SHAK NOWTZ BY "MAD" FRANK - G3ZMF

SHAK NOWTZ No 10 – An SWR bridge and 23cm quad loop yagi

Introduction

This "Shak Nowtz" has information on a couple of my constructional projects.

QRP LF/HF VSWR Bridge

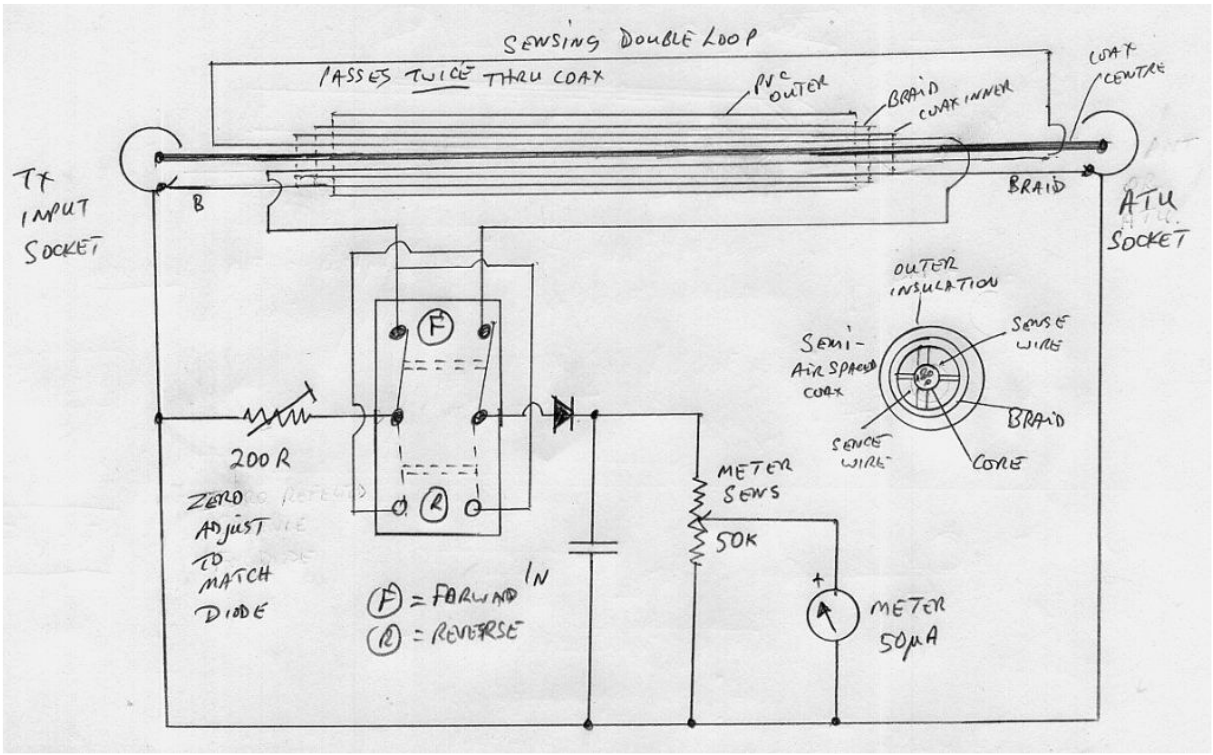
A bridge like the one I describe here is just right for people with FT817s who want to work QRP on 160 metres. Although the coaxial cable used for the sample line is 75 Ω, no problems were found when using a short length (600mm coiled up in three turns) on a 50 Ω system on any band below 30 MHz when tested into a 50 Ω dummy load. The reason for using domestic 75 Ω coax is because the dielectric typically contains 6 or more longitudinal air spaces through which sensing wires can be threaded.

In this case, I passed the sensing wire through the air spaces twice. The ends of this are fed to a double pole double throw (DPDT) switch so that one end is terminated in a resistor to ground and the other goes via a detector diode and sensitivity control to the meter. The switch selects forward or reverse power indication. The diode can be a 1N914, 1N4148, 1N60, OA81 or OA91.

The meter is 50 µA full scale deflection (FSD) and with just 500 mW on 1.8 MHz, FSD was easily obtainable. No VSWR scaling was attempted but guide results were printed on some stick-on tables. See table below for an example of possible meter scalings.

Reading	0	5	10	15	25	50
VSWR	1:1	1.2:1	1.5:1	1.8:1	3:1	inf

Set –up procedure:
1. Connect a dummy load and apply a small amount of RF.
2. Select "forward" on the switch and adjust the meter sensitivity control to FSD.



Circuit diagram of G3ZMF's VSWR Bridge

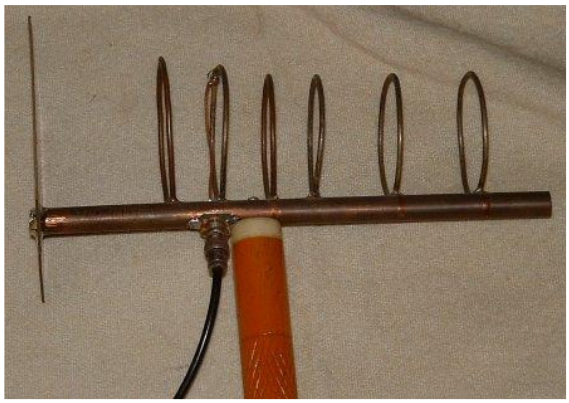
3. Swap the input and output connections.
4. Adjust the 200Ω resistor to get as near zero as possible. Its value is now equal to the impedance of the diode.

Six Element Quad Loop Yagi For 1296 MHz

No originality is claimed for this antenna design as it is by G3JVL and is published in RSGB books [1]. The method of construction however is by me! The loops are reused 0.1" outer diameter wire from an old roller coaster (variable inductor).

The second reflector on the left of the picture is made from plain copper coated circuit board soldered to the boom - which is a length of 22mm copper pipe. The mast is an old pool cue. The yagi is screwed to the thick end and the thin end, at my QTH, is wedged behind a radiator in the shack.

The coax feed is similar to RG174 to a BNC socket soldered to the underside of the yagi boom. No balun was used and in tests the yagi exhibited a VSW of 1.5:1 at 1250 MHZ and 1300 MHz, with much improved VSWR between these frequencies. The diameter and spacing of the elements closely followed G3JVL's brilliant design. I achieved a gain of around 10 dB compared with a dipole, with a surprisingly sharp beam width.

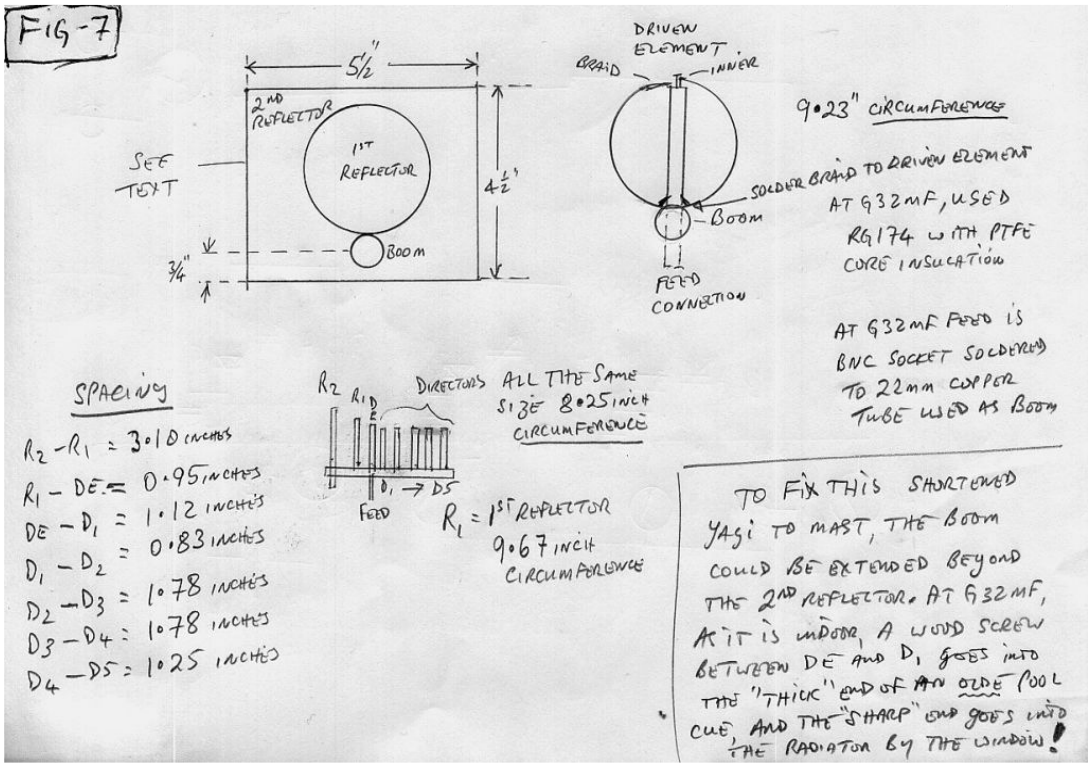


The finished antenna

Have fun!

73 de Mad Frank G3ZMF

[1] RSGB Handbook, 4th Ed, page 9.60. ISBN 0 900612 63 0



Constructional details of G3ZMF's 23 cm antenna