

# SHACKNEWS

## HIGHVELD AMATEUR RADIO CLUB

PO Box 1111, Bedfordview, 2008

January 2005

Website [www.gsl.net/zs6hvb/](http://www.gsl.net/zs6hvb/) e-mail [zs6bfl@telkomsa.net](mailto:zs6bfl@telkomsa.net)



### COMMITTEE

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

### COMMUNICATION IS THE NAME OF THE GAME

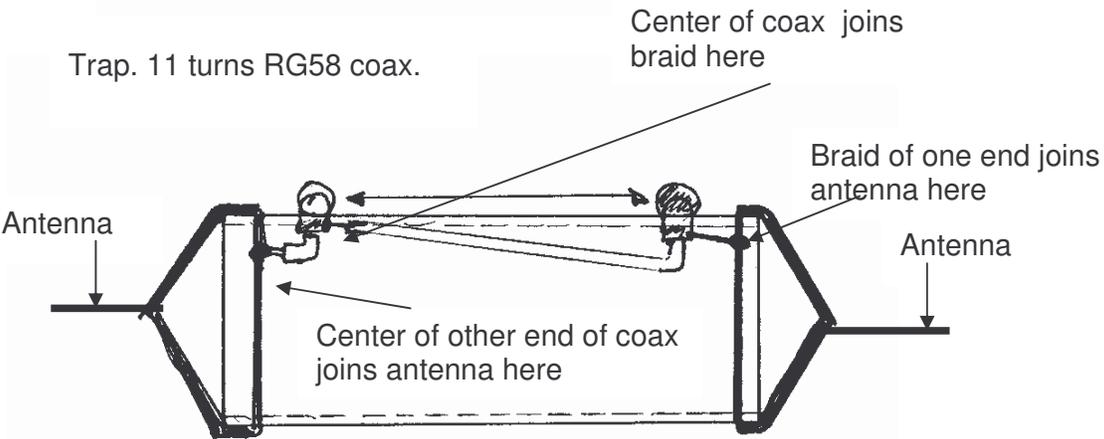
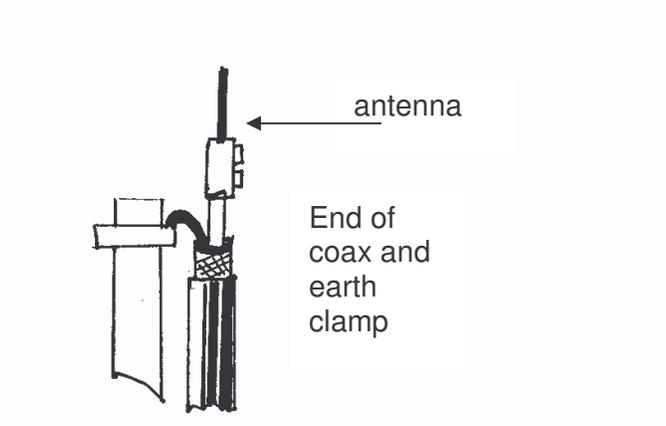
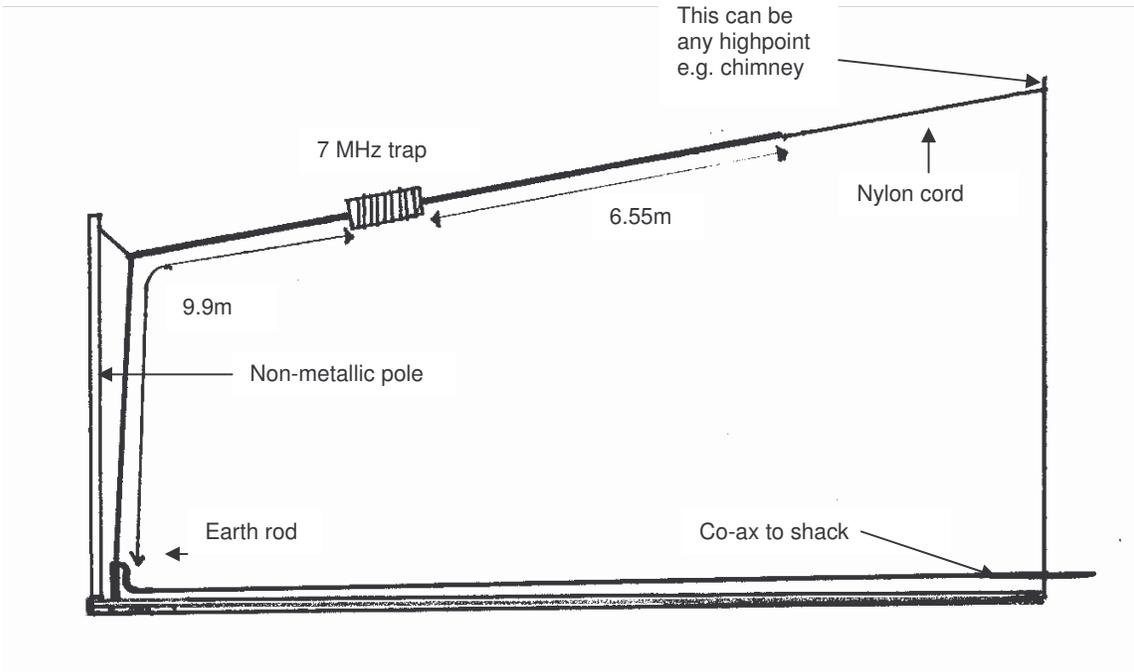
#### Meeting.

The first meeting for this year will be held on Saturday 5<sup>th</sup> January at the usual venue. Hope to see you all there.

#### Technical - Limited space Antenna. An Inverted L

Operation is intended for 40 and 80 meters. Construct from 2mm diameter (14s.w.g) copper wire. Also required is a good earth. All depends on the soil condition at your QTH as to the complexity of the earth.

The centre of the coax is connected to the antenna wire via a single "chocolate block" connector. The braid is connected to the earth spike. Once checked the whole area is covered by a waterproof substance e.g self-amalgamating tape. The 7MHz trap is made from 11 turns of RG58 coaxial cable, which is wound on 40mm diameter, 100mm length of white PVC pipe. The trap acts as both capacitor and inductor. Remember to waterproof the trap as water and coax don't mix.



Tuning begins with the 7MHz section and trim the end nearest to the earth connection 50mm at a time until lowest SWR is reached. Now move to the 3.5MHz band and repeat but start at the other end furthest away from the earth.

## **The Ten Most Common Tower Building Mistakes Steve Morris, K7LXC**

After working on over 150 amateur radio tower and antenna systems over the last 15 years, I have seen many problems and failures that could have, and should have, been avoided. By avoiding making these mistakes, you can make your tower and antenna system safer and more reliable. It'll even let you sleep nights better when that big storm blows through.

### **1. Not following the manufacturer's specifications**

Commercially manufactured towers have to comply with current standards for wind loading and structural integrity. Licensed Professional Engineers (PE's) design the towers and make the calculations to make them safe. If you don't follow their specs at a minimum, the tower will not take the stresses and loads that it is subject to. In other words, it'll probably fail.

### **2. Overloading**

This is the most common reason for amateur tower failure. The first thing you need to know to plan and build a tower and antenna system is what the wind speed rating for your county is. Next, you need the manufacturer's specifications for that wind speed. Then you must not exceed the wind load rating based on those factors. This is even more important for crank-up towers. Refer also to number 1.

### **3. Underestimating wind forces**

Wind pressure on a tower and antenna system can be tremendous. Unless you've been up on a tower during a windstorm to feel the pressure and the forces, it's difficult to appreciate how significant they are. Increases in wind pressure are not linear; wind loading goes up as the CUBE of wind speed. An increase of 10 MPH (16 KPH) in wind speed can increase the wind force by almost 50% in some cases.

### **4. Not building to the wind speed rating for the county**

While many counties, and even whole states, in the US are only rated for 70 MPH winds (the minimum rating), many other counties have ratings much higher, up to 115 MPH for Dade and Broward in Florida for example. Find out what the wind speed rating is for your specific location and use that as the minimum design parameter for your tower and antenna system.

### **5. Using the wrong mast for the job**

This is an all too common failure. Stacks of medium to large sized HF beams can put huge stresses on your mast. There are two materials available - pipe and tubing. Pipe is designed to transport liquids and is not rated for strength. It's fine for small installations where you don't have much wind speed or loading or when there is only

one antenna at the top of the tower. Tubing is carbon alloy steel, IS rated for strength and is the preferred material.

**6. Not having the guy wires tensioned properly**

Proper guy wire tension is a critical part of a tower's ability to handle wind stresses. Having the wrong tension can be like driving your car with over or under-inflated tires; it is potentially dangerous and is not the proper specification from the manufacturer. Having too little tension can result in wind slamming of the tower and guys as the tower is blown back and forth. Too much tension puts too much preload on the guys and lowers the safety margin significantly.

**7. Not having a proper ground system**

A good ground system is necessary not only for lightning protection but also for minimizing RFI to adjacent electronic devices. A ground system will protect your equipment, your home and your life.

**8. Not doing an annual inspection**

Your tower and antennas system is in a constant state of deterioration. While it may be a slow process, it is going on continually. The best way to find and fix small problems before they grow into big problems and potential calamities is by doing an annual inspection.

**9. Not fitting the tower sections on the ground.**

Tower sections, new or used, may not fit easily together. It's much easier to correct alignment problems on the ground than up on the tower.

**10. Using the wrong hardware**

Since tower and antenna materials are in a constant state of deterioration, you should only use hardware that minimizes corrosion. Galvanized or stainless steel materials are the only ones that will survive outdoor use reliably.

(From the WWW)

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HELPDESK LOG...

Hi good afternoon, this is Martha, I can't print. Every time I try it says 'Can't find printer'.

I've even lifted the printer and placed it in front of the monitor, but the computer still says he can't find it...

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Customer: I have problems printing in red...

Helpdesk: Do you have a colour printer?

Customer: Aaaah.....thank you.

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73 Berridge

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