



# SHACKNEWS

## HIGHVELD AMATEUR RADIO CLUB

### Third Quarter 2017



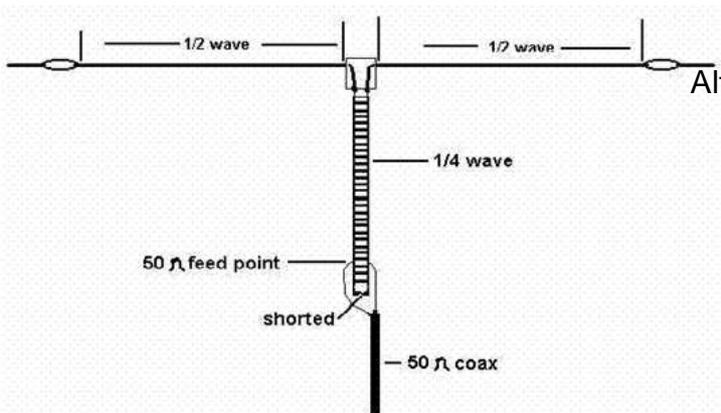
ZS6HVB  
Affiliated to the  
SARL

### COMMUNICATION IS THE NAME OF THE GAME

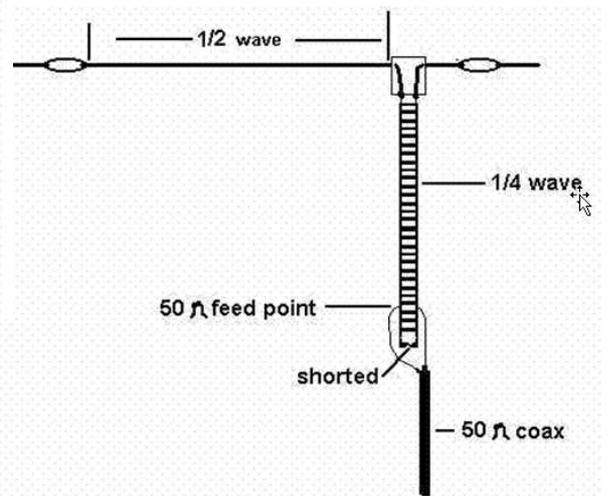
The next meeting to be held takes the form of an Antenna Build Project. This takes place at the QTH of OM Rex on Sunday 24 September 2017 from 11:00. Also planned is a bring and braai. If you have an antenna you would like to test bring it along. If you have a rig you would like to test bring it along as well. If you have an idea for an antenna let us know about it.

Some ideas to tryout using Ladder Line.

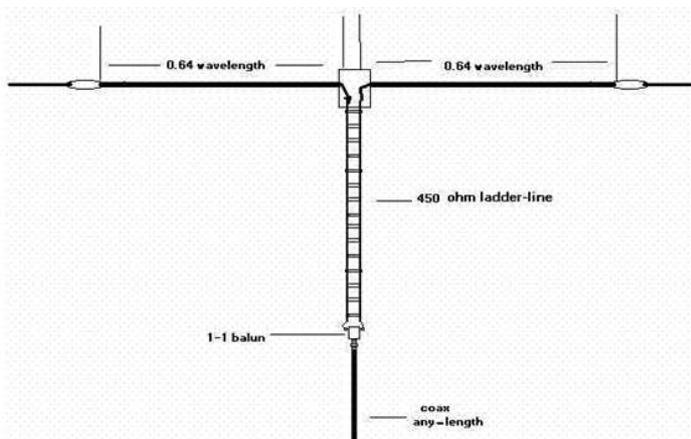
Two-Element Collinear Dipole



Alternate Method of feeding an End-Fed

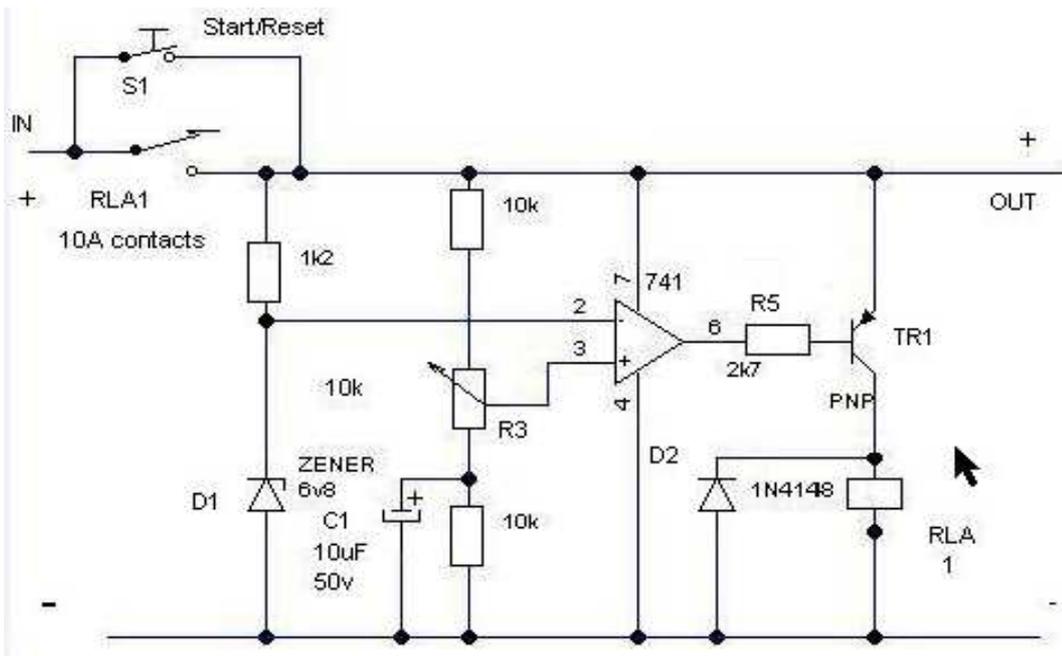


Extended Double Zepp Antenna



## An over voltage and overload trip circuit

Currently in use in my shack



The unit described is intended for inclusion into an existing p.s.u. and not only provides over voltage protection for your rig but also offers protection of the p.s.u. in the event of a short-circuit overload. Built on a p.c.b. roughly 50 x 25mm, it is easily housed and requires only three connections to be made to the p s u, plus the reset push-button. The lead to the existing output terminal (Terminal "A") of the p.s.u. is disconnected and taken to the p.c.b. (Terminal "B"). In addition a "push-to-make" normally-open switch is connected across these points and may be located at some convenient place on the p.s.u. front panel.

The diagram shows the circuit of the overload device from which it will be seen that at switch-on, the p.s.u. output voltage appears at "A". Pressing the reset button (S1) applies this voltage to the trip circuit and output. The voltage at pin 2 of the op. amp is stabilized at 6.8V whilst that at pin 3 is set by means of R3 to about 6.5V. Under these conditions the op amp is driven into negative saturation. The output at pin 6 is at or near earth potential and the transistor TR1 is driven on. The relay is energized and the contacts closed, holding the p.s.u. output on when S1 is released. Should anything now occur to cause the p.s.u. output voltage to rise to the extent that the voltage at pin 3 exceeds the Zener voltage, the op. amp will be driven into positive saturation and the voltage at pin 6 will rise to near supply potential, cutting off Tr1.

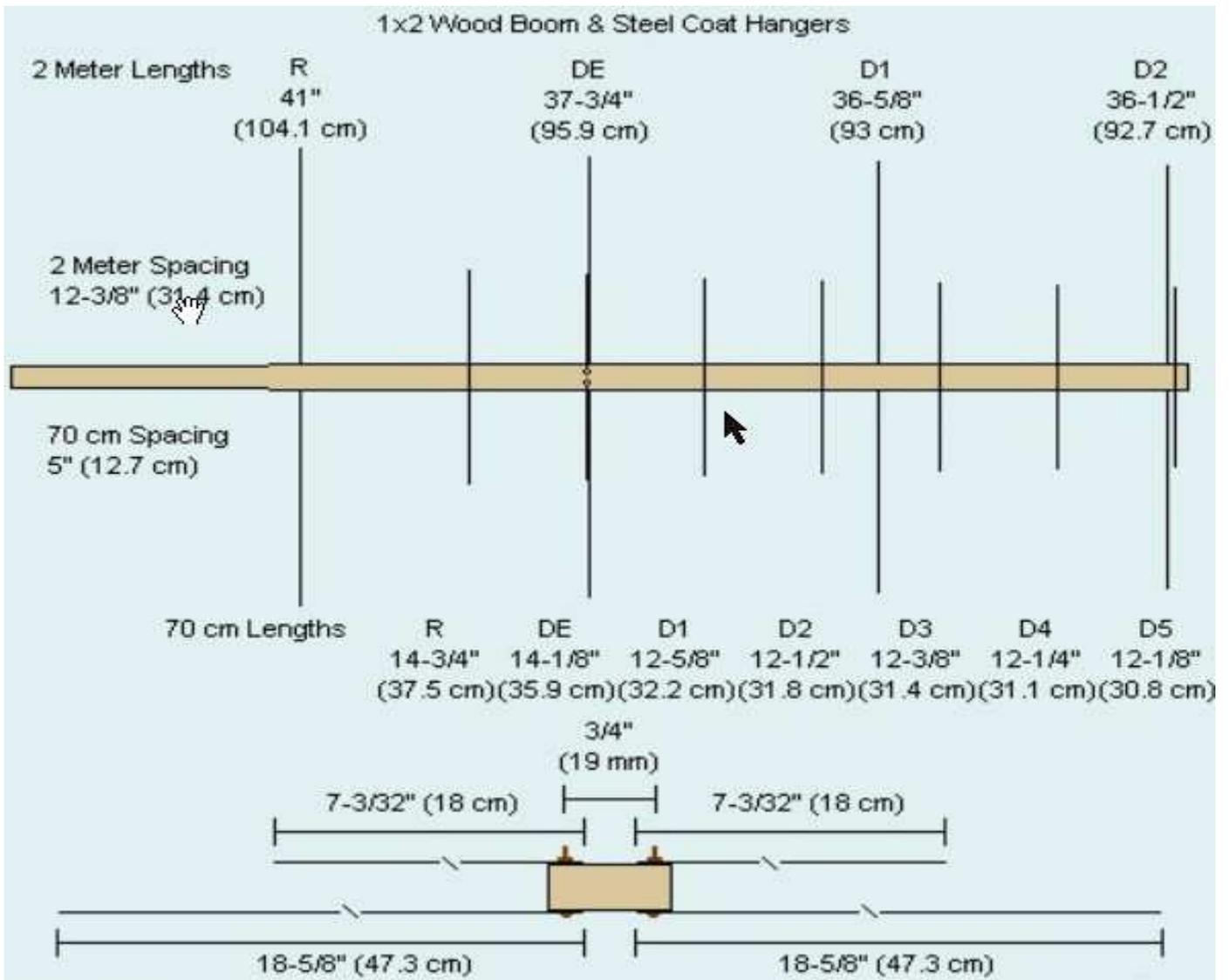
The relay will now open, isolating the output.

Should a short circuit occur on the output side, the voltage supply to the p.s.u. will collapse *ipso facto* and the relay again will open, isolating the p.s.u. from the damaging overload.

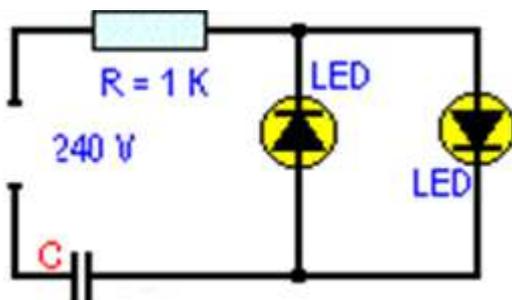
With the p.s.u. switched on the delivering its normal output, rotate the preset R3 slowly until the relay trips. Measure the voltage at pin 3, Back off R3 until this voltage is reduced by 0.3V. The circuit will, not now trip until the output voltage rises above 13.8V by about half a volt, i.e. to about 14.3V. This is a "safe" margin as most 13.8V equipment can be run safely up to about 15V without danger.

The function of the 10 $\mu$ F electrolytic is to prevent any occasional "spikes" from tripping the relay. Resistor R5 is a base-current limiting resistor. The resistance of the coil of the relay is about 4000. Diode D2 protects TR1 from the back e .m. f from the relay coil.

A 2M and 70cm beam antenna on the same boom



LED diode connected to 220/240 Volts, 50 Hertz



With a 0.22 uF non-polar capacitor the reactance will be 14.468 ohms, and the current through the LED (or LEDs) will be 16 mA (milliamps). The formulas that were used are:

- $X_c = 1/(2\pi fC)$ . Capacitive reactance formula.
- $I = V/X_c$ . Ohm's Law for the capacitive reactance

Where:

- $\pi = 3.1416$
- $f$  = frequency (50 or 60 hertz)
- $C$  = capacitor value (farads)

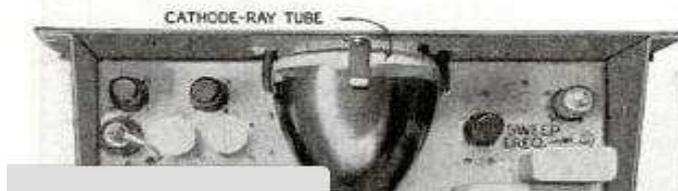
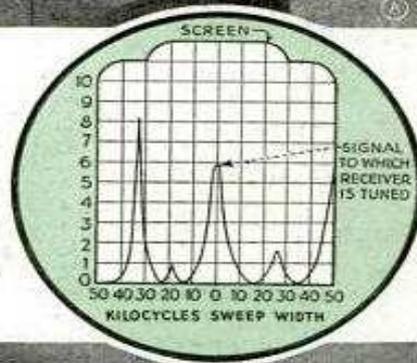
Back in time

# Panoramic Receiver the "Electronic Detective"

By Cyrus T. Read, W9AA

ONE of the many important wartime duties of the cathode-ray tube is the detection of illegal transmitters operated by enemy agents. Used in an adapter unit connected to a Hallicrafters type SX-28 communications receiver, this tube makes visible a 100-kilocycle section of the radio frequency spectrum and permits the operator of a monitoring station to observe simultaneously all transmissions in that portion of the wave band. Weak signals from illegal stations that could easily be missed in the noise and "static" of normal loudspeaker reception are plainly visible on the cathode ray tube screen.

Racked as shown in photo (A) the panoramic adapter unit (B) is mounted above the receiver; a small part of the output of the receiver's first detector is fed into the input of the adapter through a coupling resistor. Connections are quite simple, as shown in rear view photo (C). The signal to which the receiver is tuned appears as a glowing inverted "V" in the center of the cathode ray tube's screen. In addition, all other signals up to 50 kilocycles on either side appear as illustrated in the inset sketch of the tube screen. As the receiver is tuned, the signals move across the screen so that the station being received always appears in the center, or zero, position.



## Club Information

**Postal address** PO Box 19937 Sunward Park 1470

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**Back Issues of Shacknews available on the club website**

**e-mail** [zs6hvb@zs6hvb.za.net](mailto:zs6hvb@zs6hvb.za.net)

**Repeater** 145.1875 MHz input - 145.7875 MHz output

**Bulletins** Sunday morning - 145.7875 MHz & 7162 KHz @ 08h45.

Monthly meeting venue

Every Third month  
On the 3rd Saturday of the month  
at 14:30.

@ various venues

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