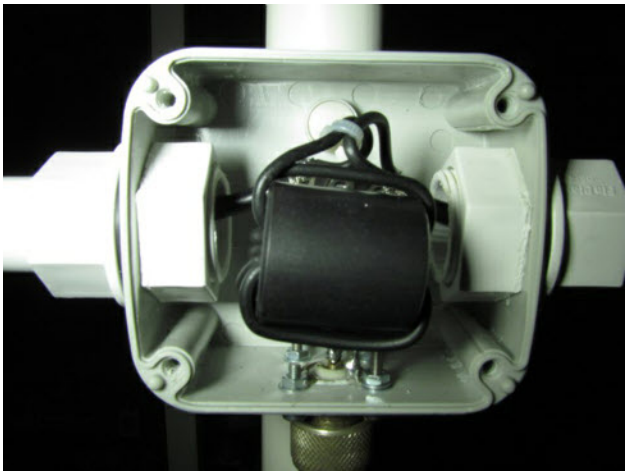
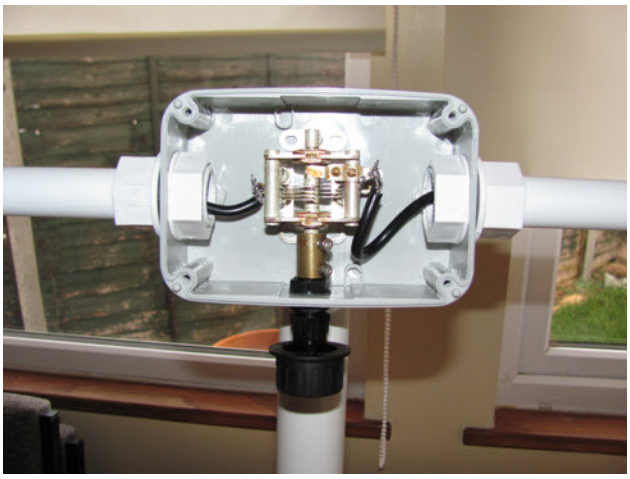
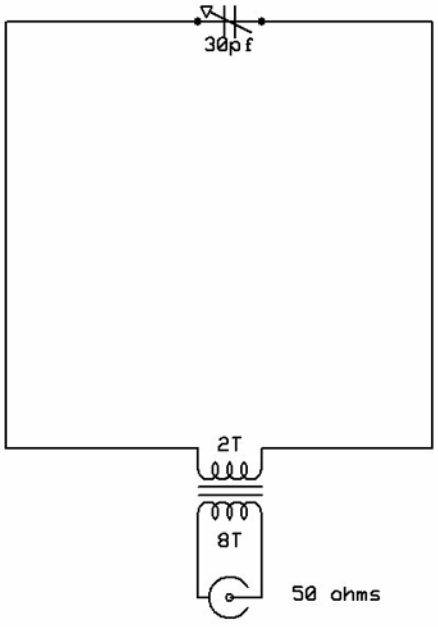
G8GRLs 20 to 15 m Loop Antenna

The loop works well from 14mhz to 21mhz with vswr of 1.2:1. The size of loop is 915 mm X 915 mm. The Antenna is constructed from 21.5 mm overflow pipe with two ip66 plastic boxes. The loop work well up to 10 watts.





Parts list



4m of 21.5 mm overflow pipe.

4 straight tank connectors 21.5 mm.

4 90º bends 21.5 mm.

1 box 73 mm IP66.

1 box 125 mm IP66.

1 Ferrite sleeve 28 mm L 26 mm OD 12.5 mm ID

4 m RG58 cable.

1 PL 259 socket.

1 Variable capacitor 30 pf

1 16 mm cable gland.

1 6.5 mm plastic rod.

2 38 mm tool clips

Construction of loop Antenna

You start by cutting 4 lengths of 21.5 mm overflow pipe to 915mm each.

Drill both plastic boxes to take 21.5 mm tank connectors as photo.

Before you Solvent weld pipes to make loop, run RG58 cable through parts as the cable won't be able to push through after assembly.

Two open ends of RG58 cable are connected to Variable Capacitor in the large box. Fix 16mm cable gland to the box. Feed 6.5mm plastic rod through gland and couple to tuning capacitor. Fix Knob to rod to tune loop.

Back to the small box drill and fix RG259 socket. Ferrite sleeve matching transformer 2 turns of wire connected to Loop and 8 turns of wire connected to PL259 socket

Fix Loop antenna to 32 mm waste pipe with 2 38 mm tool clips to make mast. Do not use metal pipe as it will affect loop.

This type of Antenna is great for portable work as it fit in back of car and only takes few minutes to put up. Work well at only few feet above ground. Multi band so great for high HF bands. Can be used in small garden as the main antenna if you fit remote tuning to capacitor.

It is made from things you find in most DIY stores and Rapid Electronics at cost of around about £30.

If you use High voltage capacitor and large ferrite sleeve you should be able to run 100 watts. At 100 watts the capacitor will have over 5000 volt across it so keep away from tuning capacitor on transmit.

Photo of wide band matching transformer. Wind two turns on ferrite core to form primary. Wind eight turns on core to form secondary. Use two tie raps to secure windings. If you have matching problems try changing the number of turns on secondary to six or seven turns.

Hope you have fun making and using this Loop Antenna. I would like to thank all the other Radio Amateurs around the World who have put their own designs on the net. Their designs have helped me too put together my own design. In my design I tried to make Loop that looks good and can withstand bad weather. The great thing about loops is that they don't need earth and can be used on a balcony, roofs and indoors.

Setup and on Air

Connect Loop antenna to transceiver via vswr meter. Tune transceiver to 14.250mhz and tune loop for maximum signal. Set transceiver to FM and transmit. Tune loop for best vswr in my case 1:1. Tune up and down to find 1.5:1 vswr points. My loops 1.5:1 vswr points were + - 50khz on 14mhz.

Tune to 18mhz and 21mhz and repeat test. My loop was + - 50khz on all three bands. This type of antenna work well only a few feet above ground and has low angle of radiation, just what you need for DX. The loop is vertically polarised and has figure of eight radiation pattern. Great antenna for Holidays and portable operations.