



QRP Manual Antenna Tuner Diy Kit V2

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The kit can be through the T network resonant antenna, to make the radio work normally. Change SWR, corrections due to external reasons not tuned antenna. Can be used as a bandpass filter, Reduce the harmonic in the transmitter, to reduce out of band cross modulation and interference when receiving.

The kit comes with LED standing wave indicator, using T network topology , shortwave 1-30MHz,can withstand the transmit power of 15W,the tuning range of approximately 40-300 ohms, can be very convenient for QRP communication, to ensure high efficiency radio transceiver in communication, but also allows you to fully enjoy the fun of DIY.

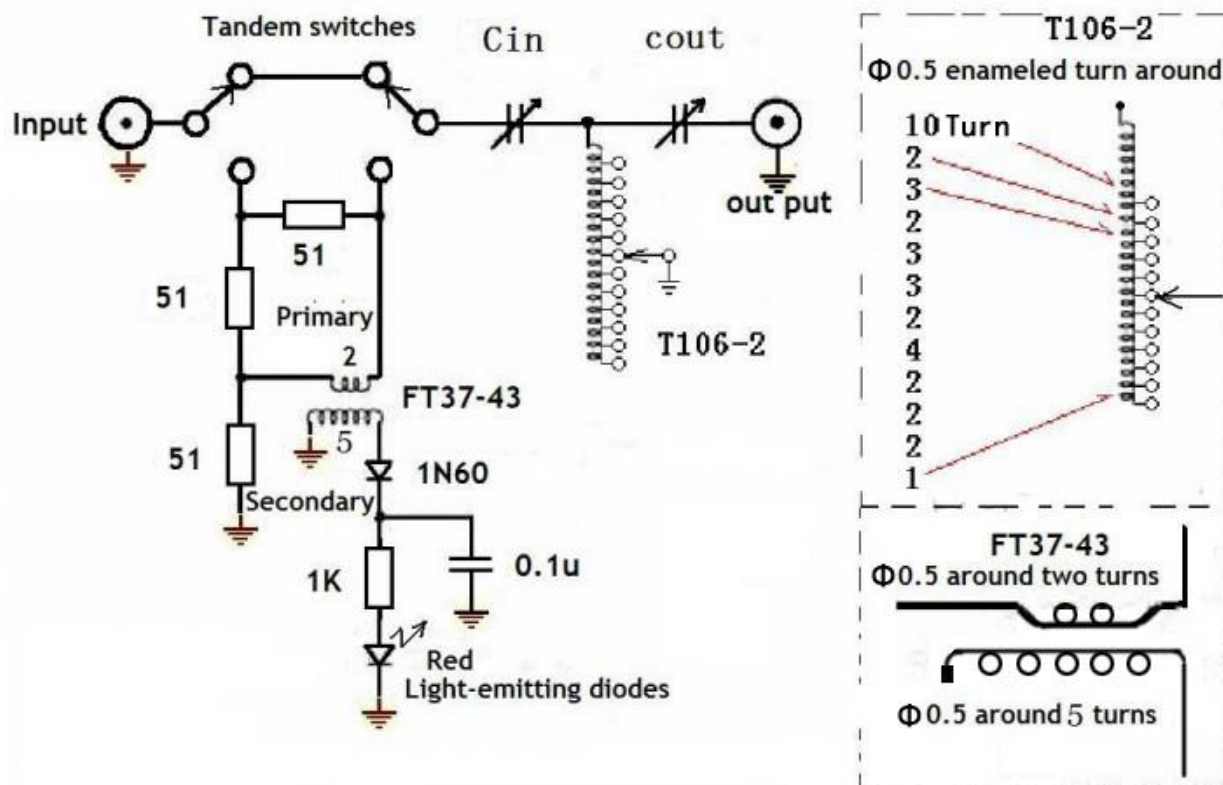
The kit includes the original as follows:

Class	Name	Number
For casing	Waterproof sealing box (hole has been good)	1
	Stickers (need to cut)	1
	M type RF interface	2
	Wire	1
	M3 Flat head screw	8
	M3 nut	8
	M3 Gasket (for M - ground)	12
For Variable capacitor	Variable capacitor	2
	Small knob	2
	M2.5 Flat head screw(for a fixed variable capacitor)	4
	M2.5 Round head screw (for knob)	2
	M3 Shim	2
	M3 Nut	2
For multiple switch	Multiple switch(12 positions)	1
	Big knob	1
	T106-2 toroid(red)	1
	0.5 Enameled wire	1
For circuit board	Circuit board	1
	Switch gear	1
	LED	1
	51 ohm resistor	3
	FT37-43 toroid(black)	1
	1K resistor	1
	1N60 diode	1
	0.1uF capacitor	1

A. schematic diagram

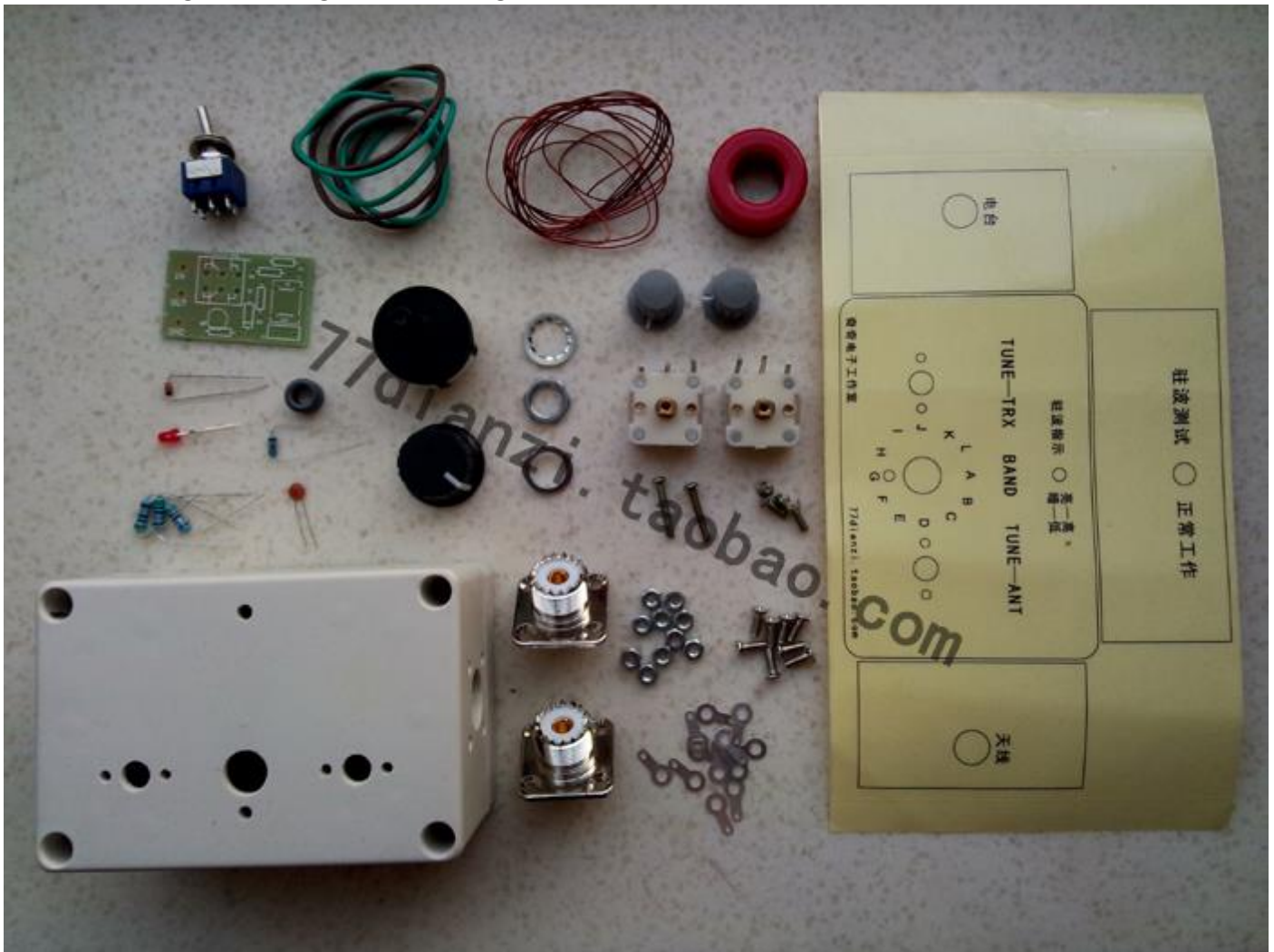
Make before, please check carefully the picture.

1, circuit diagram as follows:



B. the production process

1. before making, please prepare a soldering iron, soldering tin wire, scissors, knife, multimeter and other tools. According to the original check original table.



2. remove the shell internal excess plastic column, below the figure below, intended to build the first use of oblique mouth pliers to cut plastic column, and then use the electric iron and ironing the excess part (note don't burn too long time, prevent the whole plastic hot, effects of positive effect).



3. The installation of two M type RF interface to the cabinet.



Need to pay attention to the 6 positions of the shim installation process, their role is to manage the good ground connection.



4. cut stickers, affixed to the shell.



Effect diagram as follows:



Both sides need to cut some of the text:



5. The installation of variable capacitor and the knob to the housing.

5.1 Ready to needed device.



5.2 The installation of two variable capacitor.



5.3 Install the knob (Note: this part of the need for careful reading, it is easy to pick up the wrong).



The first upper cover with a knife through the knob.



Then mounted knob comes with the screw (pictured above) Note: the need to tighten, hard, the purpose is to the copper core contraction, below the right side is the left side is the contraction front, after shrinking, to reach below on the left side of the state.



The built-in screws out, will be 2.5mm long screw insertion.



The bottom add screw cap 3mm, as a highly filled.



The bottom add screw cap 3mm, as a highly filled.

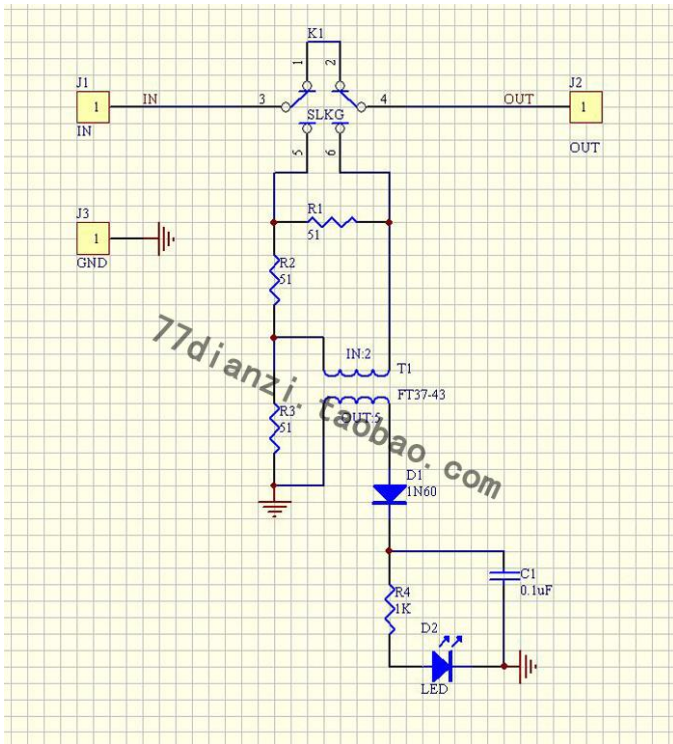


The effect after installation.

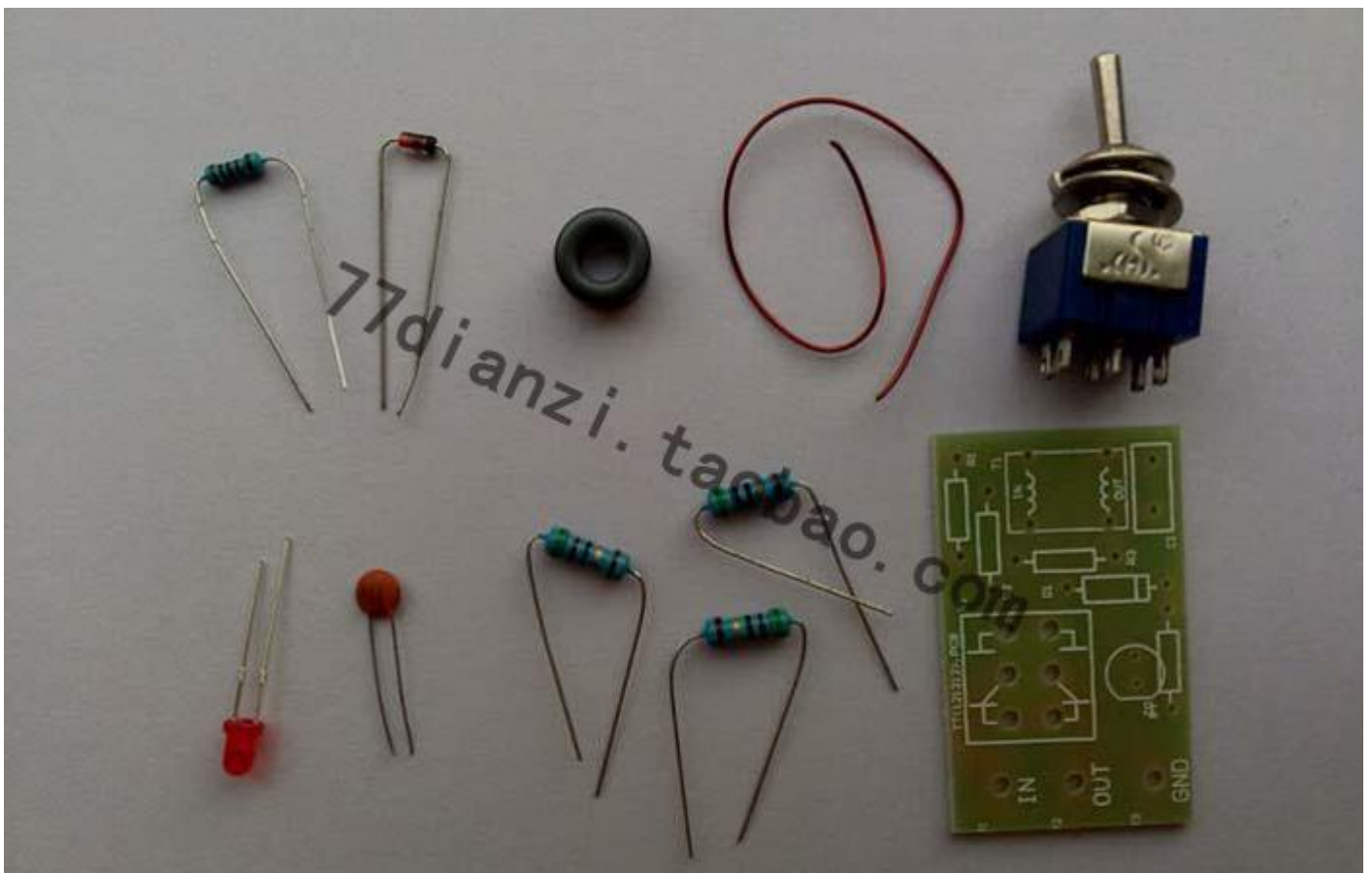


6. Welding standing wave detection circuit.

The following schematic:



The original is as follows:



The winding ring, according to the principle diagram of welding transformer, the ratio of F37-43 to 2:5, the primary winding 2 laps, secondary around 5 laps.



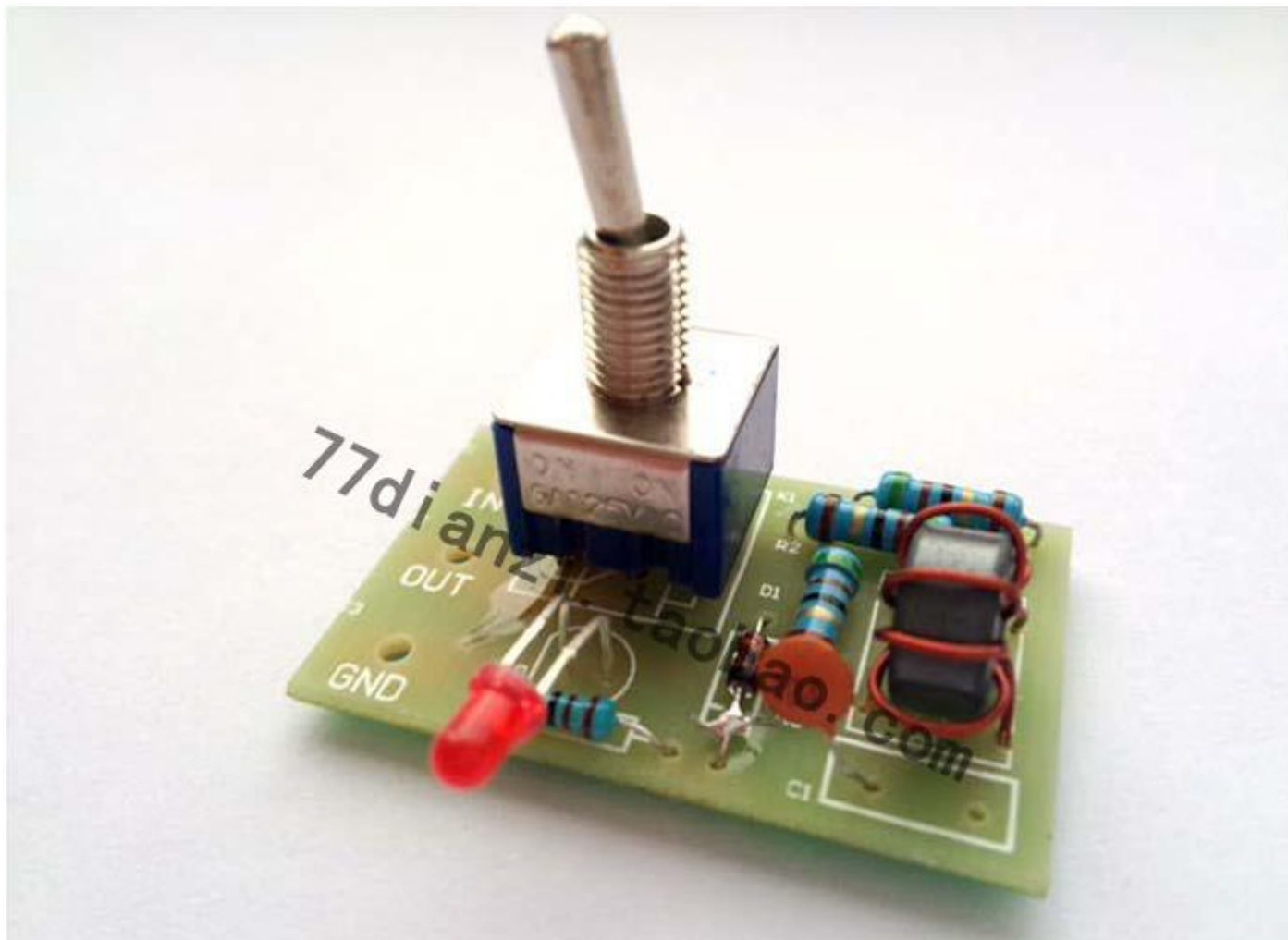
The primary winding:



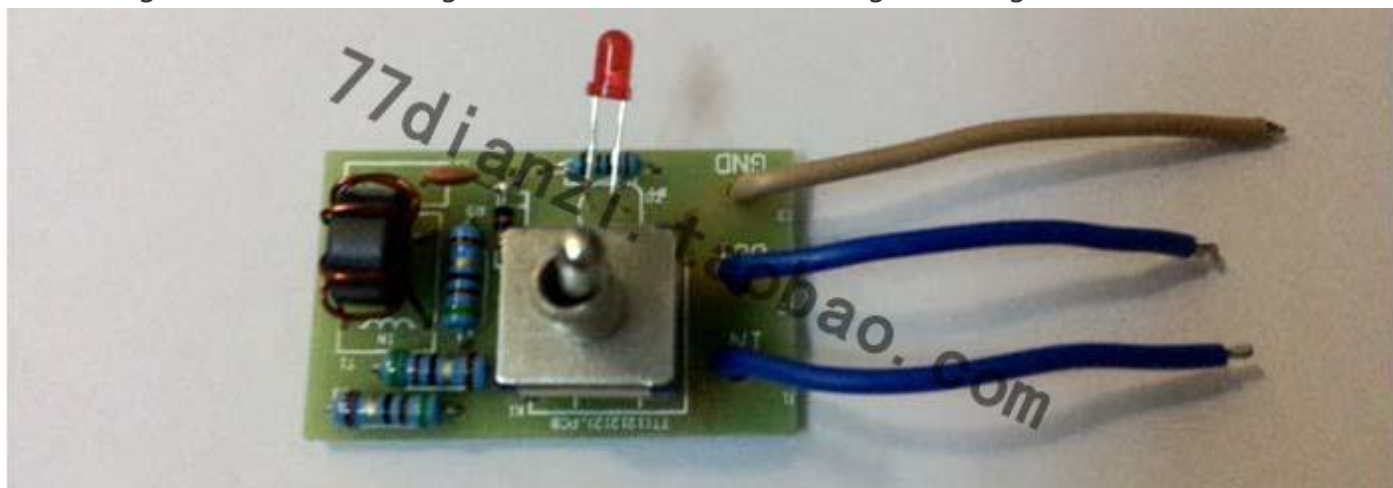
The secondary winding:



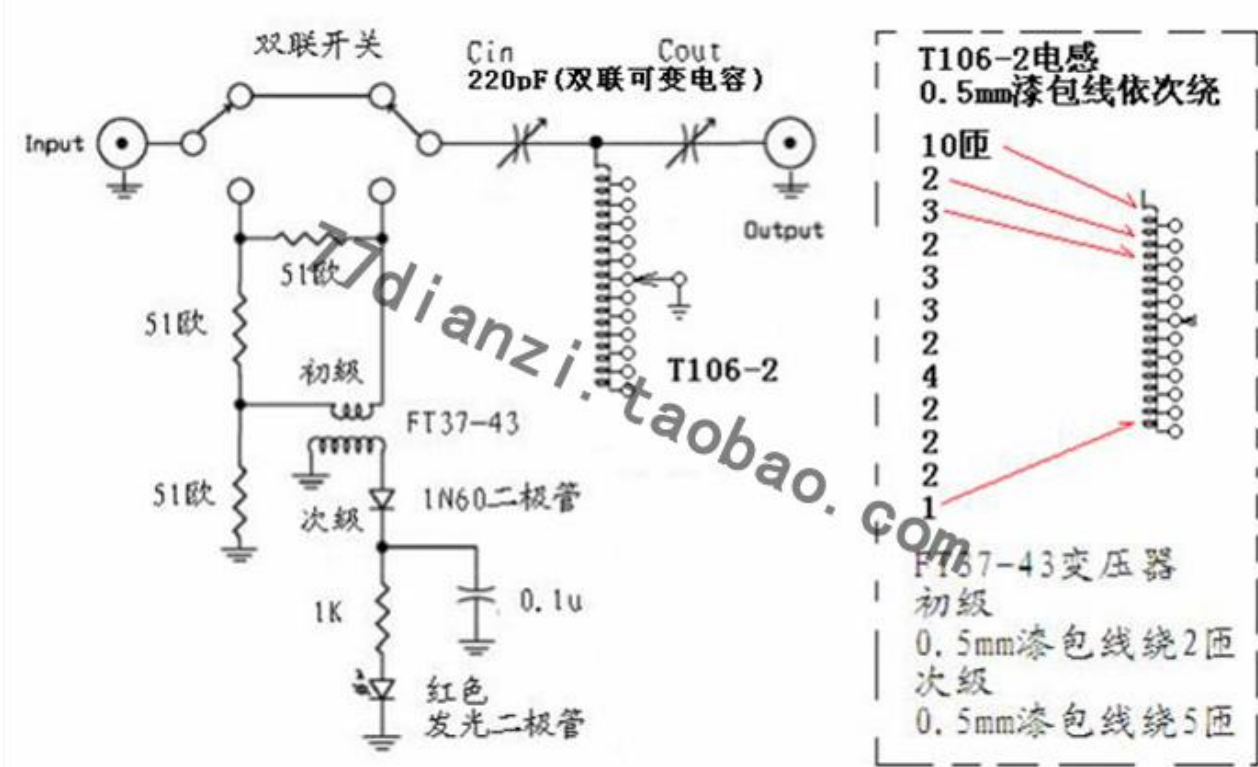
Effect diagram:



For welding three wires, GND length of 55mm, OUT 50mm of length, IN length 50mm.



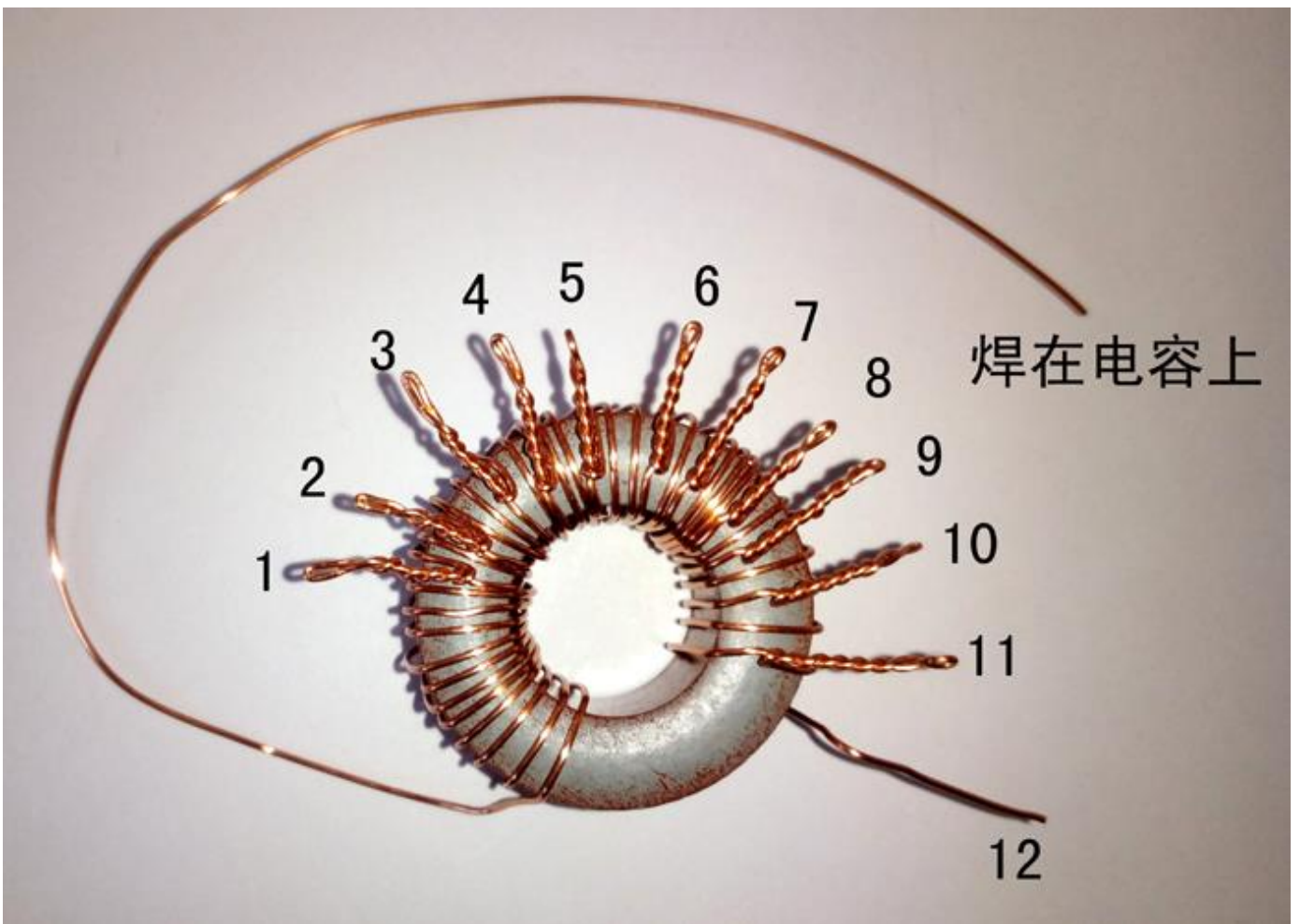
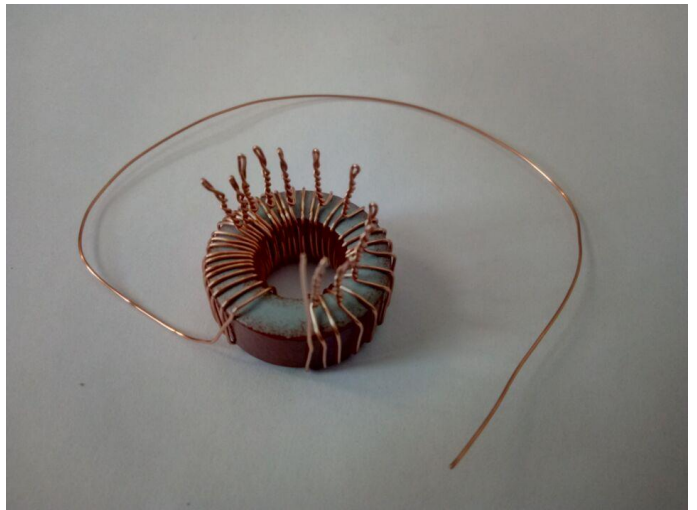
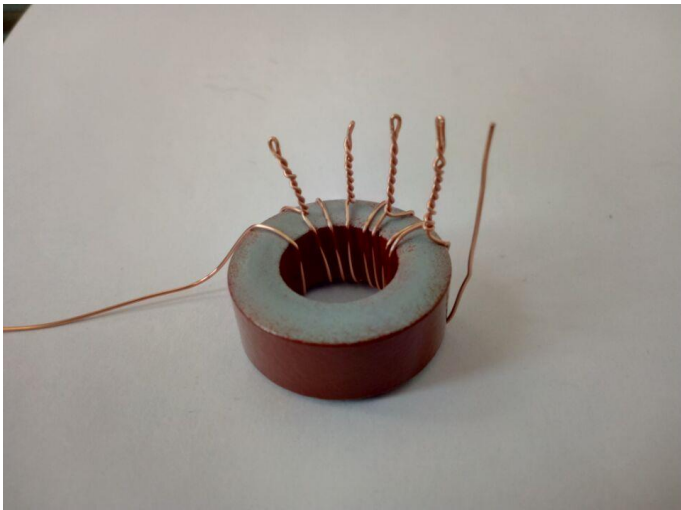
7. The production of multiple switch and a magnetic ring.
Refer to the following principles:



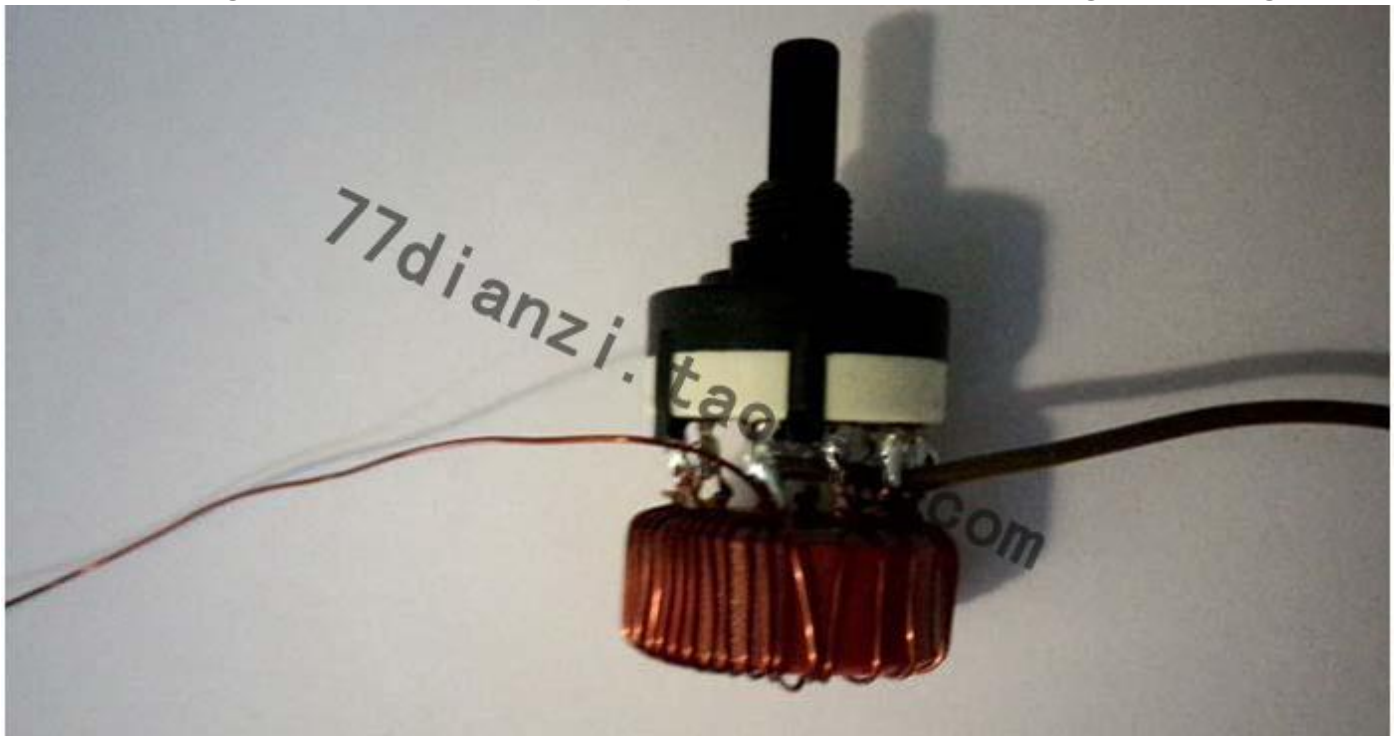
Use the following original:



The winding ring (through the enameled wire through a ring as a turn, from back to front winding turn number order for 1, 2, 2, 2, 4, 2, 3, 3, 2, 3, 2, 10):



With a blade and stripped of enamelled wire magnetic ring around each node will be good paint, the 10 turn left the remaining 11 long thread, a thread (including the last 1 turns of thread) welding in multi knife switch, public points knife switch on a conducting wire welding.



8. Standing wave circuit board and knife switch.



The gasket and M type RF interface welded together .



The installation of standing wave circuit board, , The "GND" is welded to the "GND" of M type RF interface. The "IN" is welded to the core of M type RF interface. The "OUT" is welded to the adjustable capacitor middle foot.

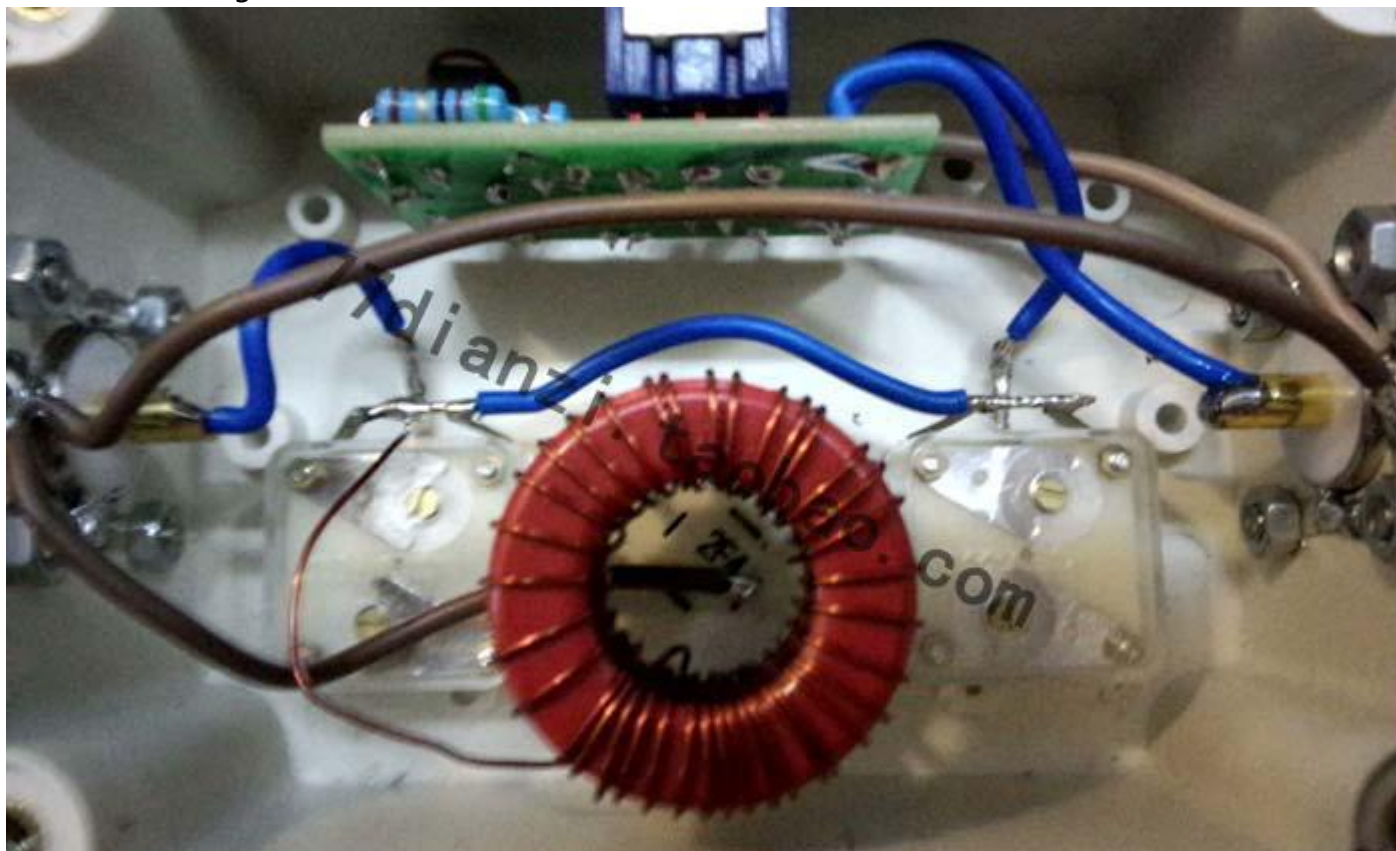


The adjustable capacitor of the first pin and the third pin is welded together, and the two corresponding pin adjustable capacitor connected, another middle pin adjustable capacitor connected to the core of M type RF interface.



The installation of multiple switch

10 turns side Enameled wire head <-> The adjustable capacitor of the first pin and the third pin
Multiple switch Common point <-> "GND" of M type RF interface <-> "GND" of M type RF interface <->
"GND" of standing wave circuit board



9. Install the back cover shell.



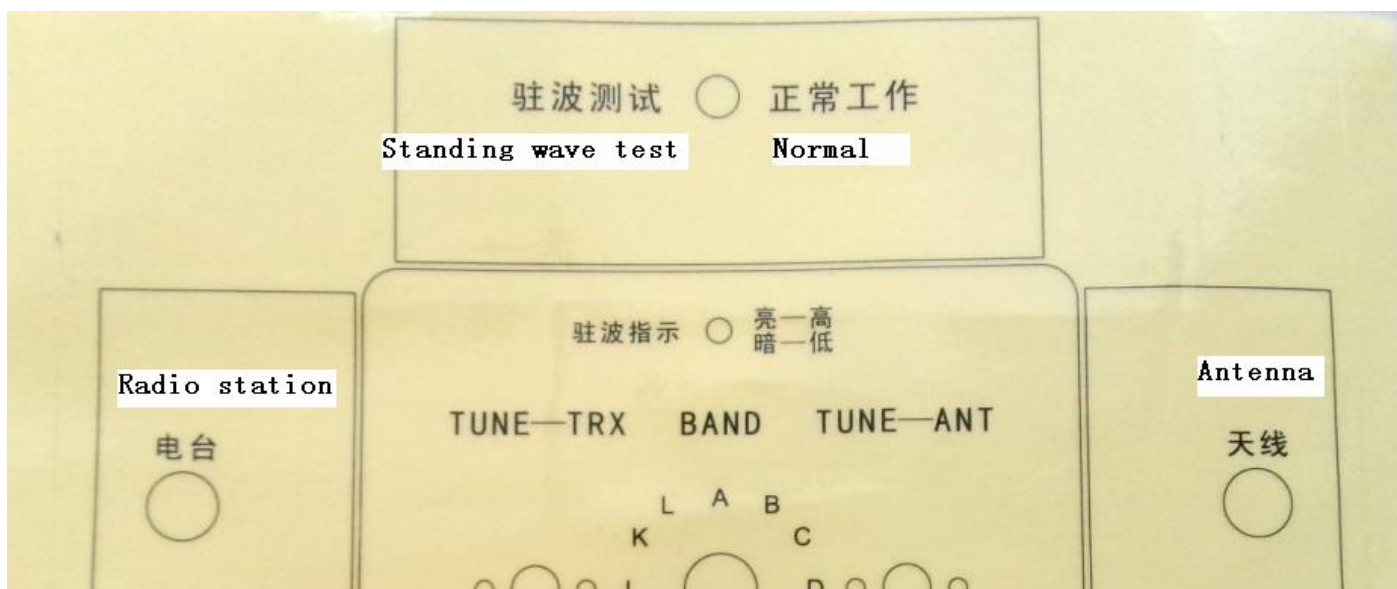
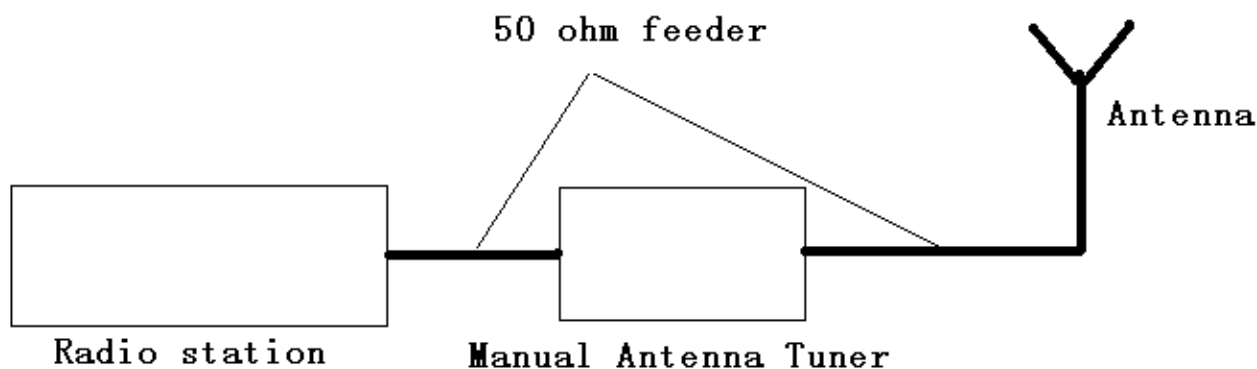
Positive picture:



Other picture:



C. Method of use



1. Top switch set to the standing wave test, Connect the transceiver and antenna.
2. Transmit signal (CW or SSB), repeatedly adjust the multi switch and two knob, try one by one each combination, until the LED is darkest.
3. Top switch set to the normal, complete the tuning.

Particular attention:

1. Tuning range: 40ohm - 300ohm. If you need other parameters , need change the number of turns to adjust inductance.
2. Standing wave test state, the input power shall not exceed 10W! Also not long time test!