

Making a Low Band Loop

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This is an update to the original article which appeared in QST in March 1974 Pgs. 38-39 (Fig. 2). I made my loop from 1/2" hardline and used 1-1/2" PVC pipe for the support. Much better than the old bamboo that was recommended in 1974. The loop can be made from coax or hardline. It can be in the shape of a square, diamond or circle. If you use coax, you can place three SO-239 connectors on the aluminum mini-box to ease construction. If you use hardline, note the method of connecting copper flashing to the shield of the hardline, and then screwing it with stainless screws to the mini-box. (Fig. 3 and Fig 6.) Be sure to tin the areas where the two will be screwed together... the aluminum and copper do not like each other chemically, and will corrode in a short time if you don't tin the areas. A detail of the connections in the box is in Fig. 4 and Fig. 7.

If you want to make a dual band system, you can do so simply by placing the two loops on the single support and by using short jumpers to a tee connector, then you only need one run of coax to the shack from both loops. (Fig. 5) See the articles available online by KC2TX at <http://www.qsl.net/kc2tx/>

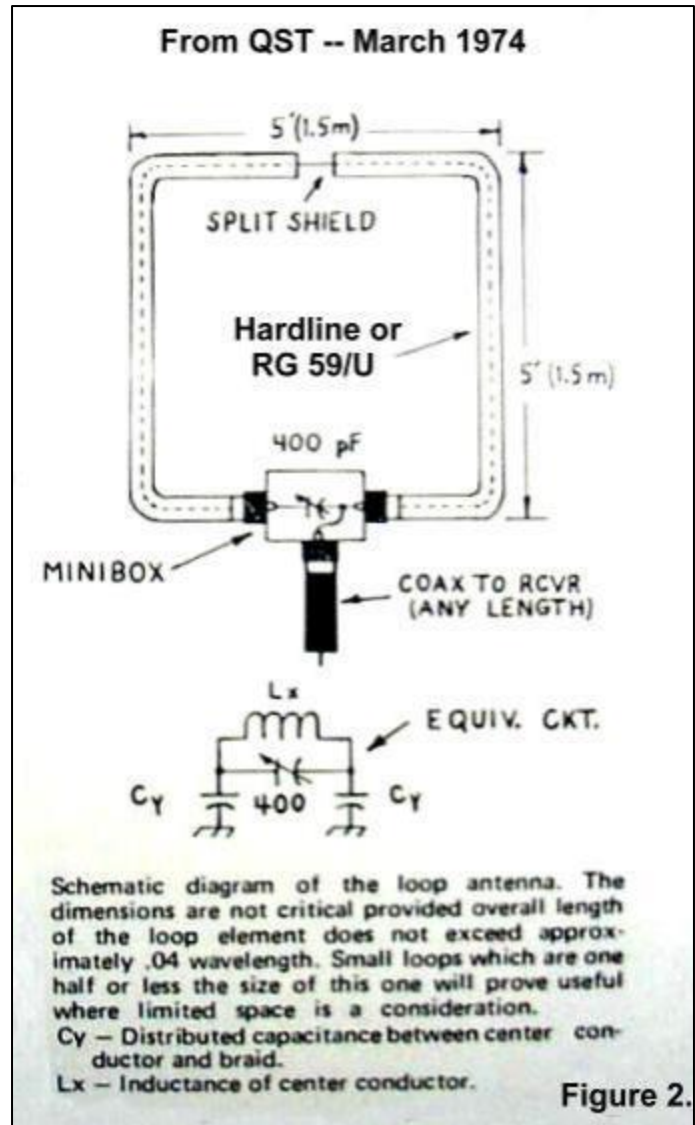
When making the loop, the coax or hard line must have the outer shield cut away for a 1" length half way around the loop. This makes the inner portion a shielded loop. Be sure when cutting the shield at the half way point of the line used, to do it precisely. DO NOT cut through the insulation. Be sure to waterproof this area after cutting. The only other component needed is a 50-400 pF compression trimmer used in series with the inner loop to resonate the system. Either side of the trimmer can then be connected to the output connector (SO 239 or similar). Waterproof all fittings and the mini-box after tuning and assembly to the desired portion of the band.

Depending on the type of line used for the loop, a recalculation of the length might be in order due to the capacitance per foot of the line used. For RG 59/U and the half inch Hard line, use 10 feet for 80 meters, and 20 feet for 160 meters. Refer to the original article or ON4UN's book on Low Band DXing.

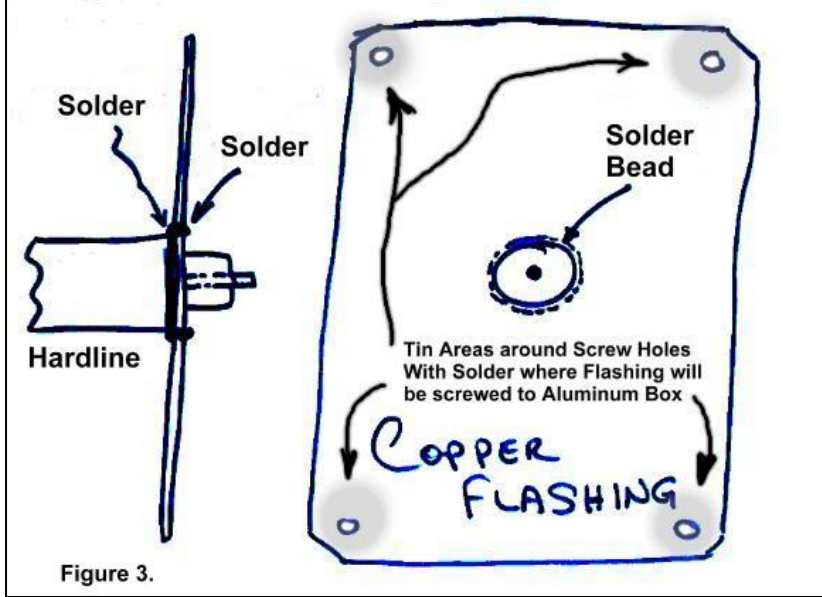
Since this is a Magnetic Loop, it receives best off the end, perpendicular to the plane of the loop. More importantly, it rejects between 30-40 dB end to side. It is better to turn the side to null out the electrical disturbance you want to reject, i.e. electrical noise like lightning storms or local QRN on power lines or neighboring homes. It will still hear most of the RF signals that get to your QTH. The point is to obtain maximum signal to noise ratio to hear the weak ones. Since this loop has low output, a 10 dB preamplifier might be needed to boost the signals into your receiver. I have found that with the Icom 756 PRO, the preamp will suffice in most cases.

You may notice the coil at the base of the loop in Figure 7. I use this balun to keep any stray RF on the antenna from coming back down the braid of the lead in. I live near a broadcast station, and it helps with the local 'birdies'. It may also keep my transmitted RF from getting to a preamp. The balun is made of 15 turns, six inches in diameter of the lead-in coax taped tightly together.

73 and enjoy the Low Bands — Pete, N8PR



Attach Hardline Outer Shield to Copper Flashing by Soldering To Area around hole cut in flashing.



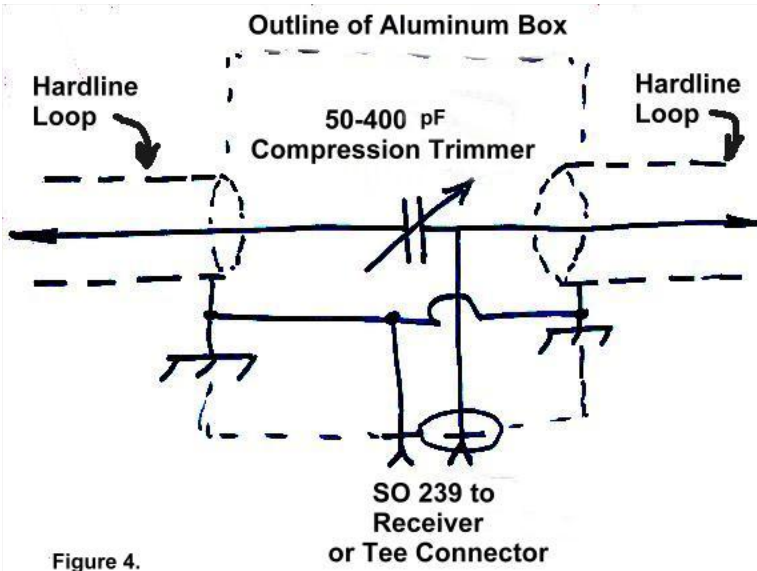


Figure 4.

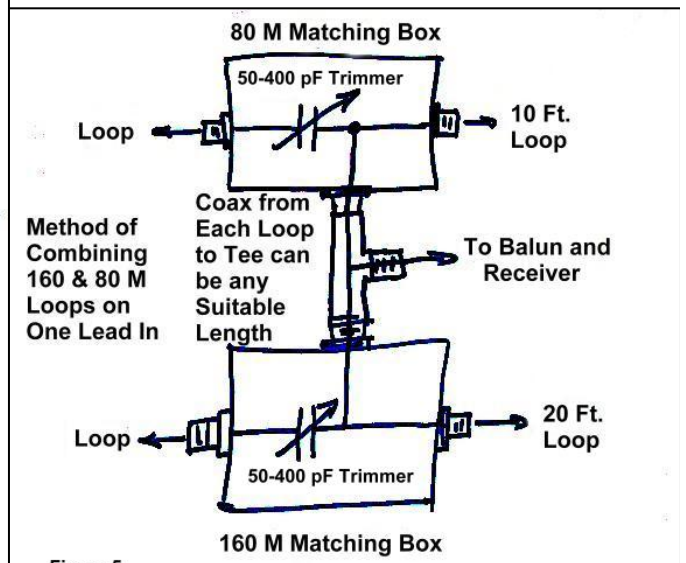


Figure 5

