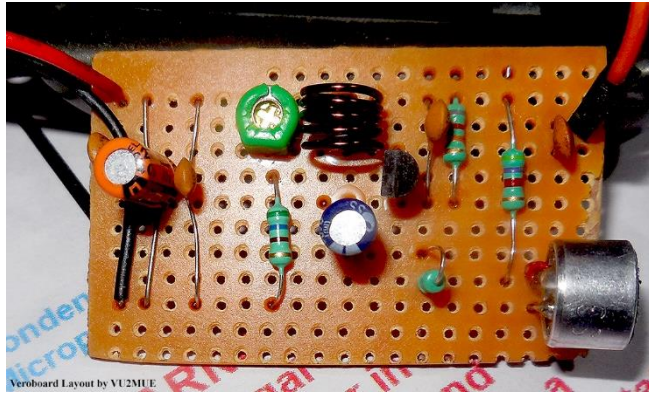
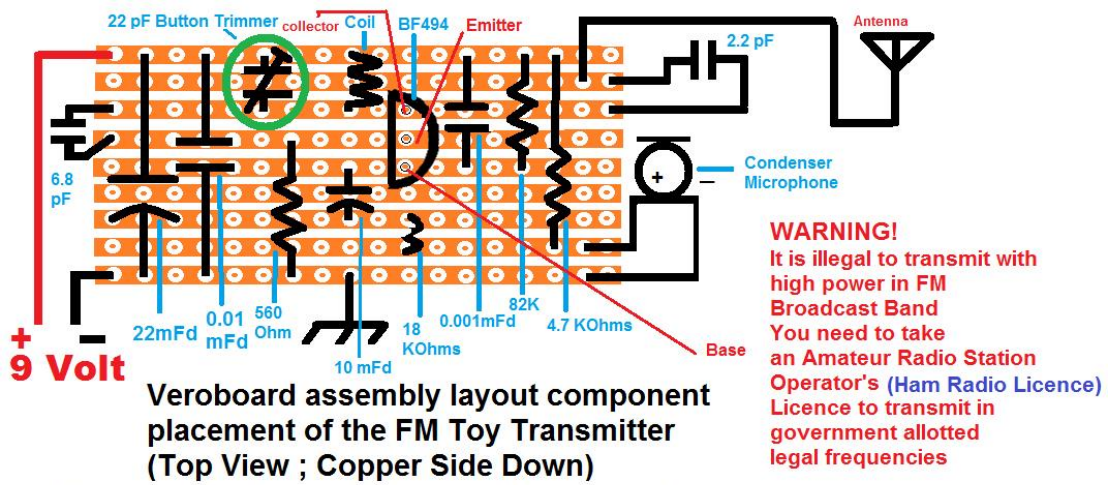


# FM Toy Transmitter Assembly Instructions



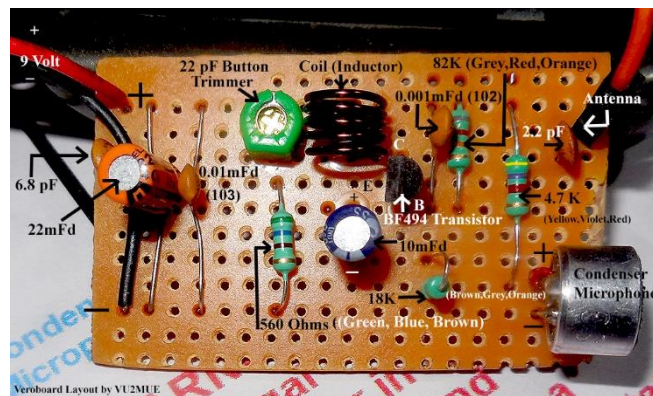
1. Component placement on the “veroboard” general purpose PCB.
2. Use 9 tracks of the veroboard as in the layout shown below:

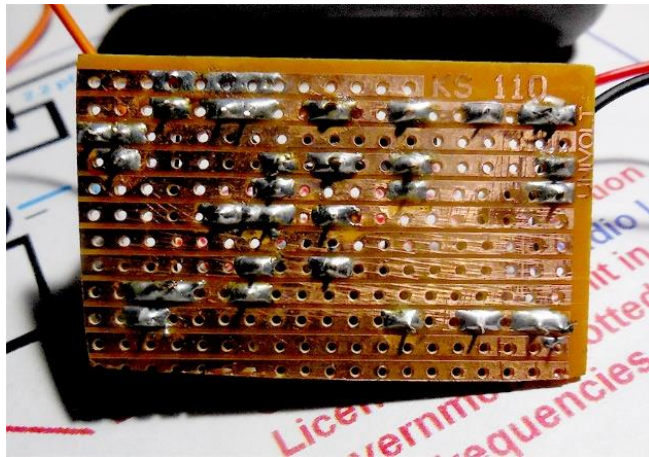


This is a representative diagram only which is not into scale; apply your imagination to assemble it in a "close space" or "larger layout area" as per your soldering skill. Radio Frequency circuits assembled in closed space perform better as the Printed Circuit Board tracks also contribute to change in operational parameters

VU2MUE

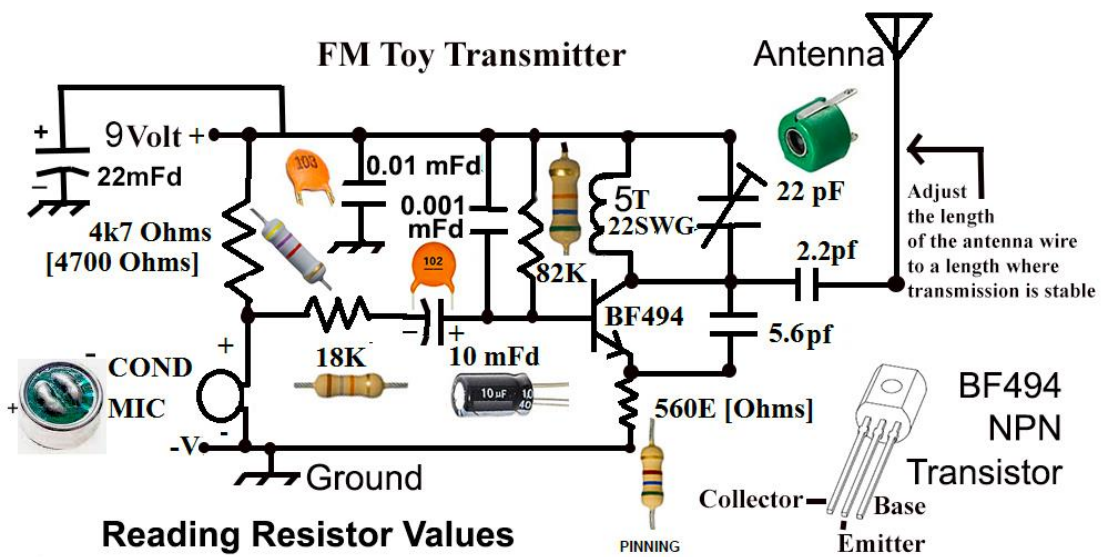
3. Component description





Bottom view after soldering

### The circuit diagram

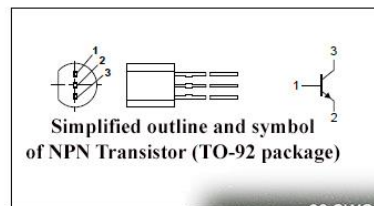


### Reading Resistor Values

Band	1	2	3	4	5
Meaning	1st Digit	2nd Digit	3rd Digit	(No. of zeros)	Tolerance % (No band +/- 20%)
Silver				.00 (divide by 100)	+/-10%
Gold				.0 (divide by 10)	+/-5%
Black	0	0	0	No Zeros	
Brown	1	1	1	0	+/-1%
Red	2	2	2	00	+/-2%
Orange	3	3	3	,000	
Yellow	4	4	4	0,000	
Green	5	5	5	00,000	+/-0.5%
Blue	6	6	6	,000,000	+/-0.25%
Violet	7	7	7	0,000,000	+/-0.1%
Grey	8	8	8		+/-0.05%
White	9	9	9		

For better performance of the FM transmitter try to assemble it on a copper clad board instead of the veroboard provided with the kit, as RF circuits on higher frequencies (e.g. VHF) require adequate shielding

PIN	DESCRIPTION
1	base
2	emitter
3	collector

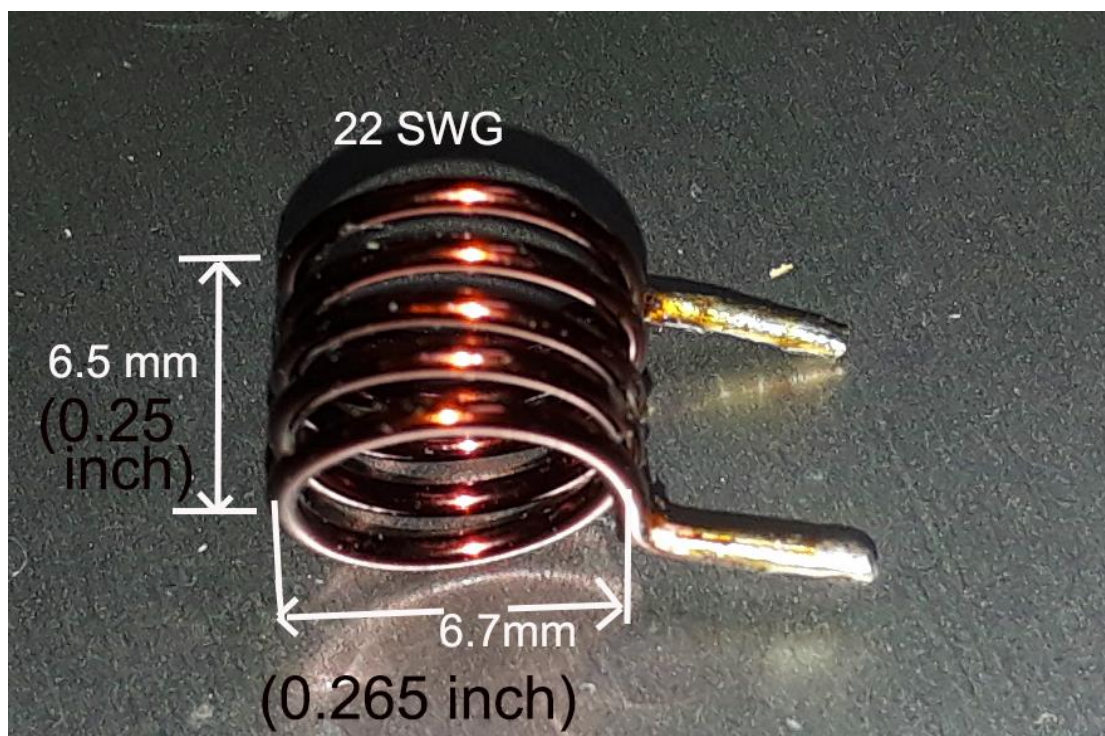


**Coil Specification:**  
 Use 22 SWG copper wire  
 Coil diameter = 6.7mm (0.265 inch)  
 Coil length = 6.5mm (0.25 inch)  
 Number of turns = 5

(Use a ballpoint refill of proper size to make the coil)



4. The “inductor” (coil) can be constructed using a ballpoint pen refill of proper size as described below by winding the copper wire (5 turns) provided with the kit. Remove the enamel insulation from the copper wire for soldering into the printed circuit board.



5. Solder a flexible wire (approx.. 1m in length) to the strip no. 2 of the veroboard where the 2.2 pF disc ceramic capacitor is soldered with its one end open. Any flexible conducting wire (with plastic insulation) used for electrical work can be used as an antenna. Hang it at an open space away from other objects for proper radiation.
6. The FM toy transmitter should be tuned to a frequency where no FM Broadcast station is transmitting. It transmits well near to 90 MHz ( 89-90 MHz). Turn the Green coloured Button Trimmer (Variable Capacitor) using a small screwdriver while keeping a FM Receiver tuned to 90 MHz. When tuned, the noise from the FM receiver would be squelched by the blank carrier transmission from the transmitter and there would not be any noise on the receiver’s speaker. Now play some song from any device by keeping it near to the FM transmitter microphone