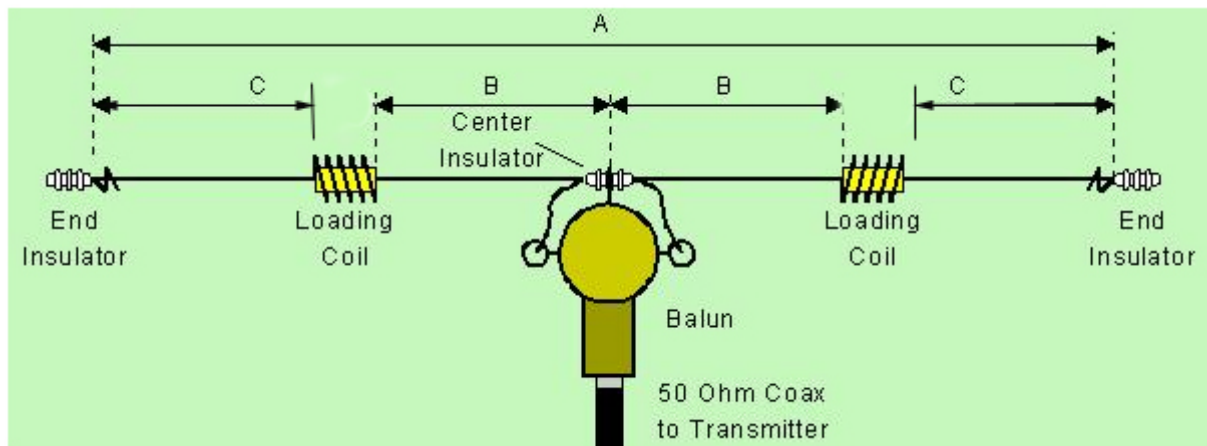# 40 meter shortened rotary dipole above the 6 band Hexbeam
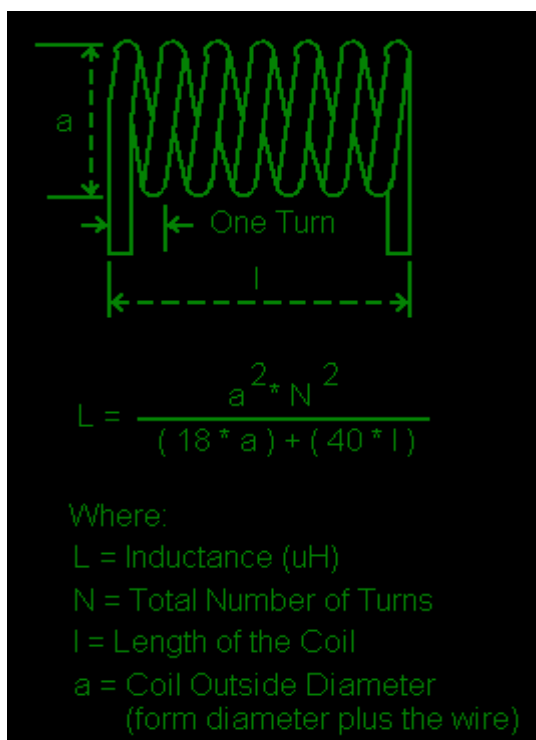
The antenna is designed on a resonance frequency of 7.150 Mhz and has a bandwidth of 60 kHz (SWR < 1: 2)

A	B	C
B+C+loading coil	3840 mm (151,18inch)	1940 mm (76,378 inch)
	* Cut 4040 mm (159.06 inch)	* Cut 2340 mm (92,13 inch)

* to have enough wire to connect to the isolator increase each wire with 200 mm, For C take 200 mm twice to have enough wire to cut the wire to specific frequency. Antenna wire is made of 1.5mm2 HO7V-R

Loading coil

$$L = \frac{a^2 * N^2}{(18 * a) + (40 * l)}$$

Where:
L = Inductance (uH)
N = Total Number of Turns
l = Length of the Coil
a = Coil Outside Diameter
    (form diameter plus the wire)

L= 18uH/20uH
N= 26
L= 54 mm (2,126 inch)
A= 1.5 + 42 +1.5 = 45 mm
Wire 1.5 mm winding wire (lacquered)

PC4U, 40 meter shortened dipole (W-shaped) on top of the 6 band hexbeam

Hard to find a 42mm coil? do the recalculation by picking up your own coil dimension.

http://deepfriedneon.com/tesla_f_calchelix.html

Use this little online calculation application. Beware of the dimension D which is the coil diameter + wire Diameter!!

PVC 42 mm Coil form:
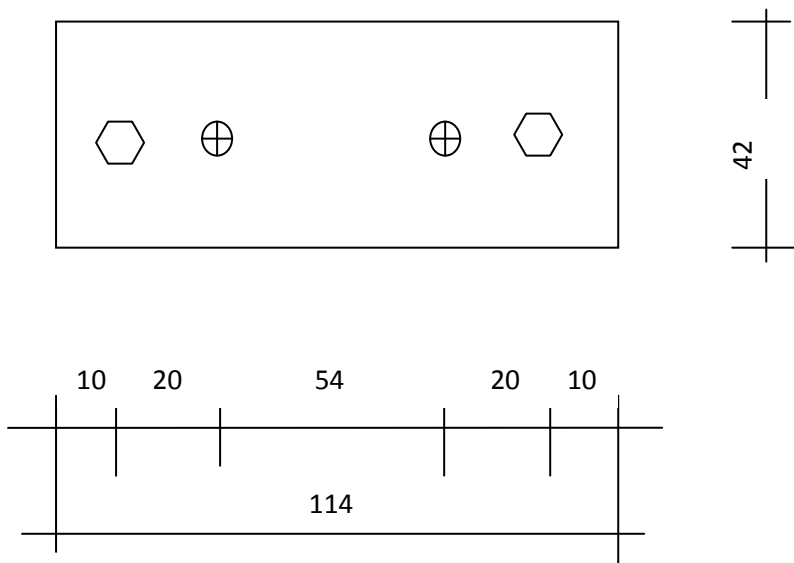
Take each piece of wire 200 mm longer in order to attach the wire.

1. Remove support cord between point 1-3 and 2-4
2. Connect the 4:1 step down Balun (12.5 balanced to 50 unbalanced) to the centre post so the connections are in line with the support cords
3. Connect the driven elements to the balun and connect the antenna wire to the support cord from center post to top of the spreader 1 and 2 with tyraps each 500 mm.
4. Connect the antenna wire to the eyebolt on top of the spreader with a tyrap.
5. Connect a part of the support wire to spreader 3 and 4 and connect this short support cord to the antenna isolator.
6. The short support card with the antenna part from spreader 1 and 2 replaces the original support wire
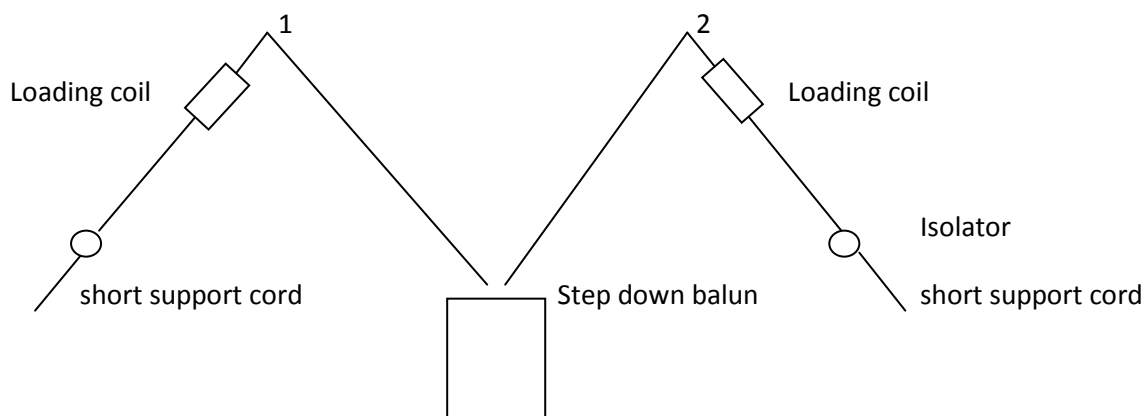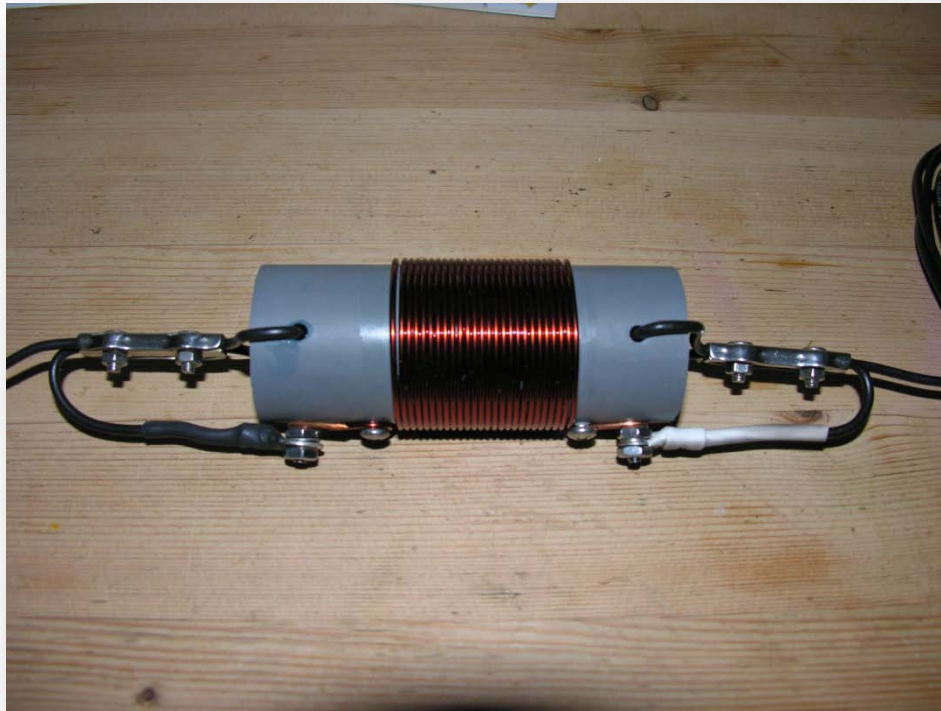
Loading Coil

PC4U, 40 meter shortened dipole (W-shaped) on top of the 6 band hexbeam

Step down Balun 4:1 CWS Bytemark bal 12.5

PC4U, 40 meter shortened dipole (W-shaped) on top of the 6 band hexbeam

Upper balun is the step down balun. Lower balun is the 1:1 balun for the hexbeam

The 40m dipole above the 20m element, connected to the support cord, which are going from the center to the tip of the spreader and from tip of the spreader to tip of the next spreader.

PC4U, 40 meter shortened dipole (W-shaped) on top of the 6 band hexbeam

Resume:

You can't compare a fullsize 40 meter antenna dipole with this compromised shortened one. If you do, you will be disappointed. If you used to work with a fixed dipole you will be happy.

With the hex I can hear station clearly, which I can't hear with the bazooka.

I did some testing with the antenna and turning it off direction (90 degrees)makes receiving 2-3 s-points less.

 There is no interference between the 40m hex and one of the other 6 bands wires. Of course you have to feed the 40 meter element separately!

The 40 meter element is located about 10 cm above the 20 meter antenna and hooked up to the cord which is attached from tip to tip of each spreader. This cord forms the radius support for each tip.

73

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