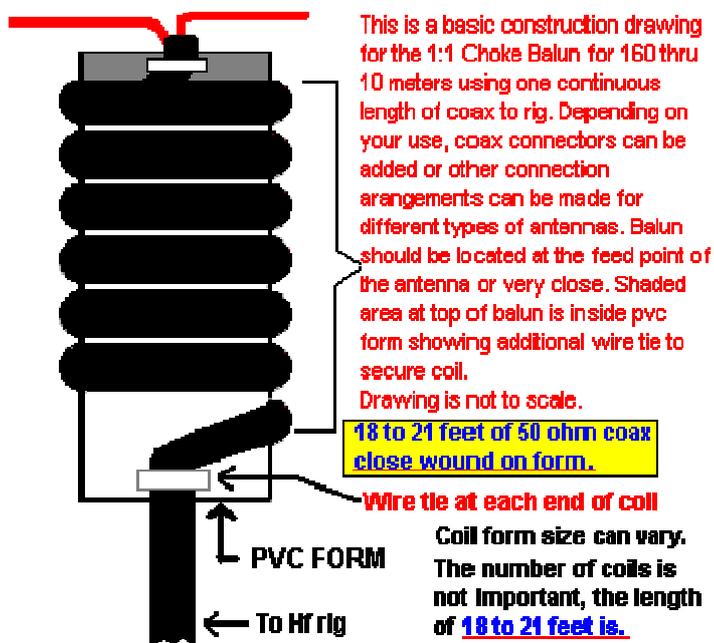


HF UGLY BALUN

BY N4UJW

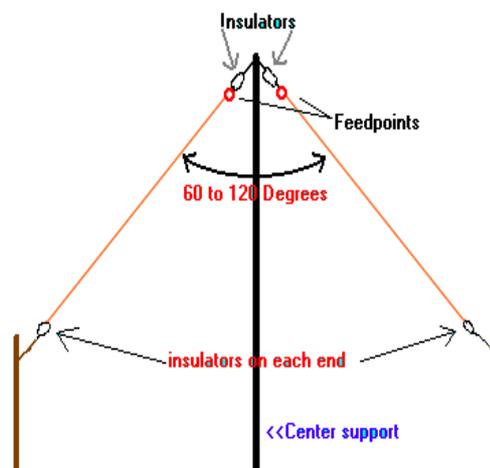
A balun's purpose is to allow connecting a **B**alanced load (e.g., a dipole or driven element) to an **U**nbalanced line such as coax, thus the name, Balun. In transmitting antennas, this is accomplished by presenting high impedance (resistance) to RF currents flowing outside the coax shield. This forces currents in each side of a driven element to be equal. This is especially important in beam antennas because it prevents distortion of the beam's pattern caused by unequal currents in the driver(s). In a simple dipole, the balun **assures** that the dipole, and not the feed line, is doing the radiating! When you connect centre fed antennas, like dipoles, V's, triangles, yagis, rhombics, loops and so on, to coaxial cable, unless care is taken, it is not difficult to end up with feeder radiation. Not only can the loss in power be quite significant, but the radiation characteristics of the antenna system will also be seriously compromised. In laymen's terms, it won't be what you are expecting from the pattern of your antenna. As the feed line becomes part of the antenna, currents can flow from the line into the masts and on TV cables, metal masts and yagi booms, causing a variety of EMI problems that can be very difficult to trace. Frequently these problems are simply due to unbalance - and the solution is the humble Balun. If an antenna system is fed at centre with a parallel conductor line (provided that correct installation procedures are followed) balance will be maintained, **USING A BALUN**, with currents in equal and opposite phase canceling each other out. When the connection is to a coaxial cable, **WITHOUT A BALUN**, this cannot occur because currents flowing inside the cable from the connection to the inner conductor are separated from those flowing on the outside from the connection to the shield, and the result is unbalance causing feeder radiation. However, if the two electrical circuit elements (antenna and coaxial cable) are coupled using a balun, balance will be maintained.

Enter.....The Ugly Balun...N4UJW



Additional ties top to bottom can be used to keep coils together.

TYPICAL INVERTED V ANTENNA



N4UJW