



# SHACKNEWS

## HIGHVELD AMATEUR RADIO CLUB

AUGUST 2009

### COMMUNICATION IS THE NAME OF THE GAME

**Meeting** A smaller turnout than usual. The weather had something to with it. Rain and cold made it unpleasant to be away from home. As there was no agenda a round the table discussion was had. The forthcoming meeting will be the AGM which will be held on the 5 September 2009.

**SSC Meeting** Not a good turnout at this social event. A bit disappointing for the host who went to a lot of trouble organising and catering etc. Thanks to Rex and Ingrid for all they did as well as to the other ladies who brought "eaties". Next meeting is the 10 October. Venue to be announced later

---oooOOOooo---

### PSYCHIATRISTS vs BARTENDERS

Ever since I was a child, I've always had a fear of someone under my bed at night. So I went to a shrink and told him

"I've got problems. Every time I go to bed I think there's somebody under it. I'm scared. I think I'm going crazy." "Just put yourself in my hands for one year" said the shrink. "Come talk to me three times a week and we should be able to get rid of those fears."

"How much do you charge?"

"Eighty dollars per visit," replied the doctor.

"I'll sleep on it" I said.

Six months later the doctor met me on the street.

"Why didn't you come to see me about those fears you were having" he asked.

"Well, Eighty bucks a visit three times a week for a year is an awful lot of money! A bartender cured me for \$10. I was so happy to have saved all that money that I went and bought me a new pickup" "Is that so" With a bit of an attitude he said, "and how, may I ask, did a bartender cure you"

"He told me to cut the legs off the bed! - Ain't nobody under there now"

Screw those shrinks. Go have a drink & talk to your bartender

### ORIGIN OF ELECTRICITY

Electricity originates inside clouds. There, it forms into lightning, which is attracted to the Earth by golfers. After entering the ground, the electricity hardens into coal, which, when dug up by power companies and burned in big ovens called generators. Turns it back into electricity where it is transformed by TV sets into commercials for beer, which passes through the consumers and back into the ground, thus completing what is known as a "circuit"

## Thoughts on station earthing Submitted by Harold ZS6CAR

All sizes are American

The goal is to use as short as possible a ground wire between the shack and the rig, knowing that the longer the wire, the more ham-band frequencies will be 1/4 wave resonant. Shortening the wire is far more significant than increasing its diameter.

The only purpose of a larger diameter wire is to reduce the inductive reactance for whatever length of wire you are running, but larger wire is not a substitute for a short wire run.

A calculator is available online at <http://www.consultrsr.com/resources/eis/induct5.htm> to calculate the inductive reactance of a straight piece of wire of a given diameter and length. To take two examples, #14 wire has a diameter of 1.62814 mm. A run of 15 meters (appx. 50 feet) has an inductance of about 29.2  $\mu\text{H}$ . Changing the diameter to 2/0 wire (9.25 mm diameter) reduces the inductance to 26  $\mu\text{H}$  -- a little help, but not much.

On the other hand, a 1.5 meter (10 times shorter) run of #14 wire possesses inductance of about 2.2  $\mu\text{H}$ , and a 1.5 meter run of 2/0 wire only 1.7  $\mu\text{H}$ . Thus, a 50-foot run of #14 wire will have 13 times as much inductance as a 5 foot run of #14 wire, and 17 times as much as a 5 foot run of #00 wire, which means the longer wire has the potential to create up to 17 times as much voltage at the rig as the shorter wire, not even counting quarter-wave issues. The increase in inductance is not a linear function of wire length.

In this equation, L is the inductance in nH ( $10^{-9}$  henry), l is the length and d is the diameter of the wire/rod (both in cm).  $\mu$  is the permeability of the material ( $=1.0$ , except for iron and other ferromagnetic materials).

You can work through the formula if you wish, but a simple demonstration with the online calculator shows the effect. Holding all other factor equal, here are the inductance numbers for #14 wire at various lengths:

1 meter = 1.4  $\mu\text{H}$

10 meters = 18.7  $\mu\text{H}$  (10 times length gives 13.4 times inductance)

15 meters = 29.3  $\mu\text{H}$  (15 times length gives 21 times inductance) (this is your 50 foot wire)

100 meters = 233  $\mu\text{H}$  (ten times length gives 12.5 times inductance and  
100 times length gives 166 times inductance)

changing the wire size to #00 provides a little relief:

1 meter = 1.06  $\mu\text{H}$

10 meters = 15.2  $\mu\text{H}$

100 meters = 197.6  $\mu\text{H}$

As you can see, wire length is VASTLY more significant than wire diameter.

To compound the problem, inductive reactance as a direct function of frequency.

This says that if you quadruple the frequency, inductive reactance increases fourfold, Thus, RF energy imposed onto the ground wire at 28 MHz will encounter 4 times the inductive reactance as energy at 7MHz. This means that (setting quarter wave resonance issues aside) you'll get four times as much voltage drop over the wire and four times as much voltage at the rig on 10 meters as you would on 40 meters.

The problem is compounded by the higher probability that a longer ground wire will be quarter -wave resonant as you move to higher bands. Voltage at the rig is maximized at quarter-wave resonance or odd multiples thereof. a five-foot wire is fairly close to quarter- wave resonance on the six meter band, and the third multiple on 2 meters. Hmmm. I should look carefully at my setup. A wire run of either 4 feet or 6 feet would move the resonance points outside of ham bands. I think the distance of the ground stake above ground counts, so my 5 feet of 00 wire plus a foot of ground stake is less problematic than 5 feet between the rig and ground itself.

Lew K6LMP

**(POISON CENTRE TELEPHONE NUMBER : 080033344)**

**POISON TREATMENT CARD**

THE HOME IS FILLED WITH PRODUCTS LIKE PARAFIN, BLEACH, COSMETICS AND MEDICINES WHICH CAN POISON CHILDREN.  
 TELL YOUR COMMUNITY ALWAYS TO LOCK POISONOUS SUBSTANCES AWAY.  
 KEEP THIS CARD HANDY SO THAT YOU KNOW WHAT TO DO IN THE EVENT OF A POISONING.  
 HOW THIS CARD WORKS: MATCH THE COLOUR / SYMBOL OF THE SUBSTANCE SWALLOWED TO THE SAME COLOUR / SYMBOL BOX.

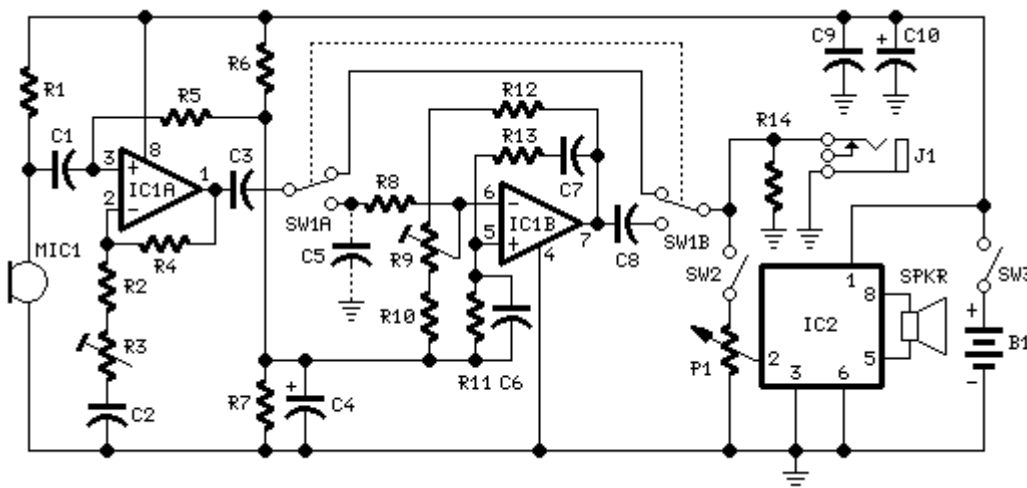
				SYMBOL	TREATMENT
★	ACID	◆	FABRIC SOFTNER	▲	PARACETEMOL
★	ALCOHOL	◆	FERTILIZERS	★	PARAFIN
★	AMMONIA	★	FIRELIGHTERS	▲	PESTICIDES
▲	ASPRIN	◆	FLUORIDE TABLETS	★	PERFUMES
★	BATTERY ACID	▲	GLUE (CONTACT)	★	PETROL
★	BATTERY (BUTTON)	★	GLUE (OTHER)	▲	PILLS
★	BENZINE	★	HYDROCHLORIC ACID	▲	RAT BAIT
◆	BLEACH	◆	HAIR COLOUR	★	SHAMPOOS
★	CAMPHORATED OIL	◆	HAIR PERM / STRAIGHTNERS	▲	SNAIL BAIT
▲	CARBON TETRACHLORIDE	◆	HYDROGEN PEROXIDE	▲	TABLETS
★	CAUSTIC SODA	★	IRON TABLETS	★	TURPENTINE
★	CHLORINE (FOR POOLS)	▲	INSECT REPELLENT	★	VARNISH
★	CONDY'S CRYSTALS	▲	INSECTICIDES	★	TOILET CLEANER
★	COSMETICS	▲	LINIMENTS (EG: WINTERGREEN)	★	VITAMINS
▲	COUGH SYRUP	▲	MEDICINES (ORAL)	★	WASHING SODA
★	DEODORANTS	★	METAL CLEANERS POLISHES	◆	WINDOW CLEANER
◆	DETERGENTS (CLOTHING)	★	MINERAL TURPENTINE	★	WHITE SPIRITS
◆	DISHWASHING LIQUIDS	★	MOTHBALLS	★	WEEDKILLERS
★	DISHWASH POWDER	▲	NAIL VANISH REMOVER	★	PAINT REMOVER (SOLVENT)
★	DISINFECTANTS	★	OVEN CLEANER	★	PAINT REMOVER (CAUSTIC)
★	DRAIN CLEANER	★	PAINT (OIL)	◆	DYES (FABRIC OR HAIR)

SYMBOL	TREATMENT
★	<ul style="list-style-type: none"> <li>DO NOT MAKE THE PERSON VOMIT.</li> <li>DO NOT GIVE THEM ANYTHING TO DRINK OR EAT.</li> <li>GET THEM TO A CLINIC OR HOSPITAL QUICKLY</li> </ul>
◆	<ul style="list-style-type: none"> <li>DO NOT MAKE THE PERSON VOMIT.</li> <li>GIVE THEM HALF A CUP OF MILK OR WATER IMMEDIATELY.</li> <li>CONTACT THE POISON CENTRE.</li> </ul>
★	<ul style="list-style-type: none"> <li>GIVE THEM HALF A CUP OF MILK OR WATER IMMEDIATELY.</li> <li>CONTACT THE POISON CENTRE.</li> </ul>
▲	<ul style="list-style-type: none"> <li>GIVE THE PATIENT ACTIVATED CHARCOAL TO ABSORB THE POISON.</li> <li>CONTACT THE POISON CENTRE OR;</li> <li>GET THEM TO A CLINIC OR HOSPITAL QUICKLY!!</li> </ul> <p><b>CHARCOAL MIXTURE:</b></p> <p>INFANTS: 1 GRAM ACTIVATED CHARCOAL PER KILOGRAM.</p> <p>CHILDREN: 15 - 30 GRAM ACTIVATED CHARCOAL AS A SINGLE DOSE. MIX WITH 240ML WATER.</p> <p>ADULTS: 50 - 100 GRAM ACTIVATED CHARCOAL AS A SINGLE DOSE. MIX WITH 300 - 500ML WATER.</p>

\* IF A POISONOUS SUBSTANCE COMES INTO CONTACT WITH EYES OR SKIN, RINSE THE AREA FOR 15-20MINUTES WITH WATER AND CONTACT A DOCTOR OR GO TO THE NEAREST CLINIC.  
 \* IF A CHILD HAS SWALLOWED MEDICINE OR A POISONOUS SUBSTANCE, SEND THE CONTAINER AND A SAMPLE OF THE MEDICATION OR POISON TO THE CLINIC OR HOSPITAL WITH THE CHILD.

**Voice manipulation device specially intended for props - 9V battery operation**



- P1-10K Log. Pot
- R1-R10-10K 1/4W
- R2-1K 1/4W
- R3-50K 1/2W Trimmer
- R4,R6,R7,R14-100K 1/4W
- R5-47K 1/4W
- R8-68K 1/4W
- R9-2K2 1/2W Trimmer
- R11-33K 1/4W
- R12-18K 1/4W
- R13-15K 1/4W

- C1,C2,C3,C8,C9-100nF 63V
- C4-10µF 25V
- C5-220nF 63V
- C6-4n7 63V
- C7-10nF 63V
- C10-220µF 25V

- IC1-LM358 Low Power Dual Op-amp
- IC2-TDA7052 Audio power amplifier IC
- MIC1-Miniature electret
- SPKR-8 Ohm
- SW1-DPDT Toggle or Slide Switch
- SW2,SW3-SPST Toggle or Slide Switches
- J1-6.3mm or 3mm Mono Jack socket
- B1-9V PP3 Battery (See Notes)

## Comments:

This kind of voice effect can be obtained by means of some audio computer programs. This design fulfills these requirements by means of a variable gain microphone preamplifier built around IC1A, a variable steep Wien-bridge pass-band filter centred at about 1KHz provided by IC1B and an audio amplifier chip (IC2) driving the loudspeaker.

The pass-band filter can be bypassed by means of SW1A and B: in this case, a non-manipulated microphone signal will be directly available at the line or loudspeaker outputs after some amplification through IC1A.

R3 sets the gain of the microphone preamp. Besides setting the microphone gain, this control can be of some utility in adding some amount of distortion to the signal, thus allowing a more realistic imitation of a telephone call voice.

R9 is the steep control of the pass-band filter. It should be used with care, in order to avoid excessive ringing when filter steepness is approaching maximum value.

P1 is the volume control and SW2 will switch off amplifier and loudspeaker if desired.

C5 is optional: it will produce a further band reduction. Some people think the resulting effect is more realistic if this capacitor is added.

If the use of an external, moving-coil microphone is required, R1 must be omitted, thus fitting a suitable input jack.

This circuit was intended to be powered by a 9V PP3 battery, but any dc power supply in the 6 - 12V range can be used successfully.

## **CLUB INFORMATION**

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

Monthly meeting venue

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

**e-mail** [zs6hvb@gmail.com](mailto:zs6hvb@gmail.com)

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

**Linked** to 70 cm - 438.850 Mhz (Sunday bulletins)

Witwatersrand Rifles HQ  
Cnr Barlow and Cavaleros Str  
Industries West  
Germiston

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

*First Saturday of the month at 14:30*

### **Committee**

Chairman	Frank van Wensveen	ZS6TMV	082-294-2648
Vice Chairman	Frank Mercier	ZS6MER	011-845-1146
Secretary/Treasurer	Berridge Emmett	ZS6BFL	011-893-1291
Assistant Secretary	Marianne Treyvellan	ZR6JMT	084-403-3355
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
Assistant Webmaster	Marianne Treyvellan	ZR6JMT	084-403-3355

### **Club bank details**

First National Bank - Current Account 62116557309

Branch Code 201209 - Sunward Park

**NOTICE OF MEETING**

The **Annual General Meeting** of the Highveld Amateur Radio Club will be held at the Wits Rifles HQ on **Saturday, 5 September 2009 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:.....

**HIGHVELD AMATEUR RADIO CLUB**  
Balance Sheet at 30 June 2009

<b>FUNDS EMPLOYED</b>	<b>2009</b> R	<b>2008</b> R
Balance Brought forward	8,660	9,557
Excess of Income over Expenditure	3,587	(897)
	<u>12,247</u>	<u>8,660</u>

<b>EMPLOYMENT OF FUNDS</b>		
Cash at Bank	12,247	8,660
Total funds	<u>12,247</u>	<u>8,660</u>

**Income and Expenditure Statement for the 12 Months ended 30 June 2008**

<b>INCOME</b>	<b>2009</b> R	<b>2008</b> R
Membership Fees	1,220	1,100
Equipment sold	3679	0
Total Income	<u>4,899</u>	<u>1,100</u>

<b>EXPENDITURE</b>		
Affiliation SARL	320	305
Bank Charges	491	406
Licence ZS6HVB	27	27
Licence ZS6SSS	0	27
Licence ZS6SSC	27	27
Repeater Licence ZU9HVB	48	45
Social & Meetings	399	1,160
Total Expenditure	<u>1,312</u>	<u>1,997</u>
Excess of Expenditure over Income	<u>3,587</u>	<u>(897)</u>
	<u>4,899</u>	<u>1,100</u>

Chairman \_\_\_\_\_ Treasurer \_\_\_\_\_

05/09/2009