

# Magnetic loop for 160 - 15 metres

[VK3YE Home](#) > Magnetic loop



Another item on this website discussed antennas that amateurs use to operate from confined locations. The smallest antenna described for 80 metres was a magnetic loop. This article provides details needed to build your own.

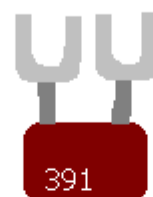
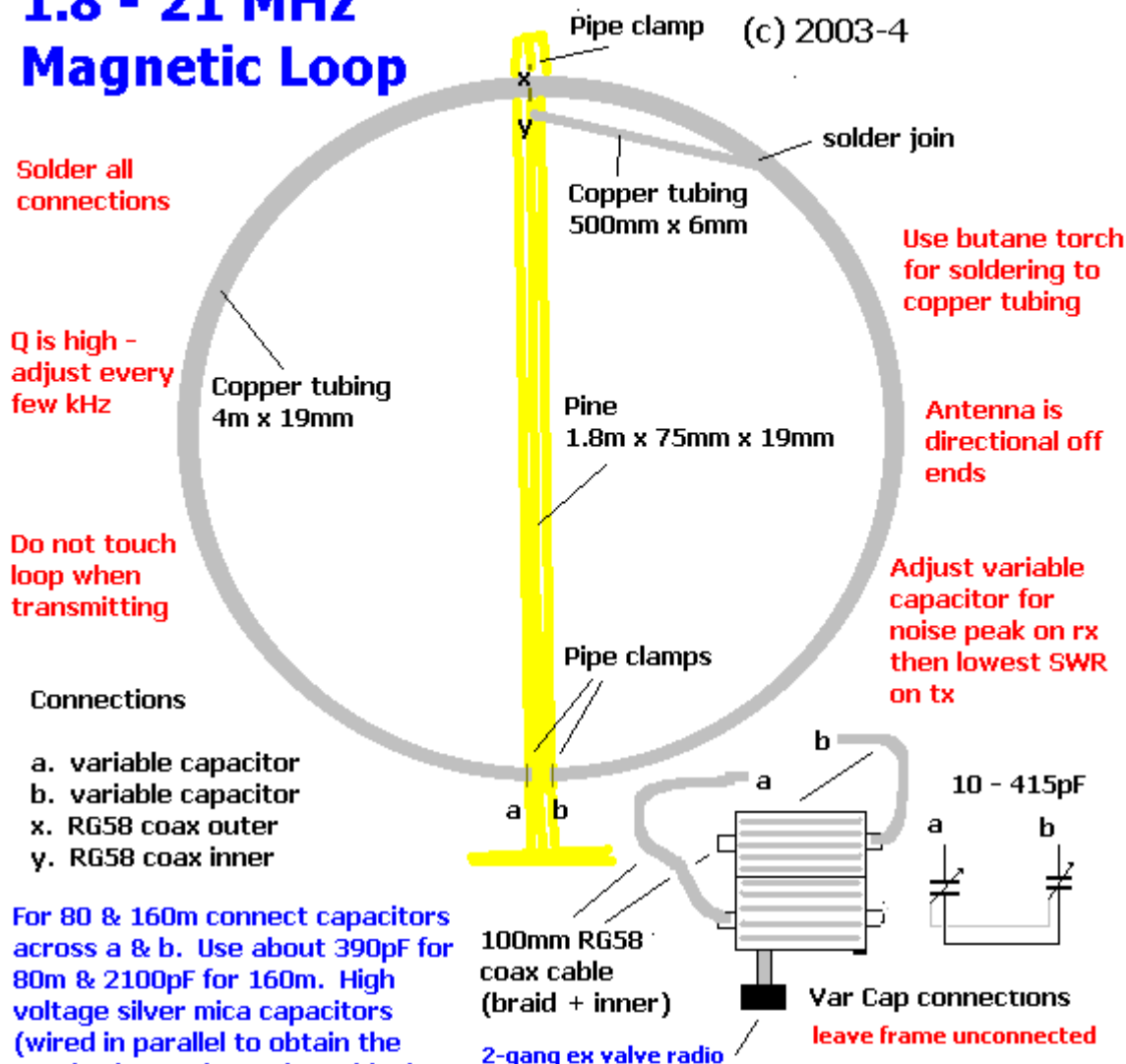
## Description

Below is a diagram and some construction details. Note that the element is continuous except for a gap at the top across which the variable capacitor is wired. The feedline is connected to the bottom of the loop. Dimensions are not particularly critical, provided it is possible to bring the loop to resonance on all operating frequencies with the variable capacitor used.

# 1.8 - 21 MHz Magnetic Loop

Peter Parker VK3YE

(c) 2003-4



Theoretical efficiency of loop compared to dipole

1.8 MHz	0.25%
3.5 MHz	2.3%
7 MHz	17%
10.1 MHz	42%
14.2 MHz	71%
18.1 MHz	86%
21 MHz	92%

## What to expect

Magnetic loops are a compromise antenna and performance will be down on a full-size wire antenna, particularly on the lower HF bands. If built properly, expect the following results at QRP power levels: (i) 80 metres - contacts up to a few hundred kilometres, (ii) 40 & 30 metres - single hup contacts up to about 1000 km, (iii) 20 metres - contacts up to about 3000 kilometres with the occasional DX. The variable capacitor won't spark if transmit power is kept down (10w is fine).

## 80m: comparison with full-sized wire antenna

During the 80 metre SSB 2004 VK/Trans Tasman contest the indoor loop was compared to an inverted-L approx 30 metres long installed in an RF-quiet suburban park. The results are as follows.

	Inverted-L (outdoors)	Magnetic Loop (indoors)
Operating time	1hr 50 min	2hr 20 min
No contacts	57	36
Avg contacts/hr	31	15

Contacts

45

9

