

# SHACKNEWS

## HIGHVELD AMATEUR RADIO CLUB

PO Box 1111, Bedfordview, 2008

December 2004

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### COMMITTEE

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Sunday morning BULLETINS - 145.7875 MHz & 7062 KHz @ ±08h45.

*Merry Christmas*



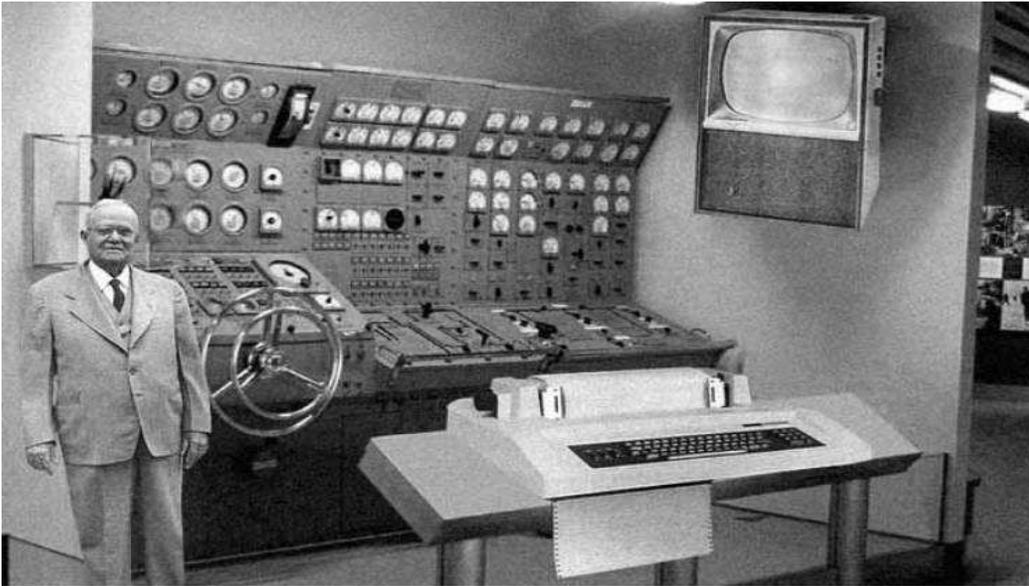
### COMMUNICATION IS THE NAME OF THE GAME

The social held on Sunday 5<sup>th</sup> December was a great success. There were 30 amateurs and family who attended. Nobody went away hungry or thirsty as there was plenty to eat and drink. A number of certificates were handed out to those who worked hard during the course of the year. A raffle was held and everybody received a prize.

Thanks to all those who helped make the social a success. To Rex and Ingrid for the use of their property, braais etc. To Yvonne ZS6WV for all the goodies used for the raffle (it was also her birthday on the day). Also to Ton and Yvonne for preparing and printing the certificates. And to those I may have forgotten, a big thanks as well.

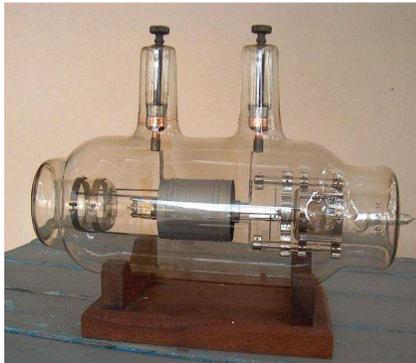
From talking to those present it seems that a braai should be held at least 3 times a year. Something for the committee to look at next year.

## Bits & Pieces



*Scientists from the RAND Corporation have created this model to illustrate how a "home computer" could look like in the year 2004. However the needed technology will not be economically feasible for the average home. Also the scientists readily admit that the computer will require not yet invented technology to actually work, but 50 years from now scientific progress is expected to solve these problems. With teletype interface and the Fortran language, the computer will be easy to use.*

(I wonder if the "steering wheels" are part of an interactive speedway game? Ed.)



Any idea what "valve" this is?



Key dated 1933

Military type key



## Various pointers when installing radio equipment in a mobile (HF)

Safety is the most important issue, period! The rig (or the control head) needs to be close at hand, the display needs to be readable, and the controls accessible. And it should be positioned in such a way to avoid interference with passive restraints (airbags), and operating controls including dangling microphone cords.

Mounting techniques seem to suffer when it comes to mobile operation. Velcro, bungee cords, nylon or canvas straps, and duct tape are not adequate. Imagine an 8-pound rig travelling through the air at 60 mph (88 fps). That's 30 tons of potential energy (mass times the velocity squared)! The best strategy is simple. Think about the worse thing that could happen. If you don't, it will!

Wiring is the next most important item. Cigarette lighter sockets (auxiliary power outlets) are out! No matter the total current draw of your HF rig, the minimum wire size should be AWG # 6, and connected directly to the battery! This has more to do with noise introduction, than it does power draw. Properly fuse both the negative and positive leads as close to the battery as possible, and dress the leads to avoid sharp edges, and securely attach them with tie wraps. A variety of connectors are available for interconnecting just about any conceivable combination. Buy a complete set of fuses for the vehicle, rig, etc. and put them in the glove compartment. If you don't, you'll wish you had.

With the exception of 10 and maybe 17 meters, it is difficult to mount a full-length 1/4 wave antenna which means the antenna must have a loading coil to cancel the capacitive reactance due to the shortening. Physically small coils with metal end caps, or helically wound fibreglass antennas maybe aesthetically pleasing, but their performance suffers.

Spirally wound short antennas on 75 and 40 meters exhibit no more than one or two percent efficiency. Add a poor mounting location and attachment method, and you'll be lucky to get that much, hence the moniker dummy load on a stick! This is because their coils are very low Q, typically less than 50 and as low as 10! Q is the ratio of reactance to resistance, and the higher the Q the better. Most commercial screwdriver antennas exhibit a Q of between 100 and 350 depending upon band (regardless of what you read). Under very special conditions coil Qs as high as 800 or more are possible, but they are large and not ideal for mobile operation.

A typical 9 foot, centre loaded, mobile antenna will have a radiation resistance of 12 ohms or so. A requisite loading coil with a Q of 50 will have a loss of 15 ohms. At a Q of 300 the loss will be just over 2 ohms. Add in a poor mounting technique with its inherent losses, and it is easy to see why minimizing losses is important.

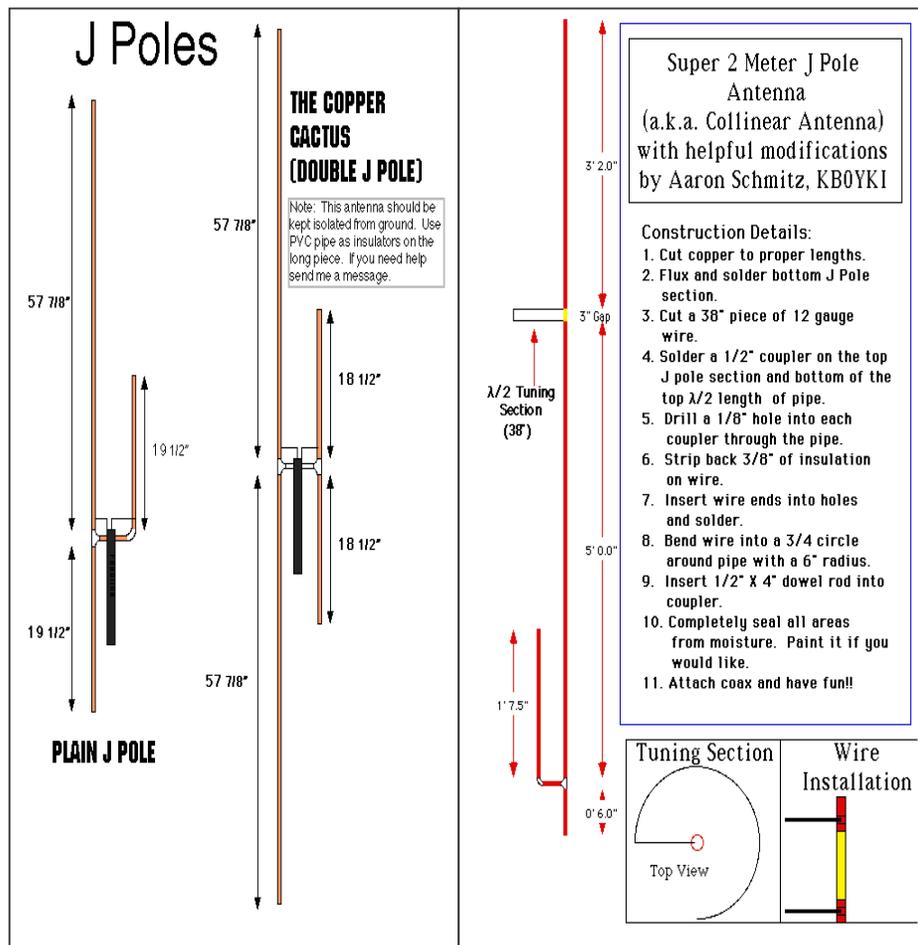
And don't mount with duct tape, license plate mounts, trunk lip mounts, magnet mounts, or worse, bumper mounts. There is no excuse you can give for not drilling holes for a good ball-mount or base plate. Either you're into mobile operation or you're not.

The closer to the ground you mount an antenna, the greater the ground losses. For example, an average 9 foot 75 meter antenna mounted on the bumper (or tow hitch

mount) will exhibit a ground loss of about 10 ohms. The same antenna mounted on the trunk will be about 8 ohms. Mounted on the roof it will be about 4 ohms. With the radiation resistance about one ohm on this band, it doesn't take a rocket scientist to figure out why mounting position is important. No matter where or how you mount it; the coil should be at least 18" above the nearest metal, albeit difficult on some vehicles, especially vans where front mounting may be your only alternative.

A recent addition to the amateur arsenal is the automatic antenna tuner. A lot of hams shy away from them because they have been told they're inefficient. They're not and they're not inexpensive, but their convenience may offset the latter. While it is true that a base-loaded whip (as used with most auto-tuners) is less efficient than a good center loaded, resonant antenna, in some cases the overall losses are less. Just don't try to use one with a helically wound antenna to band hop. The distributed capacitance is just too high to allow this type of operation.

When you're doing all of this installation, wiring, etc., don't forget to use good safe practices when soldering, crimping, connecting to the battery, running control cable, power cables, and coax. An ounce of prevention is worth a pound of cure as the old adage says.  
(From the Internet)



73  
Berridge  
ZS6BFL