

## Capacity Hat

When we add a Capacity Hat to the Texas BugCatcher we lower the frequency of the antenna. We may then shorten the whip or use less coil to load on a given frequency. For instance if you are tuned to a certain frequency and you add a hat without changing the coil or whip your antenna's resonate frequency will go down to a lower frequency.

We can now use less loading coil to get back to the desired frequency. The efficiency of the antenna goes higher when we use less loading coil because of the losses in the coil. By using less coil we have made the antenna more efficient.

Or, if we are concerned about the overall height of the antenna we can now shorten the whip to get back to our desired frequency. Now the efficiency of the antenna is about the same as with the longer whip and without the hat.

Test have shown that the addition of the hat raises the efficiency of the antenna if all other components remain the same.

Certain things need to be considered when adding a capacity hat. It has long been known that the very best place to add a capacity hat is at the very top of the whip.

Common sense tells us that the top of the whip is not a good option when we are working with a mobile antenna. While the top of the whip would be best, it will be next to impossible to keep the hat there while traveling at speeds over 20 MPH.

So, what now, the capacity can still be used to an advantage if a few guidelines are followed. First, NEVER place the hat down on the top of the coil. We need to raise the hat above the top of the coil as much as possible. The minimum distance between the top of the coil and the hat should be at least 2 times the diameter of the loading coil.

For example, if we have a 2" diameter loading coil (as with most screwdriver type antennas) then the hat needs to be at least 4" above the loading coil. With a 4" diameter coil, at least 8" above the coil and so on. This can be accomplished by using one of the Texas BugCatcher extension mast. For 2" to 3" coils use the 6" Extension Mast. For 4" to 6" diameter coils use the 12" Extension Mast

Now the question everyone ask. "Will the capacity hat give me more bandwidth?" The answer is yes, but don't expect a significant increase in bandwidth. The most notable difference will be on 75 and 40 meters with less difference as we go to higher bands.

There are many ways to assemble an antenna using loading coils. Some are better and some are not but all will make a difference. In most cases the only way can to determine what is best is to experiment with different configurations and find the one that best suites YOU. After all, you are the one that matters and the configuration that you like is the best one for you.

I have seen Texas BugCatcher antennas from 6 feet to 16 feet long both with and without capacity hats and they all work great. Fellow hams will tell you a thousand different things to improve performance. Keep in mind, most of them make very little difference. Get it working for you the way you want and then ENJOY.

If you plan to use a Capacity Hat on a screwdriver type antenna please think about the stress the addition of the hat may place on the coil. I have seen screwdriver coils damaged from using a large hat on the coil. Screwdriver coils as a general rule have loose play and the hat moving the coil around in the wind can damage them.

I realize this is a lot of information to absorb so if you have a specific question please let me know and I will try to help.

Henry Allen, W5TYD  
GLA Systems  
214-673-7942  
henry.w5tyd@gmail.com

