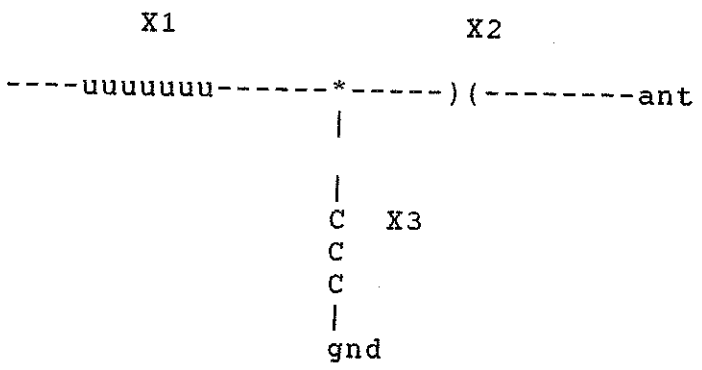
Unipole ATU instructions> Typical case.



Tune X2 to cancel out about 90% of the towers reactance.

Adjust shunt leg to change input resistance.

Adjust X1 to cancel out any leftover reactance when X3 is adjusted.

Determine Rp ratio

Change X2 slightly. Readjust X3 and X1.

Determine Rp ratio again.If better, keep going, if worse, change x2 in the other direction.

Stop at highest Rp ratio. This is best bandwidth.

Rp:

After Xin = 50 +j0, check 5 kc each side.

$$Rp = \frac{R^2 + X^2}{R}$$

Do this for F + 5 kc and 5 - 5 kc.

Divide smaller Rp by larger. This is ratio.

Rp above .90 is nice, .95 excellent.

Sweep:

Measure +/- 30 kc , 5 kc increments.

Multiply Delta DIAL X by Freq to get reactance.

Input sweep: +/- 15 kc, 5 kc increments

Example:

WXVA, 10/27/89

1520	33.5 + j327.6	
1525	34.9 + j218.0	
1530	37.0 + j338.9	
1535	40.0 + j346.9	
1540	42.2 + j351.1	
1545	44.1 + j361.5	
1550	47.0 + j365.0	*****
1555	49.9 + j375.1	
1560	54.0 + j382.2	
1565	57.9 + j392.8	
1570	62.0 + j403.5	
1575	67.0 + j412.6	
1580	74.0 + j421.9	

According to George, this situation calls for a -72 to 79 degree network.

Start:

Set X1 (input) at +j40.24 (DIAL +26)
Set X2 (output) at -j328 (DIAL -212)
Set X3 (shunt) at -49.77 (DIAL -32)

This gives first run of:

1545	45.8 +j6.3	Rp= 46.6	
1550	50		Ratio = .868
1555	55.0 -j9.5	Rp= 53.63	

Final run was:

1545	50.3 +j8.49	Rp= 51.73	
1550	50		Ratio = .9157
1555	45.8 -j8.49	Rp= 47.38	

According to George, this could be improved by series resonant circut (at transmitter) of 200pf and 53uh coil.