



SHACKNEWS

HIGHVELD AMATEUR RADIO CLUB

JULY 2008

COMMUNICATION IS THE NAME OF THE GAME

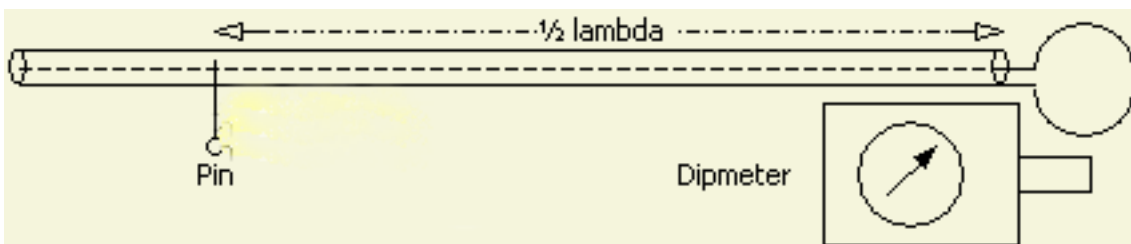
Meeting Chris ZS6COG gave a talk on disaster management in the Ekurhuleni Metropolitan Municipality. Frank ZS6TMV also give a talk and demo on baluns which was very interesting. The meeting for July will "be bring and demonstrate". In other words something electronic/radio that you have built from a kit or book. Bulletin readers please the club web site for the latest list. Early reminder. **AGM is on 6 September 2008**

SSC Meeting The August meeting will be held at the home of Doug & Merle on Saturday 9 August.

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½ or ¼ wave coax cable Submitted by Frank ZS6TMV

To make a ½ or ¼ wave coax cable for a specific frequency, use a (grid)dip meter. Taking the nominal velocity factor into account, (it is 0.66 for cables with a solid polythene dielectric such as RG58, RG217 or RG174) unroll a little over a half wave. Connect a little loop to the free end (see fig). At the expected ½ wave point, pierce the cable with a pin, shorting the braid to the inner conductor. If the dip meter, coupled to the loop, dips at the desired frequency, the actual ½ wave point has been found. If the dip frequency is lower, try again a little closer to the loop, and vice versa, till the correct point is found. If your dip meter calibration is not accurate enough, listen for it on your station receiver. The ¼ wave length is exactly one-half of the ½ wave length found. If the cable is to be used outdoors, do not forget to seal the pinholes.



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Here are some signs that you won't find anywhere else in the world except in Africa.

In a restaurant in Zambia: "Open seven days a week and weekends."

On the grounds of a private school in South Africa: "No trespassing without permission."

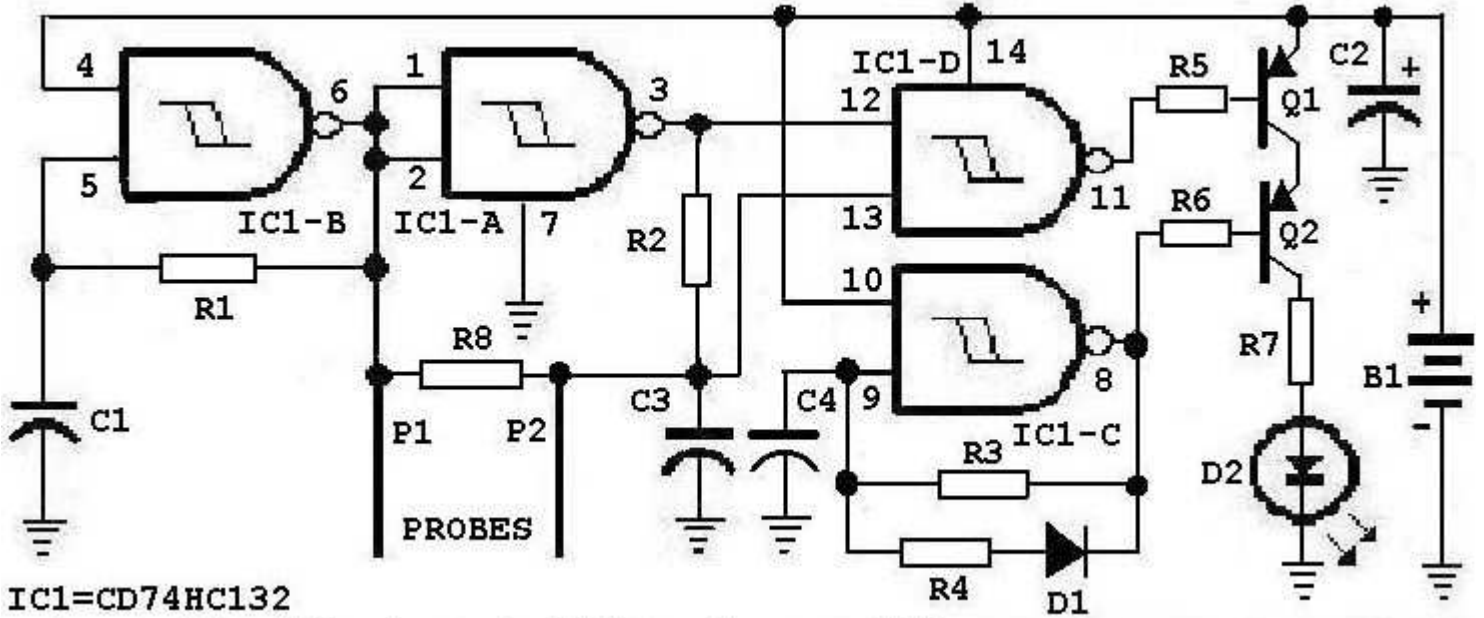
On a window of a Nigerian shop: "Why go elsewhere to be cheated when you can come here?."

On a poster in Ghana: "Are you an adult who cannot read? If so, we can help."

In a hotel in Mozambique: "Visitors are expected to complain at the office between the hours of 9.00 am and 11.00 am daily."

A sign seen on a hand dryer in a Lesotho public toilet: "Risk of electric shock-Do not activate with wet hands."

Plant water detector - Could be a hit with the XYL



IC1=CD74HC132

Note: CD74HC132 pin-out differs from CD4093

IC1 -CD74HC132

R3 -3.9M

B1-Two AAA alkaline cells, with holder R5,R6-680

C1, C3-1nF (0.001uF) or 2.2nF (0.0022uF) R7- 15

C2-100uF/16V electrolytic R8-47K

C4-220nF (0.22uF) D1-1N4148 or 1N914

R1-470K (all resistors 1/4W, 5%) D2-MV8191 or HLMP-D101A

R2, R4- 100K Q1, Q2-2N4403 or 2N3906

Circuit Description:

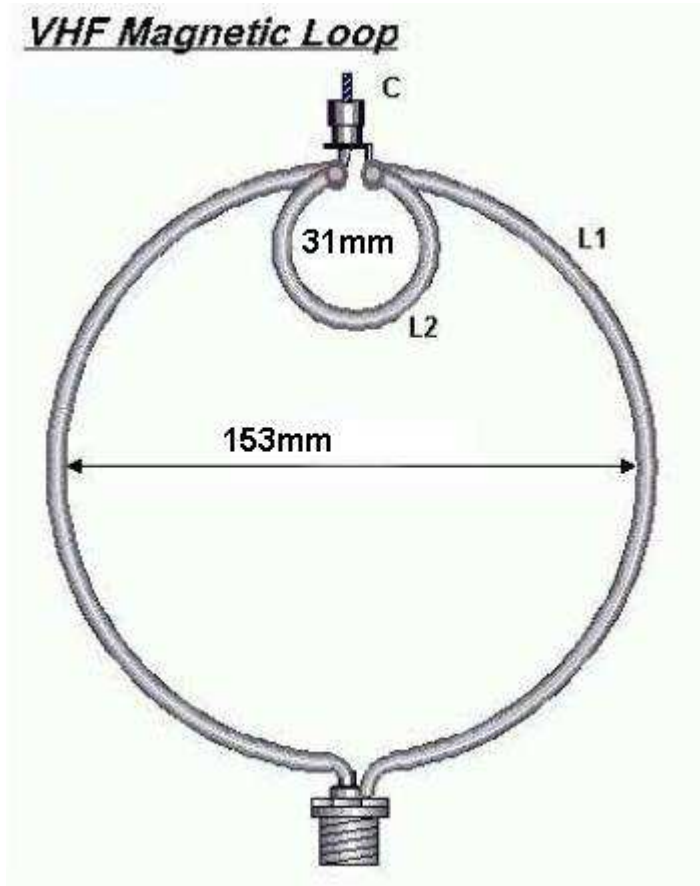
- 1) IC1D is a CMOS Schmitt trigger oscillator at about 2KHz. It starts and continues to oscillate with a supply down to 1.24V or less.
- 2) IC1A is an inverter.
- 3) IC1B is a Schmitt trigger NAND gate. Its output is low only when both inputs are at, or higher than the upper Schmitt trigger threshold voltage. With 47 ohms or less between the probes, an input is always low, so the output is always high. With a resistance of only R8 between the probes, the voltage across C3 is high most of the time, so the gates output is low for ½ the oscillator's period. With a resistance that is halfway, then C3 is charged high by that resistance when the oscillator's output is high, then is discharged when the oscillator's output is low. When C3 is being discharged, then pin 12 of the gate is high, and pin 13 is also high until the discharging voltage of C3 reaches the lower Schmitt threshold voltage. During this time, the gate's output is low. So the low time of the gate's output depends on the value of the resistance between the probes. This is Pulse-Width-Modulation of the low output of the gate.
- 4) IC1C is another CMOS Schmitt trigger oscillator at about 2Hz. D1 and R4 discharge C4 quickly so that its output is low for only about 15ms with a 3V battery, and about 25ms with a 2V battery.
- 5) The series connection of Q1 and Q2 performs like a NOR gate, so that the LED lights only when both inputs to the transistors are low.
- 6) R7 is a current-limiting resistor for the 1.8V LED. With a 3V battery, the LED current is about 35mA.

Circuit Operation:

- 1) When the soil is very dry, the LED flashes brightly, since the soils resistance is very high.
 - 2) When the soil has been watered a few days before, but is drying, the LED flashes dimly,
 - 3) When the soil is damp because it has been recently watered, the LED is off.
- Note that different soils have a different resistance. Also, sometimes, watered soil will continue to have a high resistance until the soil absorbs the water, a delay of about one hour.

Although the LED's current is 8mA with a 3V battery, it is lighted for only a maximum of only about 1/64th of the time, so its maximum average current is only 550uA. The remainder of the circuit draws 200uA. The total is 750A for new batteries, and about 250uA for run-down batteries. Therefore the exponential current of 300uA will continue with 1000mA/hr batteries for 2000 hours, or about 4.6 months. The LED's current is logarithmic with the soils resistance, so that when the resistance is one-half, then the LED's current is one-tenth. If you water the plants when they need watering, then the average LED current will be very low, and the batteries should last for about one year.

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C = 0 - 20 pf
 L1 - ¼ wave for 145Mhz use copper or brass 49cm long and 3mm thick
 L2 - 1/5 of the length of L1 = 9.5 cm long

A magnetic loop has a very small bandwidth but insensitive to man made noise. It is smaller than a conventional antenna for the same frequency and has a gain that can be compared to a quarter wave antenna even if the loop is mounted a meter from the ground. All in the theory of course. It has a bi-directional radiation pattern like a dipole and is very sensitive. This means you you will need to tune the antenna using "C" about every 0.5 Mhz on VHF for maximum reception and SWR. Ideal for portable use or as a repeater antenna.... Seen to be used on top of a HT.

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An old country doctor was celebrated for his wisdom. "Dr. Sage," a young man asked, "how did you get so wise?"

"Weren't hard," said the doc. "I've got good judgment. Now, good judgment come from experience," he continued. "And experience - well, that comes from having bad judgment." ...

I've learned....

That the best classroom in the world is at the feet of an elderly person.

That when you're in love, it shows.

That just one person saying to me, "You've made my day!" makes my day.

That having a child fall asleep in your arms is one of the most peaceful feelings in the world.

That being kind is more important than being right.

That you should never say "no" to a gift from a child.

That I can always pray for someone when I don't have the strength to help him in some other way.

That no matter how serious your life requires you to be, everyone needs a friend to act goofy with.

That sometimes all a person needs is a hand to hold and a heart to understand.

That simple walks with my father around the block on summer nights when I was a child did wonders for me as an adult.

That life is like a roll of toilet paper. The closer it gets to the end, the faster it goes.

That it's those small daily happenings that make life so spectacular That under everyone's hard shell is someone who wants to be appreciated and loved.

CLUB INFORMATION

Postal address PO Box 19937 Sunward Park 1470

Monthly meeting venue

Website <http://www.qsl.net/zs6hvb/>
<http://www.qsl.net/zs6ssc/>

Witwatersrand Rifles HQ
Cnr Barlow and Cavaleros Str
Industries West
Germiston

e-mail zs6hvb@gmail.com

Bulletins Sunday morning - 145.7875 MHz & 7062 KHz @ 08h45.
Relay - 80M - 3662KHz

First Saturday of the month at 14:30

Committee

Chairman	Doug Wetton	ZS6BXU	011-680-4906
Vice Chairman	Frank van Wensveen	ZS6TMV	082-294-2648
Secretary/Treasurer	Berridge Emmett	ZS6BFL	011-893-1291
Repeater/Packet/Technical	Ton van Dijk	ZS6ANA	011-432-5494
Shacknews Editor	Berridge Emmett	ZS6BFL	011-893-1291
Shacknews Printing	Harry Lautenbach	ZS6LT	011-888-5362
Webmaster	Yvonne van Dijk	ZR6TBL	011-432-5494

Repeater

145.1875 MHz input

145.7875 MHz output

Linked on a Sunday morning during bulletin time to 70 cm - 438.850 MHz

NOTICE OF MEETING

The **Annual General Meeting** of the Highveld Amateur Radio Club will be held at the Wits Rifles HQ on **Saturday, 6 September 2008 at 14:30**

Nominations for the committee must be in writing and must be received by the secretary not less than **one week** before the AGM

HIGHVELD AMATEUR RADIO CLUB

COMMITTEE NOMINATION FORM

I.....hereby
nominate

Name:.....Callsign:.....

to serve on the committee of the Highveld Amateur Radio Club

I confirm that I have received the agreement from the above person to serve on the Committee

Signed:.....

Callsign:.....

NOTICE OF PROXY

I.....hereby give my proxy

to.....

in order that he/she may vote on my behalf at the Annual General Meeting of the Highveld Amateur Radio Club

Signed:.....

Callsign:.....