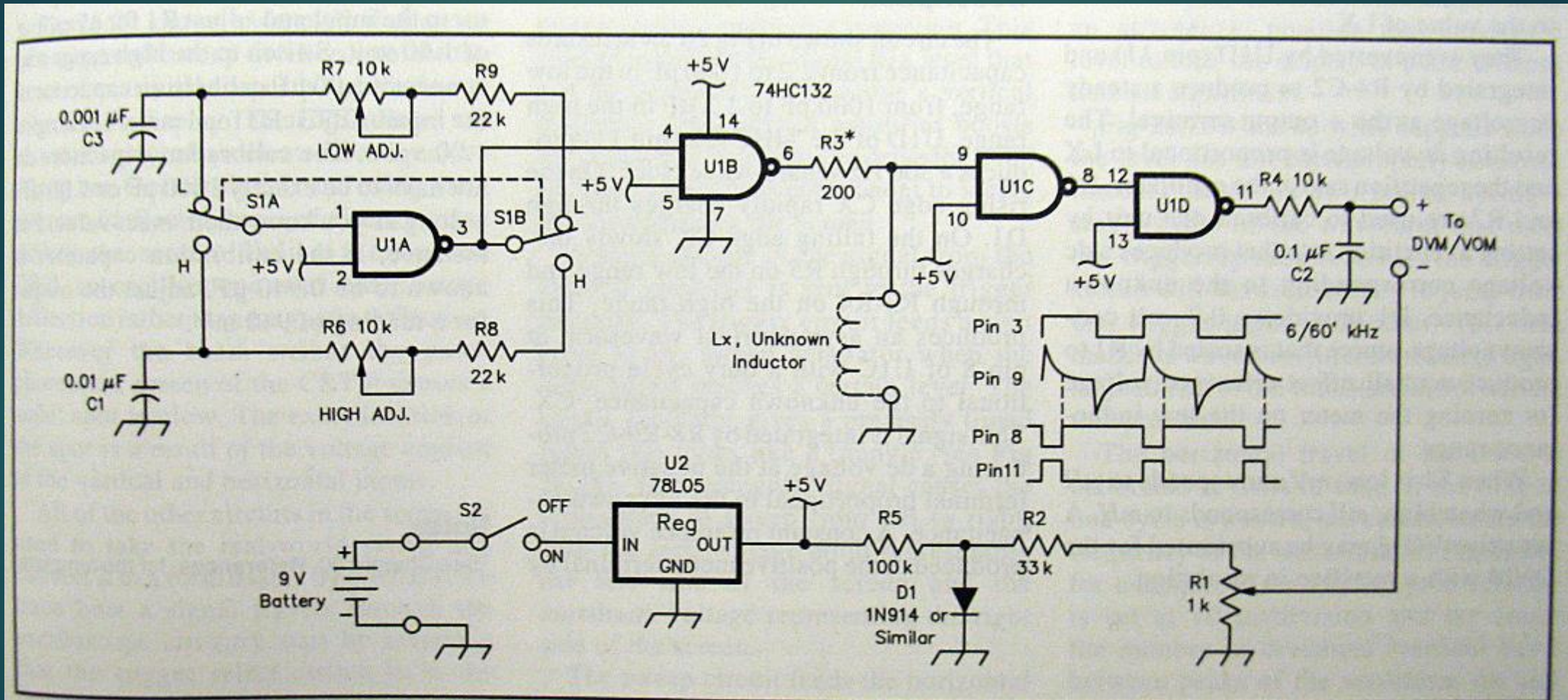


Fig 26.23—All components are 10% tolerance. 1N4148 or equivalent may be substituted for D1. A LM7805 may be substituted for the 78L05. All fixed resistors are 1/4-W carbon composition. Capacitors are in μF. R3 value may need to be increased or decreased slightly if calibration cannot be achieved as described in text.

Measure Capacitance with a DVM

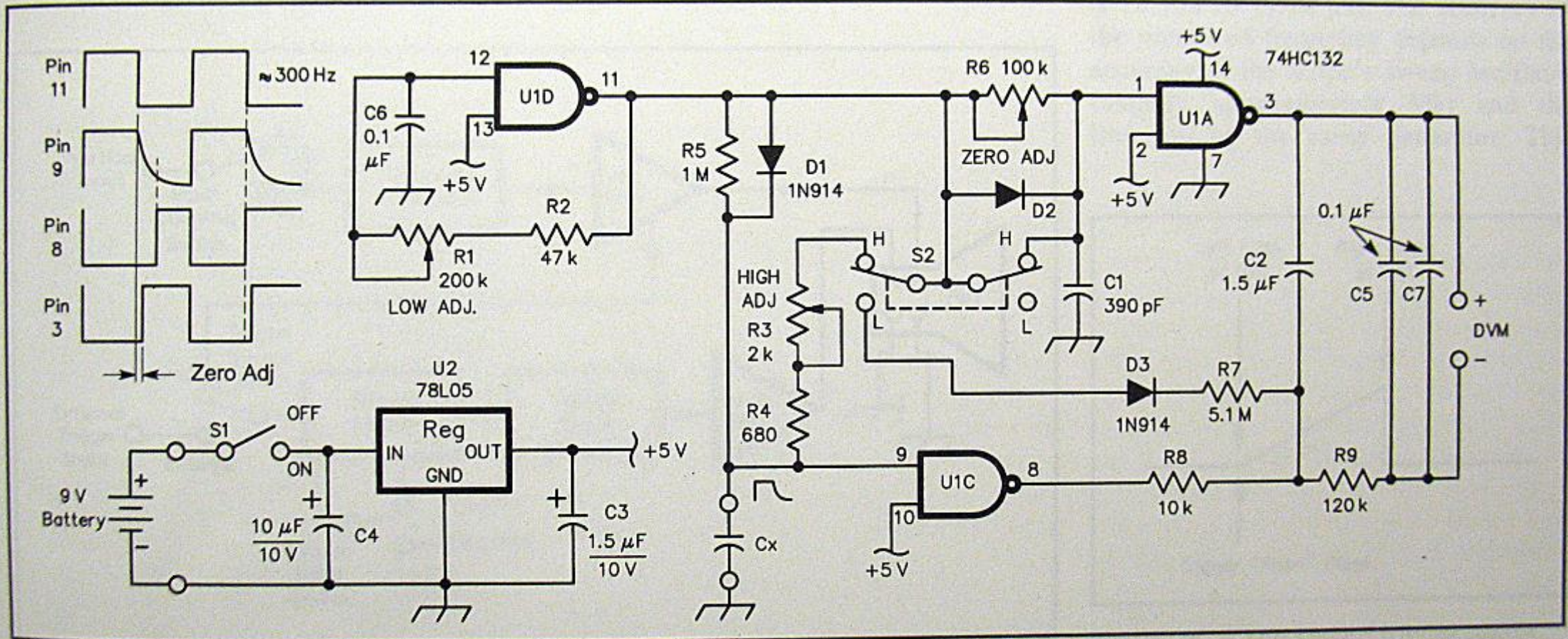
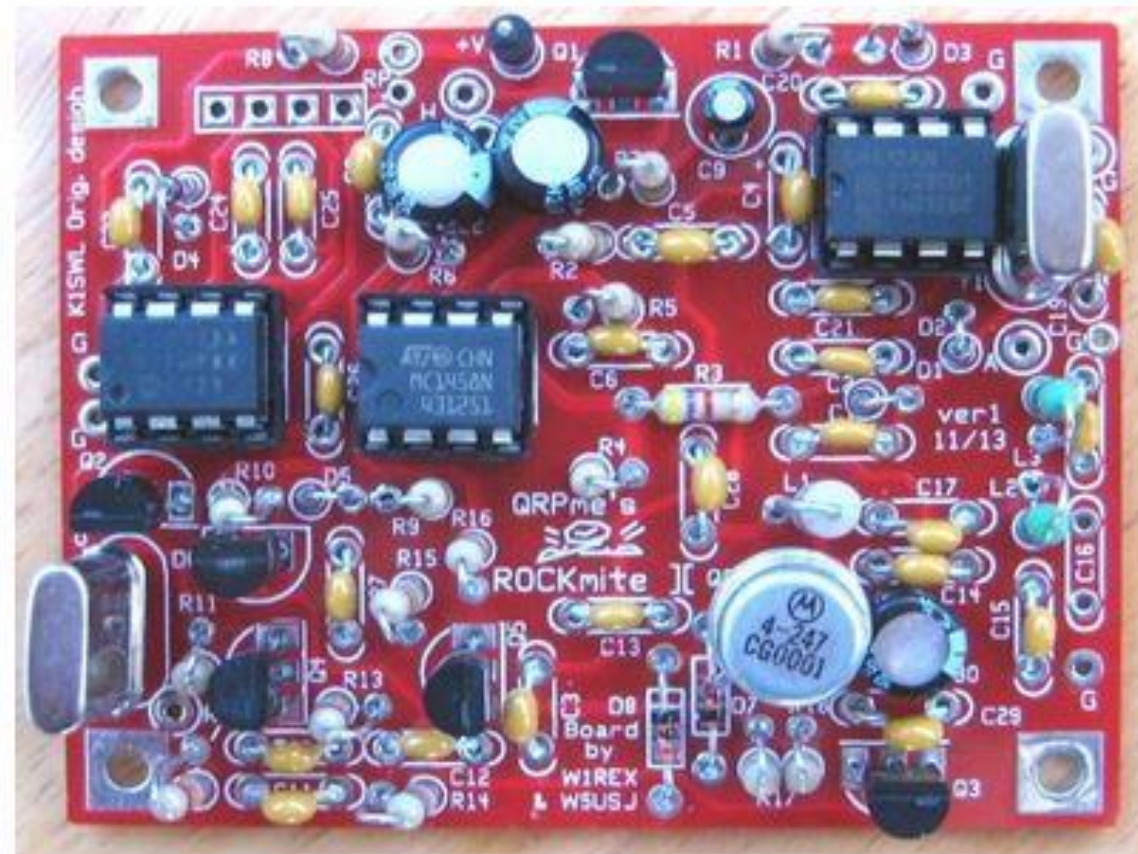


Fig 26.24—All components are 10% tolerance. A LM7805 may be substituted for the 78L05. All fixed resistors are 1/4-W carbon composition. Capacitors are in μF unless otherwise indicated.

RockMite] [

Rockmite] [40m Transceiver

Price: \$40.00



Oak Hills Research-100A



OAK HILLS RESEARCH
QRP HEADQUARTERS



The OHR 100A CW Transceiver Kit \$179.95

WSPR Transmitter

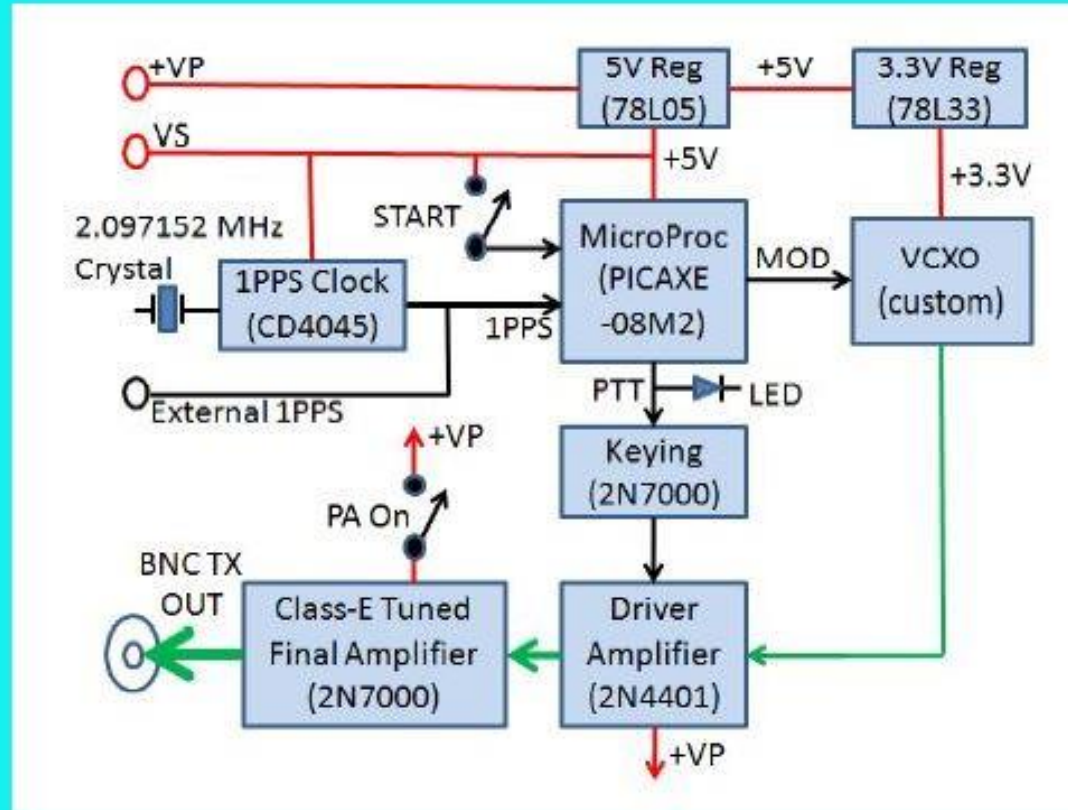
The WSPR Transmitter-Kit that need no computer.

We can deliver now 2 Versions. One for 30 meters and one for 20 meters. Only 12 Volts and an Antenna is needed.



WSPR Theory

Theory of Operation. The block diagram for the WSPR-AXE is shown below.



The price of the WSPR-AXE Kit is \$69 plus \$5 in US S&H and \$10 worldwide S&H.

Elecraft XG3 Signal Generator

ELECRAFT® XG3 RF Signal Source



- Miniature RF source for shack or field use – only 2.5 x 4.4 x 0.9”
- Synthesized signal tunable in 1-Hz steps
- 1.5-200 MHz range (up to 1400 MHz via harmonics)
- 12 programmable bands for 160-2 m (or arbitrary frequencies)
- Four calibrated power output levels:
 - 107 dBm (1 uV)
 - 73 dBm (50 uV, S9)
 - 33 dBm (S9+40)
 - 0 dBm
- Two programmable sweep functions

Wide-Range Synthesized RF Source

The XG3 is a programmable, 160-2 m RF signal source with four calibrated output levels. It's ideal for receiver calibration, sensitivity tests, signal tracing, and as a VFO for home-brew projects. It's also useful outdoors—for antenna evaluation, field strength measurements, micro-power beacons, etc.

Power for the XG3 can be provided by its internal 9-V battery or by an external power supply. Auto power-off is provided to conserve battery life.

Remote Control and Programmable Sweeps

The XG3's serial port allows you to use a computer to set up its frequency and output level, assign frequencies to band switches, and set up sweep step size and rate. You can use the supplied PC software, or write your own XG3 applications.

The XG3's RS232 drive circuitry is intended for short cable lengths (6' supplied). You can also use the Elecraft KUSB or other USB-to-RS232 adapters, greatly extending the usable cable length.



ELECRAFT, INC.

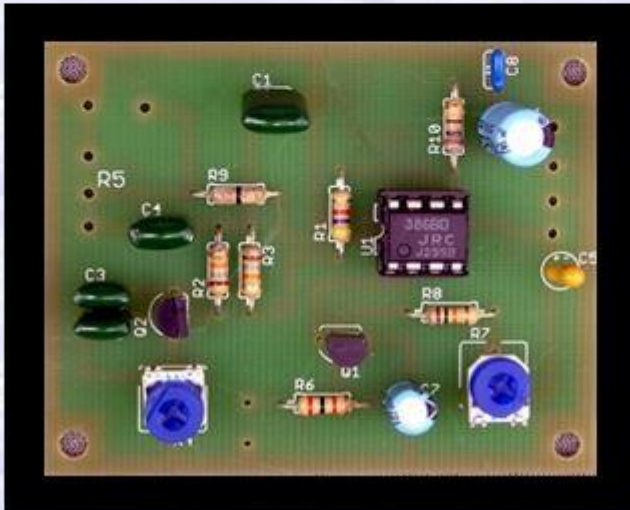
PO Box 69, Aptos, CA 95001-0069

Phone: (831) 763-4211
sales@elecraft.com

FAX: (831) 764-4218
www.elecraft.com

Code Practice Oscillator

Morse Express T-Tone Code Practice Oscillator Kit



N1KSN Tiny Keyer 2

