

# Primary Electromagnetic Battery Model Version A (TJ-56-519A)

Please read this manual carefully before starting assembling this kit

## 1. Features of this kit

1. Use screw compression mode to connect electronic components, less welding, less use of electric iron, install tool screwdriver (cross or one type), suitable for all kinds of people, especially for children (need to complete the power operation under supervision).
2. This kit is equipped with a transparent and beautiful acrylic transparent shell, not only beautiful, but also can effectively protect the circuit components, easy to demonstrate and play. More importantly, the electromagnetic gun is a device working at high voltage, and the voltage in the energy storage capacitor can reach 100V. Although the small energy will not cause fatal damage to the human body, it may still cause electric shock accidents. Safety is greatly improved after putting the entire device into an insulated plastic shell.

## 2. Installation method

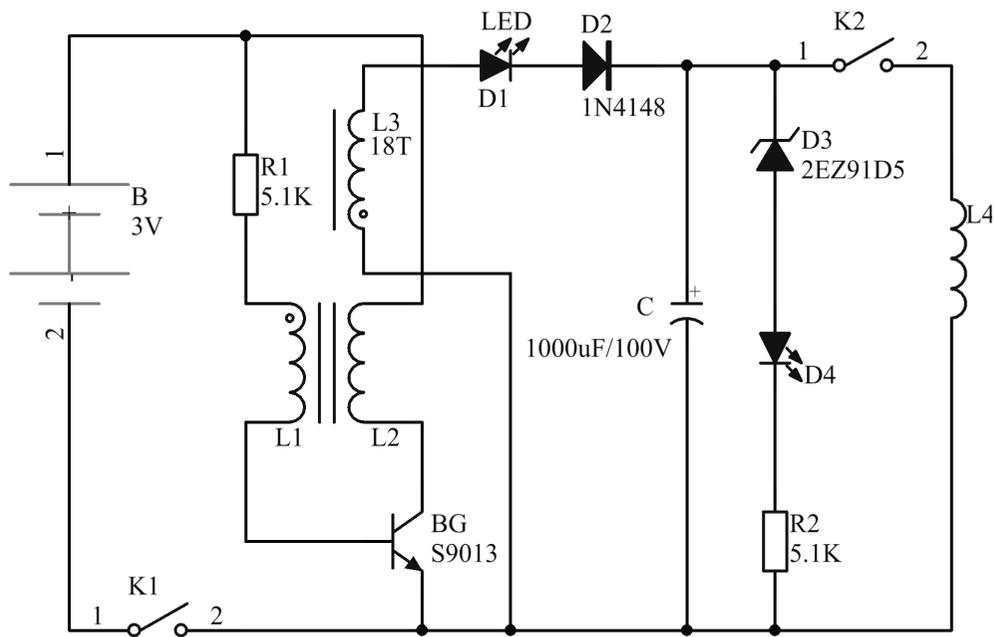
1. According to the physical drawing, weld the battery box to the board and fix it with screws; the 2P terminal, grooves and bumps can be put together to form a complete 10P terminal and a 4P terminal, respectively welded to the main board; the electromagnetic gun coil shall be welded to the small board and weld the wire, and the transparent plastic cylindrical gun pipe is stuck into the coil (stuck with a small black heat shrink pipe).
2. Install the components on the circuit board according to the solid drawing, and each screw terminal can press up to 8 leads. When the individual thinner lead and the thicker lead are together, the thin line will not be pressed tightly, at this time, the thinner lead can be combined into a stranded overlap, the diameter can be doubled;
3. After assembling the circuit board, connect the component lead on the acrylic cap to the circuit board; the assembly can be operated by yourself, or refer to the physical drawing,
4. After checking the circuit is correct, install two no. 5 alkaline batteries, close the lid, screw all the screws, and make the acrylic shell tight. Please refer to the physical drawing or analyze and assemble it by yourself.

## Three, the use of the method

1. Dial the power switch (button switch K1), when the green light-emitting diode lights up and the circuit starts to charge the energy storage capacitor. Wait for about 2-3 minutes red light emitting diode is also up (slightly light (more than 90 volts), or not light, as long as more than 70V, can be normally launched), at this time the energy storage capacitor has been full of charge, the launch work is ready;
2. Push the projectile (cylindrical carbon steel rod) from the back of the barrel, and the tail should be flush with the tail of the barrel (try to change different positions, 1mm each time, to find the best distance). Press the launch button (start switch K2), the projectile flies out of the gun barrel, and the launch process is completed. Pay attention to the action of pressing the launch button to be crisp, press to release as soon as possible.

## IV. Matters needing attention

1. The internal working voltage of the device can reach 90100V, exceeding the international safety voltage standard of 36V, so do not touch the internal electronic components, otherwise the electric shock accident will occur. The insulation skin of external electronic components such as wire circle is thin, so avoid damage and leakage caused by rubbing. The switch is also a weak link, if there is naked, in the version of no shell will be higher risk, pay attention to processing. The self-assembled circuit board inevitably has errors or faults. If the booster circuit can work normally, the voltage of the energy storage capacitor (1000 uF / 100V) may have been charged to a higher value, resulting in potential electric shock. So before troubleshooting and processing, the first use a multimeter test energy storage capacitance of foot voltage, or directly with a plastic leather wire (peeling on both ends of the copper wire), hold the plastic part with both ends of the copper wire touch the capacitor feet discharge treatment, the charge completely release capacitor voltage will drop to 0V, and disconnect the power supply, then can safely with operation.
2. The device consumes a large power, and the working current is about 5 OmA. The charging speed is slower when the battery is used and the voltage is reduced, and the cycle of each charging becomes longer. Change the battery in time when the device is too poor. Some players may load high voltage batteries to pursue charging speed, which will increase the chance of circuit components burning (when the test 5V input 9013 is very hot, it may smoke at any time, so we have a 9013);
3. Usually, after sufficient power transmission, there will be an unconsumed charge in the energy storage capacitor, and it can be launched again, but the range is significantly reduced;
4. Although the projectile launched by this product are very small, they should not be fired at sensitive parts of the human body and other fragile objects;
5. The range is related to the launch Angle. The shortest range of the device is flat on the table, about 1 meter, and the elevation is 45 degrees (hold the projectile to avoid sliding out)



## V. Relevant resources

1. About the working principle of the electromagnetic gun, please baidu by yourself. Note that the LED red is not connected! If the spare LED ship type switch is damaged, connect the K1 reference diagram button switch, Connect 8 feet and 9 feet electromagnetic gun coil, one end 8 feet and one end 10 feet Battery seat connected to 3V + 3V-pay attention to distinguish between positive and negative electrode please note again that LED red cannot welding back! If damaged, spare standby LED.The golden copper wire surface of the magnetic ring transformer has insulation paint, which needs to be scraped off, otherwise it is not conductive.

All components can be connected by reference to the right diagram, detailed can be connected according to the circuit diagram.

Boost magnetic ring, coil connection method: all the lines with \* number are the thread head running up from the magnetic ring hole, and the line with no \* number

The heads are the threads running down from the magnetic ring hole.

The number of L 1 and L2 are 4, L3 is 18, the number of laps is the same, the exchange effect is the same.

Also refer to the physical drawing

**The launch coil is connected to 8 and 10 feet, regardless of polarity.**

A joint at the same time a few lines, easy to which one or two lines loose, poor contact, it is recommended to put a few first

After screwed together, tighten the screws.

Common faults: green LED is not bright, check whether there is bad contact, check whether the booster coil is wrong.

After normal use for a period of time: always charging, red LED does not light (or slightly light), measurement

order number	name	parameter	Accessories figure number	quantity
1	Energy storage electrolytic capacitor	1000uf/100V	Pay attention to the positive and negative! Horizontal welding	1
2	diode	1N4148		1
3	Zener diode	2EZ91D5		1
4	2 No.5 battery seats			1
5	M2 * 6 screws		Fixed battery box	2
6	M2 nut			2
7	Color ring resistance	5.1K	R1 R2	2
8	LED red	5mm	If the welding is wrong, please replace the spare LED (spare 1)	2
9	LED hispid arthraxon	5mm	(Prepare 1)	2
10	dynatron	9013	(Prepare 1)	2
11	Magnetic ring transformer		Include the following two	1
	Two tin-plated lines		4T around the transformer	2
	0.51 Copper wire	45cm	Top 18T around the transformer	0.45 Meters
12	tinned wire	20cm	Self-cut into 10cm for use	6
13	Twist switch		The K1 master switch	1
14	Point switch		The K2 emission switch	1
15	One set of electromagnetic gun coils		Include the following two	1
	Plastic barrel	special use	Inside the electromagnetic gun coil	1
	3MM, heat shrink tube fixed	About 1cm long	The stuck gun works	1cm
16	motherboard PCB			1
17	subplate PCB			1
18	M4 * 12 iron pillar gun			5
19	The M 3 * 10 copper column		Main board mat	4
20	M 3 * 6 screws		Fixed mat	8
23	M3 nut		Battery pad	4
24	Large terminal, 2P	The 2P spacing is 8.5mm		7
25	M3 * 5 nylon pads		Battery pad	4
<b>The following is the acrylic shell optional AB version general</b>				
	Acset of one shell			6
	M2 * 10 screw		Secthe acrylic housing	8
	M2 nut		Secthe acrylic housing	8
	M3 * 12 screw		Fixed gun plate M3 * 6 is changed to the motherboard	4

