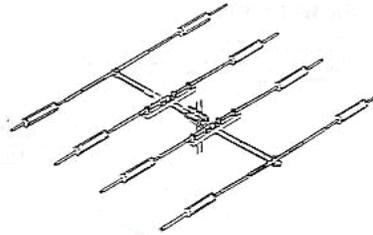


The Radio Hotel- Dissecting Series #1

Inside Those Triband Yagi Traps

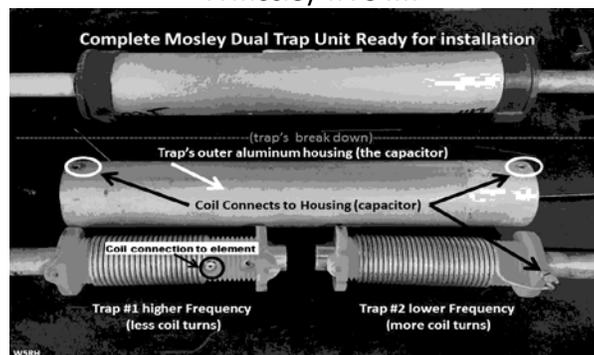
By Rick Hiller -- W5RH

Some things in Ham Radio are obvious, some are not. Such are the cases for this 2017 “Dissecting” Series on some not so obvious, hidden items in the Ham’s cadre of RF objects. A look inside those encased, potted, sealed, multi-layered, “things” we use on a daily basis. First up – Yagi-Uda Traps.

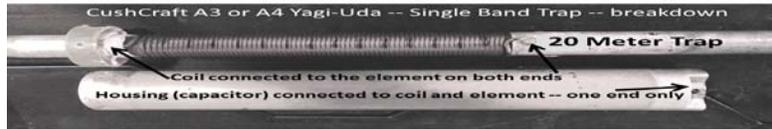


As you drive by that Ham’s property in your neighborhood you always look up and admire the very neat and clean lines of the 4 Element Yagi-Uda “Tri-bander” on her tower. It, however, has something in each element that looks like a much thicker piece of tubing. This is a Trap -- an RF, electrical device that stops RF current from flowing. Some Yagi’s have 2 trap housings, others have 1 housing on each side of each element. Design differences are the reason. So, what is this trap and how is it made?

A Mosley TA-34M



A trap is a parallel resonant circuit (a coil and a capacitor) that is resonant at the frequency which the designer wishes to stop RF current flow. The picture at left, at the top, shows a complete Mosley, 2 trap design. It consists of a single aluminum housing and plastic end caps to keep out the bad weather and, of course, the aluminum tubing that fastens to the main element structure. The aluminum housing is the capacitor -- an integral, electrical part of the trap. At the bottom of the picture you can see two coils normally located inside the aluminum housing. The inner trap #1, a 10 meter trap, would stop any 28 MHz energy from going further out the element. It makes the element from the boom to the trap, on both sides, a resonant antenna for 10 meters. The other coil would be part of the 15 meter trap #2 and then, the full element length would be the 20 meter antenna. Note that the higher frequency traps do add electrical length to the element when frequencies below their designed resonant frequency are encountered.



Another design, i.e. Cushcraft and Hy-Gain, utilize only one trap per housing. Seen in the picture at the right, it is similar to the Mosley trap with an aluminum housing, but it only has one coil, hence it stops RF at only one frequency. On a Cushcraft A4 you will see two trap housings on each element side, one for 10 and one for 15 meters.

The use of traps make multi-band Yagi-Uda's quite popular and abundant, but they have not always been. Have a read of [The Multimatch Antenna System](#) by W3DZZ in the March, 1955 QST about his brilliant idea of a multi-band Yagi-Uda. Enjoy your hobby. GL ES 73 DE W5RH

Next time.... Two Antennas – What's Old is Sort of New Again

*The purpose of **The Radio Hotel** is to give you a practical kickstart into exploring the workings of antenna systems. Google the buzz words and find out what they mean. Read up on antenna system theory to see how it all works together. You will be glad you did.*



BVARC Monday Night Public Service Net Updates

Don't forget the BVARC Monday Night Net starts at **8 pm** on 146.94 (167.9). The order of check-ins starts with mobile units first then fixed stations. If you have something for the net, make sure you let Net Control know about it when you check in. We are looking for Net Control Operators. Contact Rick, w5rh, if you are interested. Here are recent check-ins with control-ops:

10/17 - 17 - Ron, k5hm	11/21 - 15 - Jo, ke7nsb	12/26 - 14 - Clint, kf5hdf
10/24 -19 - Terry, k5pgf	11/28 - 23 - Clint, kf5hdf	1/2/17 - 16 - Jimmy, w5ztx
10/31 - 19 - Jo, ke7nsb	12/5 - 13 - Ron, k5hm	1/9/17 - 21 - Steve, kf5yyz
11/7 - 19 - Dave, k5ekw	12/12 - 15 - Steve, kf5yyz	1/16/17 - 16 - Jo, ke7nsb
11/14 - 15 - Steve, kf5yyz	12/19 - 14 - Jo, ke7nsb	1/23/17 - 23 - Clint, kf5ndf

BVARC QUICK STATS

Date	Members	Newsletters	Life Members
1/24/17	188	190	67