It's cheap and simple. With a minimal amount of time and the price of a movie ticket you can put a multi-band antenna together.

THE "MULTI-V"

A Simple Multi-band Antenna Design

BY GEORGE GALLOWAY*, WB5LDE

Have you ever tried to find a design for a simple multi-band antenna? Better yet, have you ever tried to find an inexpensive multi-band antenna on the commercial market? Prices today are staggering and one often thinks that there must be a better way, or at least a cheaper one. Multi-band antenna designs today often employ tuned traps to perform bandswitching. Traps tend to be difficult to work with, are very vulnerable to weather effects, and they often require re-tuning and repair. Using a transmatch is not much better either, because a transmatch, like a trap, loses power that could have been radiated from the antenna. Lost power is never desired and is often detrimental to QRP operation. The antenna described in this article has no lossy traps and costs less than the coax it takes to run from the antenna to your rig. If you need a high performance multi-band antenna, but do not want to buy one at today's high prices, then this article is for you.

The "Multi-V" antenna is basically an inverted vee using alligator clips to change bands. Fig. 1 shows the basic design and physical dimensions of the antenna. From the feedpoint of the antenna, the legs of the antenna extend to the proper length to resonate at the frequency of the shortest wavelength to be used. The legs are then tied to an insulator and another length of wire is added so that when it is added to the first length of wire, they together resonate at the next highest frequency to be used. Lengths of wire are added in this same manner to provide operation on all desired bands. The legs are then tied to a support using any conventional method. Alligator clips then provide connections between the leg segments to give the antenna the desired resonate length. Antennas do not have to be expensive to work well. Small pieces of plexiglass make good insulators between the leg segments and at the feedpoint. The use of alligator clips to change bands makes this antenna painfully simple, delightfully cheap, amazingly efficient, and there are no troublesome traps.

The "Multi-V" may be mounted in any usual fashion. The antenna in this article was mounted on the eave of the author's house using TV type stand-offs at the apex and the ends of the antenna. Most houses have eaves suitable for mounting "Multi-V" antennas covering from 10 to 20 meters. This method of mounting an inverted vee may be useful for people lacking trees or other convenient center supports, and it is also a good way to hide your antenna if you live in a residential area. However, the "Multi-V" may certainly be mounted in the clear using any suitable center support. If this is done, you must provide some means of lowering the antenna in order to change bands. This should be no problem as a simple pulley or a rope over a tree limb will work fine.

Operation of the "Multi-V" antenna is very simple. Arrange the alligator clips to give the proper leg length for the band to be used. When using a higher band such as 10 or 15 meters, be sure to clip the

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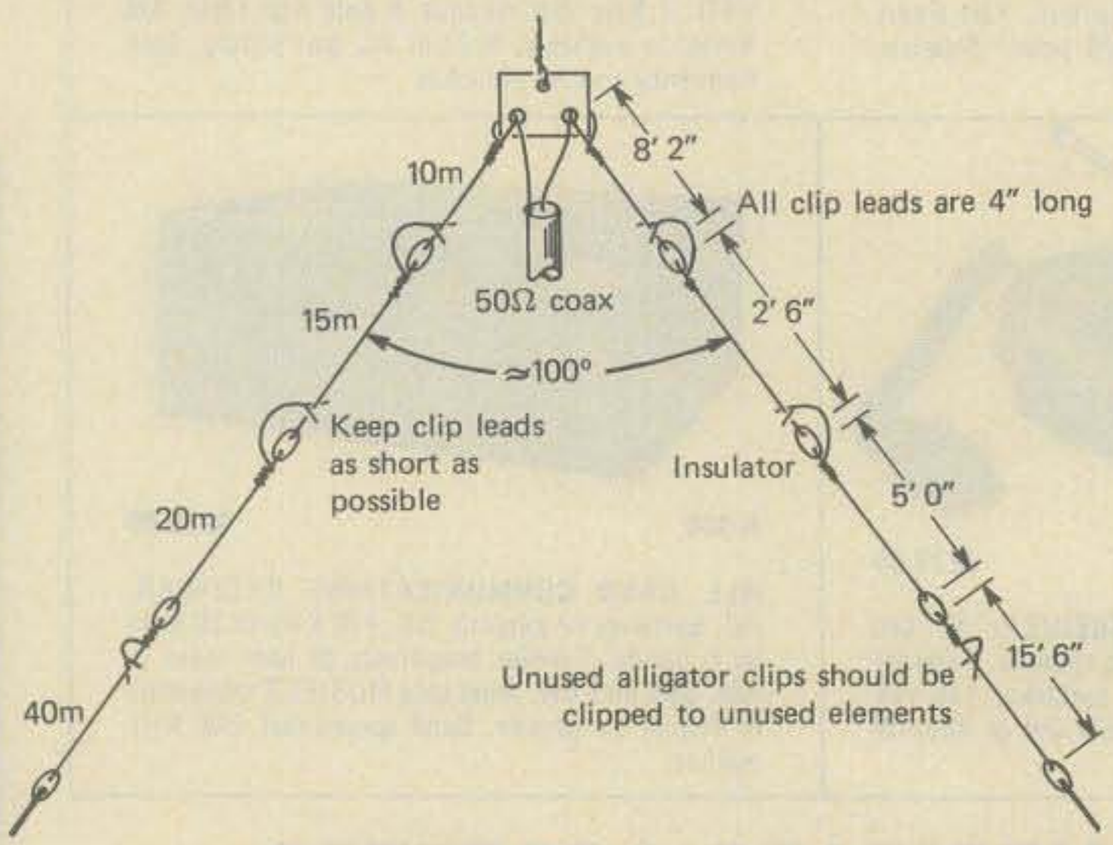

Fig. 1—The multi-V antenna set for 20 meter operation, with 40 and 10 meter capability.

alligator clip onto its own wire as shown in fig. 1. A ladder may be used to change bands if your antenna is mounted on the eave of a house. If you choose to use a center support such as a tree, simply lower the antenna to the ground and make the necessary changes. Be sure to always turn your transmitter off when changing bands!

Many are skeptical as to the performance of this antenna due to the fact that alligator clips are used to join the individual leg segments. The use of these clips makes the antenna very inexpensive and simple to use. The author has never experienced any problems with poor connections and this antenna has done a superb job on all bands using from two to two hundred watts of input power. Better clamping devices may be desired if higher power is to be used with this antenna. A balun might also improve antenna performance.

One last possibility may be mentioned at this time. Some operators may frown on having to go outside to change bands. An arrangement of relays and switches could be used to provide bandswitching from inside the shack. In this case, the relays would replace the alligator clips. This would require more wires running into the shack, a voltage supply to drive the relays, a switching array, and a little more expense. Unfortunately, many amateur radio operators cannot afford elaborate multi-band antenna arrays, and the inconvenience of making a trip outside to change bands is well worth the simplicity, performance, and extremely low cost of the "Multi-V" antenna. ■

CQ Reviews: The MFJ-8043 Electronic Keyer

BY HUGH R. PAUL*, W6POK

Electronic keyers continue to gain in popularity as amateurs discover c.w. can be fun once they have mastered the use of such a device. MFJ Enterprises has a new electronic keyer called the MFJ-8043. Designed around the popular Curtis 8043 IC keyer on a chip, the unit offers all we have come to expect in performance from this chip, plus attractive packaging and convenient control.

As you can see in the photograph, the unit is designed for use with an external key. MFJ offers a squeeze key with this unit at a cost of $29.95. Front panel controls adjust speed, dot-dash space ratio, monitor tone, volume level of monitor and automatic, semi-automatic and tune.

In the automatic position a squeeze key will give you iambic operation, which greatly simplifies the c.w. process but takes a bit of practice to master. In the semi-automatic position the keyer will produce automatic dots and manual dashes. The tune position does just that—it keys your transmitter continuously for tuning purposes.

Other manufacturers are using the Curtis chip in their keyer designs. Some use a keying relay, but MFJ uses a 2N3904 to drive either a PNP or an NPN output transistor. The PNP is used for keying grid block networks with a maximum negative voltage of 300 v.d.c. at 10 ma. The NPN is used for keying a maximum positive voltage of 300 v.d.c. at up to 200 ma. This will do nicely for any of the newer transceivers and transmitters, but if you are using an older transmitter with cathode keying, you may want to measure the keying voltage and current. If you have any doubt, I am sure MFJ will assist you if you call their toll free number.

Power for the MFJ-8043 may be supplied by an external d.c. supply of 6 v.d.c. to 15 v.d.c. or four 1.5 v.d.c. "C" cells can be inserted in the cabinet. I would personally recommend the use of "C" cells, since they afford portability of the keyer and eliminate a possible source of

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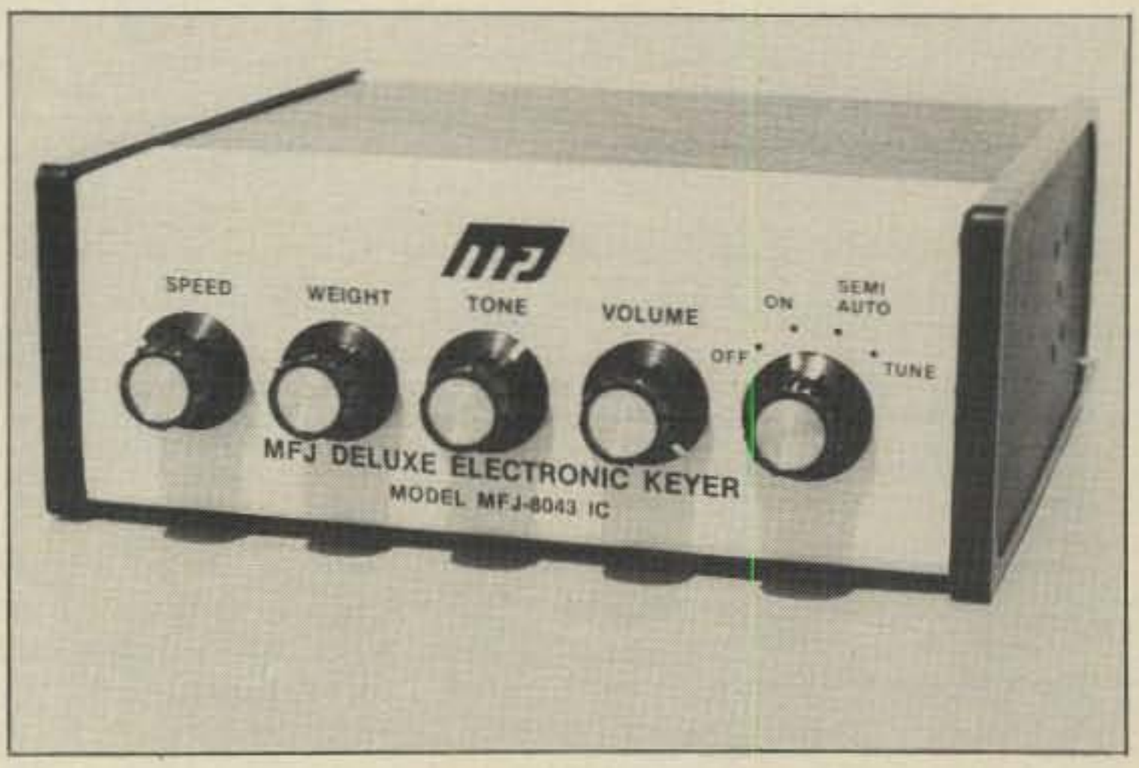

Front view of the MFJ-8043 Electronic Keyer

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