WIFB MEMORIAL ENTRY

TWIN QRP RF METER

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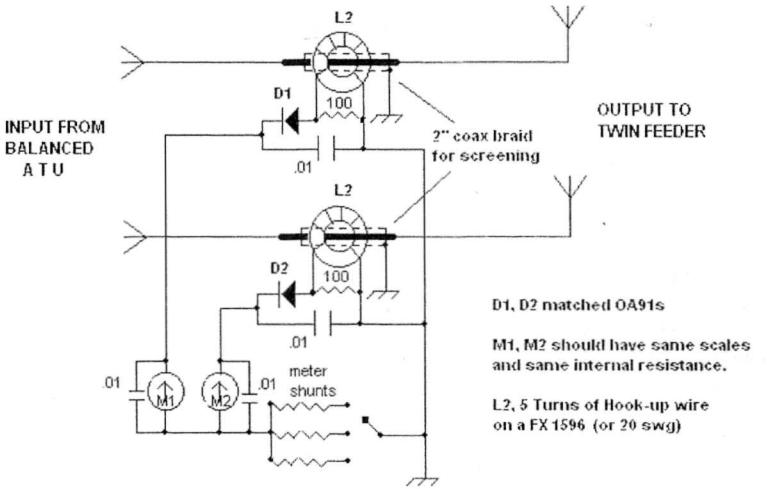

CIRCUIT DESCRIPTION The idea is not new. It first came to my notice in Technical Topics, Radcom, October 1999. But what I have tried to do is make a general purpose unit from the basic idea. One need only use half the circuit, if only one meter is required.

The heart of the unit is the transformer. With the values chosen it is easy to calculate what the power should be. If the primary is 1 turn (i.e. one feeder passed through the core) and the secondary is 5 turns, there will be a 1:5 current reduction from primary to secondary. This current can be measured by placing a load across the secondary and measuring the voltage. I have chosen 100ohms which indicates a voltage of 4.5 with 5 watts into 50 ohms passing through the transformer primary. At .5w the measured voltage was 1.5. A 500 micro-amp meter will be more than adequate to read full scale deflection at these low powers. Three different shunts may be necessary to allow for the different ranges of feeder impedance. very much less current will be observed at 600 ohms than at 50 for example. It would be possible to calibrate these meters in RF amperes but it becomes complicated with rms and peak values. I have therefore left them as a rough guide in calibration by comparing them with a known RF ammeter scale and load. (Or you can work out what the current should be with Ohms Law). But the meters do tell me that I have maximum power going into the antenna and that the feeder is balanced at the start. N.B. it is possible to have 1:1 SWR reading with not much RF going into the antenna! Especially with a Z Match.

Values of meter shunts are not given because of the variation of internal meter resistances. This must be left to the builder as to what he might have in the junk box and calculate the shunts accordingly. A simple circuit for measuring meter resistance is given in the ARRL handbook 1984, chapter 16.2.