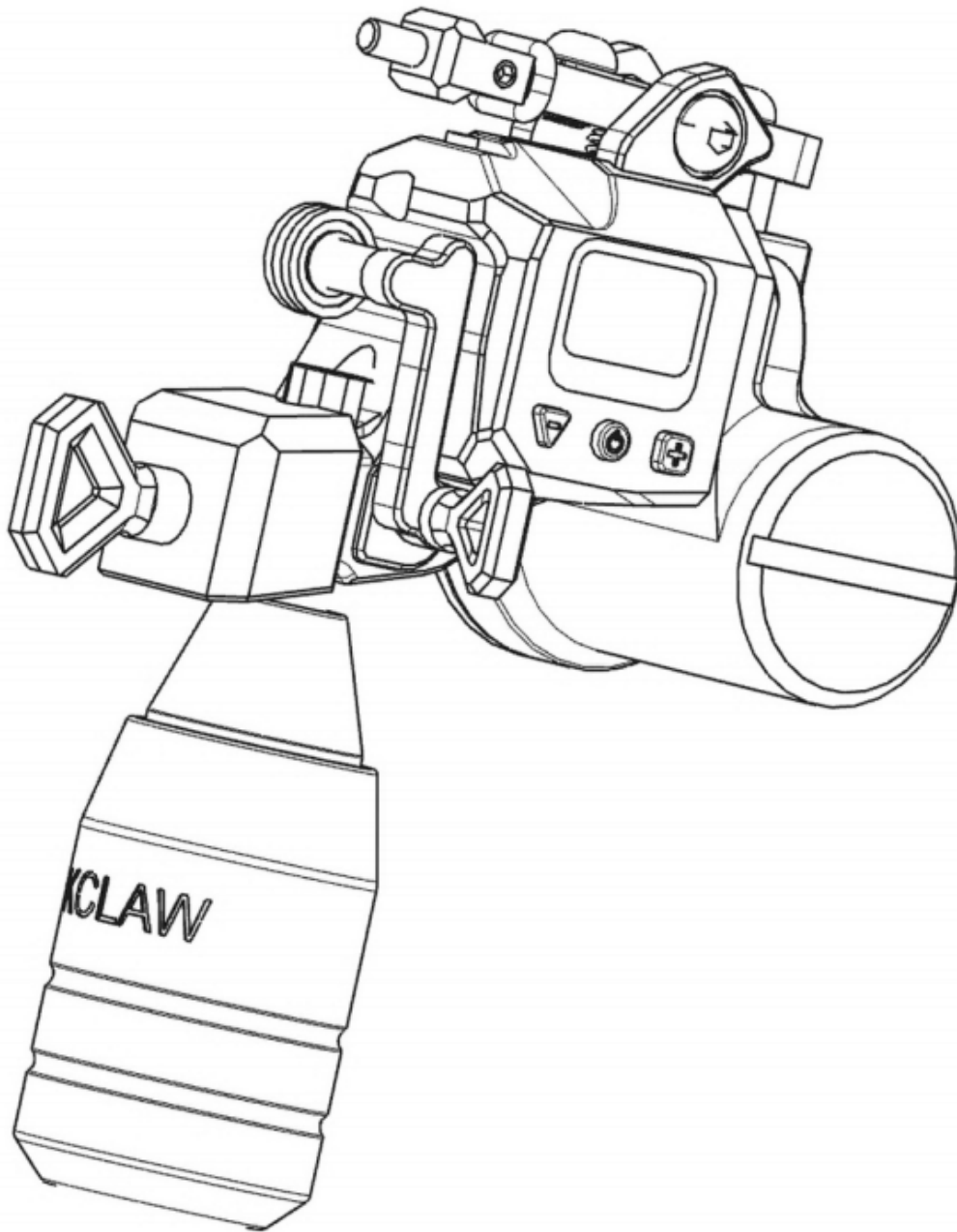


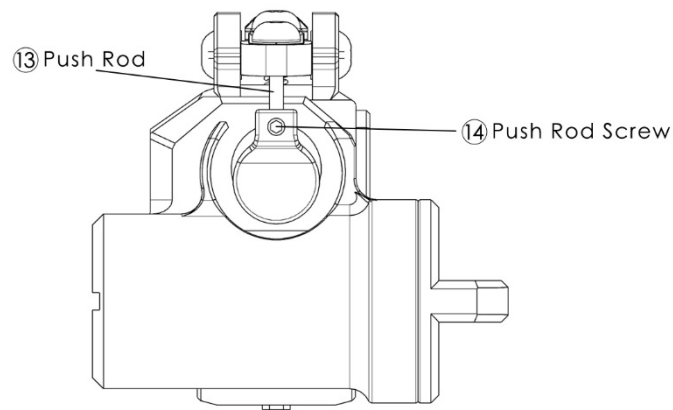
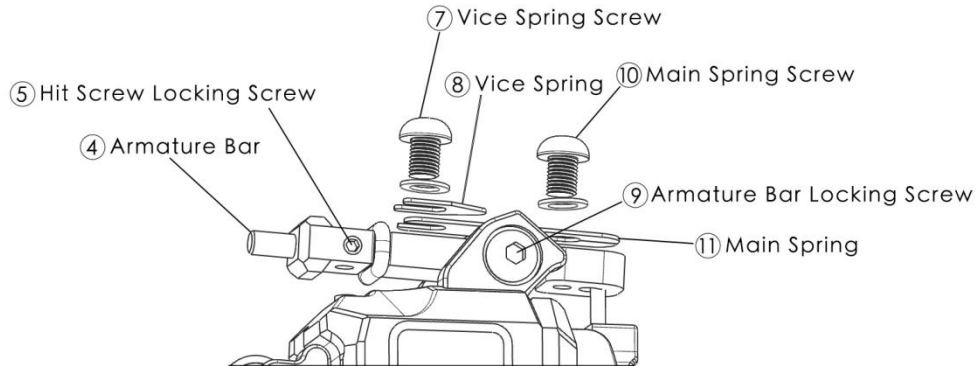
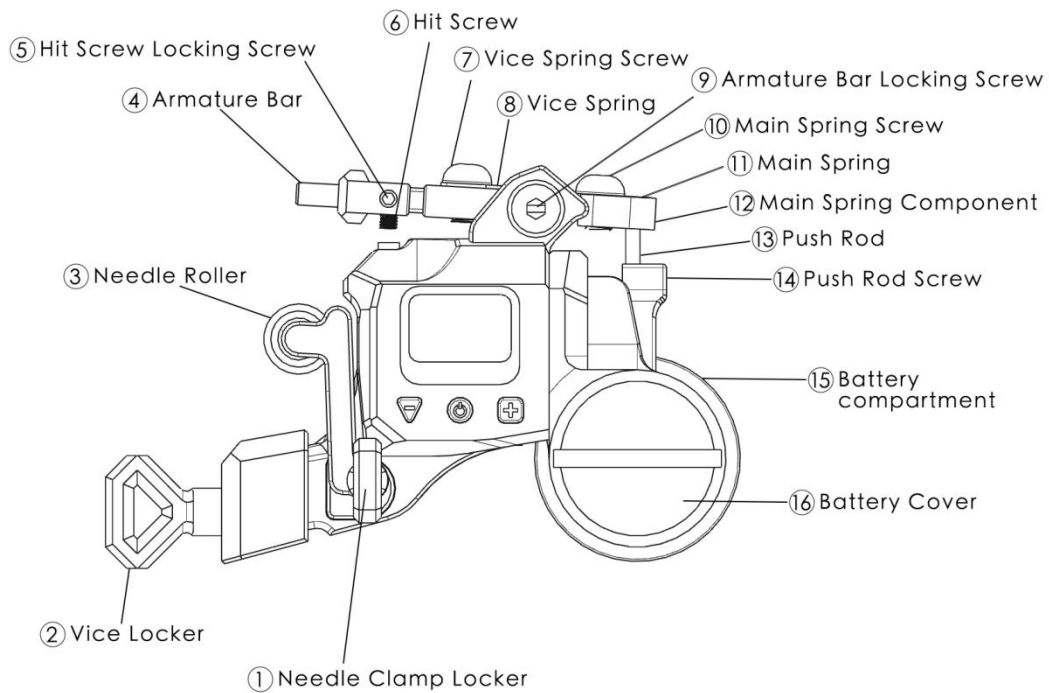
Black Tortoise Operation Manual



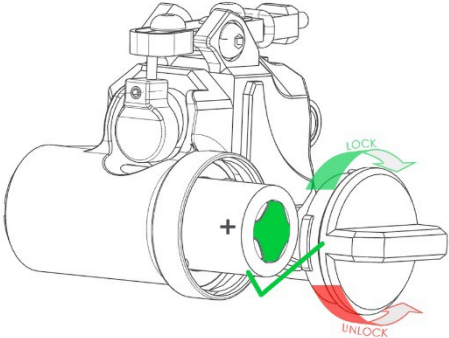
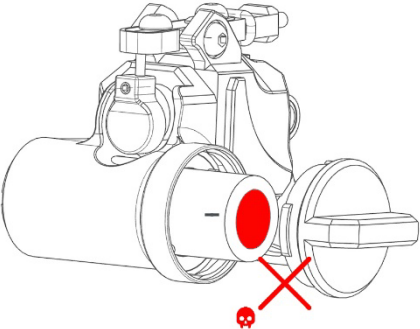
Manufacturer: Inklaw

Black Tortoise Mark I and Mark II

1. Parts



2. Battery Model and Installation

About Battery	
<ol style="list-style-type: none">1. Use 18350 Battery (Flat Top)2. Battery positive pole facing outwards3. Open the battery cover counterclockwise Lock it clockwise4. Purchase Brand-certified batteries	<p>X Do not install the battery with the negative pole facing outwards, as this will damage the device.</p> <p>X Do not use the machine without locking the battery cover.</p> <p>X Please do not leave the empty battery in the machine for a long time.</p>
	

3. Operation Guide

- 2.1 Click + and – at same time to reset timer
- 2.2 Recommend voltage 4V – 6.5V, for bar needles, this will vary for cartridges
- 2.3 Long press the center button to turn the machine on/off
- 2.4 After 30 second of no operation, the screen will turn off. The machine will turns off after 1 min of no operation.

4. Grip Locker and Needle Clamp

1. Install the grip to right position
2. Insert a plunger bar or a bar needle then slightly tighten the grip locker
3. Adjusting needle clamp and roller:
Bar Needles User: Need to bend the needle bar a bit at the point (the roller touches the needle, which can make a better fit between bar needle and tip)
Cartridge User: you can work without Needle Clamp or just a slightly pressure with the plunger. Pressing too hard dampens the sharpness of the impact, reduces the power of the machine.
4. Turn on the machine, if there is no strange voice, then you can start working.

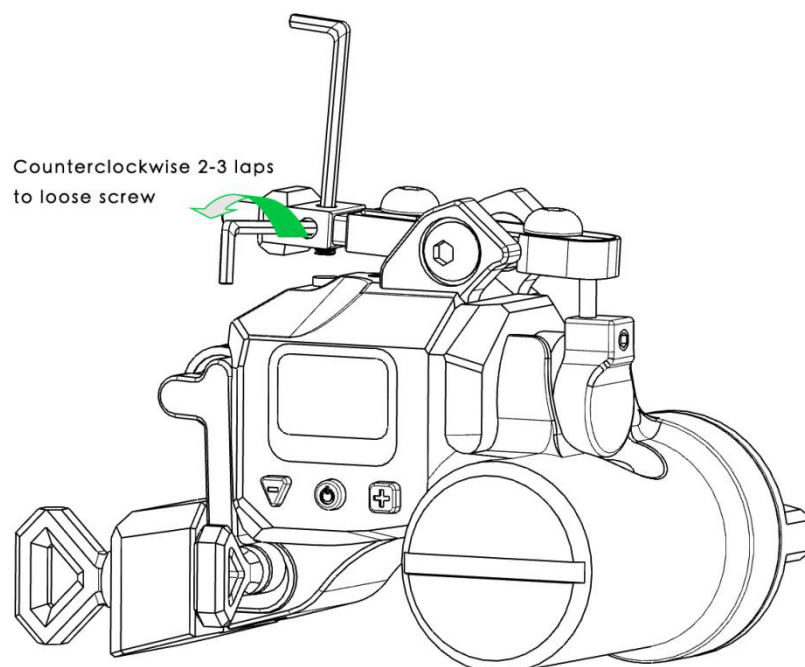
5. Sterilization

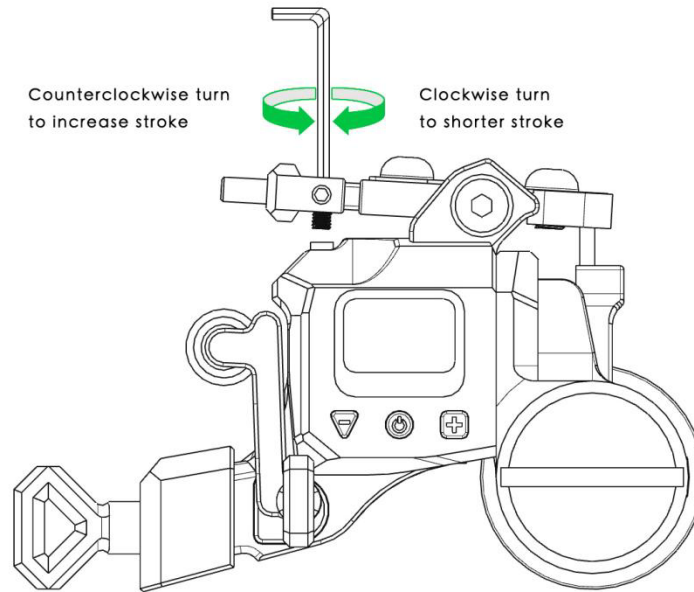
1. Use **ONLY** alcohol-based disinfection and sterilization solutions to protect components of the machine from corrosion.
2. Use disposable paper napkins and cotton swabs to clean the machine
3. **DO NOT** use water-based disinfectant solutions for sterilization - this will lead to corrosion.
4. **DO NOT** try to sterilize the machine in an autoclave or a dry heat sterilizer – this will disable your machine and make it unsuitable for repair

6. Stroke Adjustment

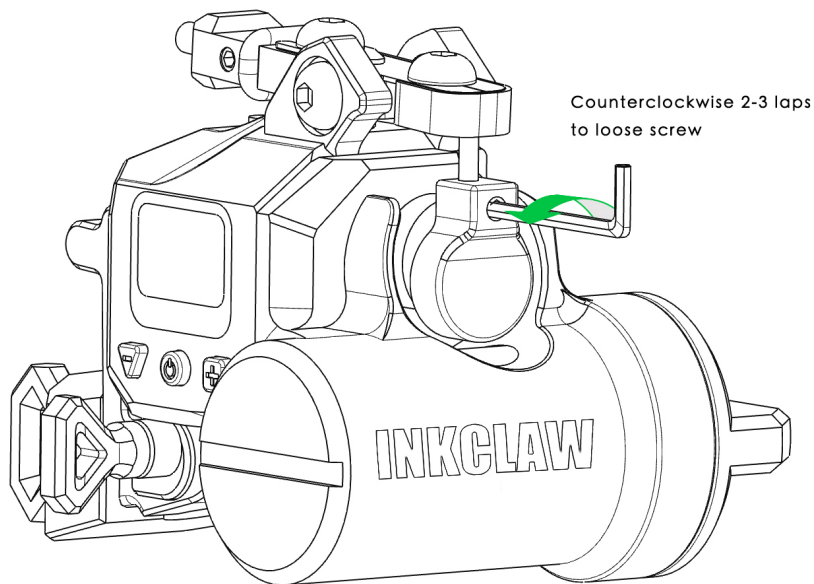
The adjustable stroke range of the Black tortoise is between 2.5mm and 4.5mm. The concept and feeling of the stroke is different from other direct drive rotary tattoo machines. The Black tortoise offers two different armature bars and three different hit methods. Screw hit and Rubber hit use same armature bar, while Duo Rubber hit uses another kind armature bar. The Black tortoise adapts “Leverage Principle” , the higher the armature bar head is tilted, whilst the main spring is in the lower position will provide a longer stroke length. On the contrary, the higher position of the main spring, the shorter the stroke length will be.

1.Stroke Adjustment of Screw Knocking

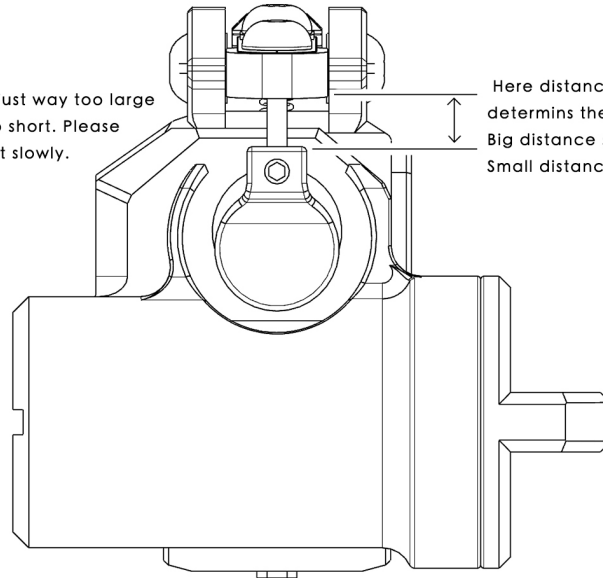




1. Counterclockwise loose ⑤ side locker screw 2 to 3 turns. Then adjust ⑥ knocking screw, the higher screw position the larger stroke. On the contrary, the lower position of the knocking screw, the shorter the stroke length will be. Do not forget to tight the ⑤ side locker screw after adjusting.

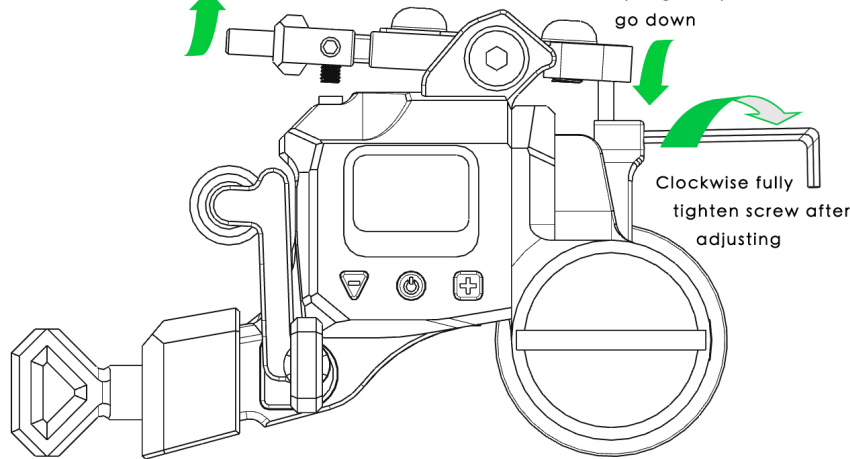


Do not adjust way too large
or way too short. Please
adjusting it slowly.



Here distance in between
determines the stroke length.
Big distance shorter stroke
Small distance large stroke

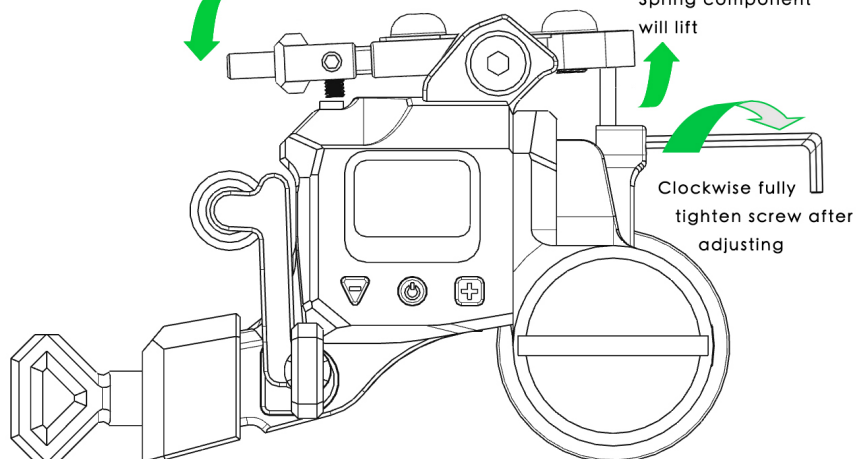
Lift up armature bar
to increase stroke



Spring component will
go down

Clockwise fully
tighten screw after
adjusting

Press down armature bar
to shorter stroke

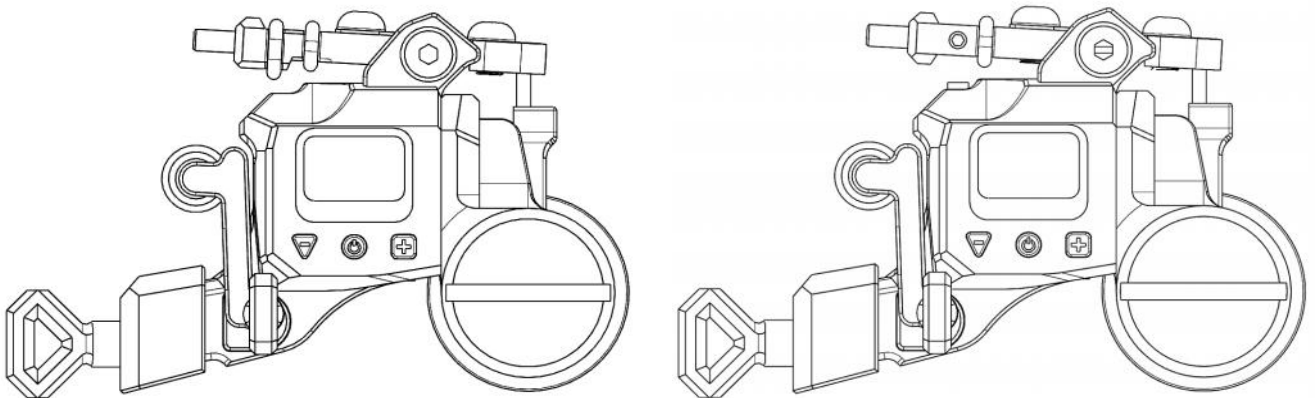


Spring component
will lift

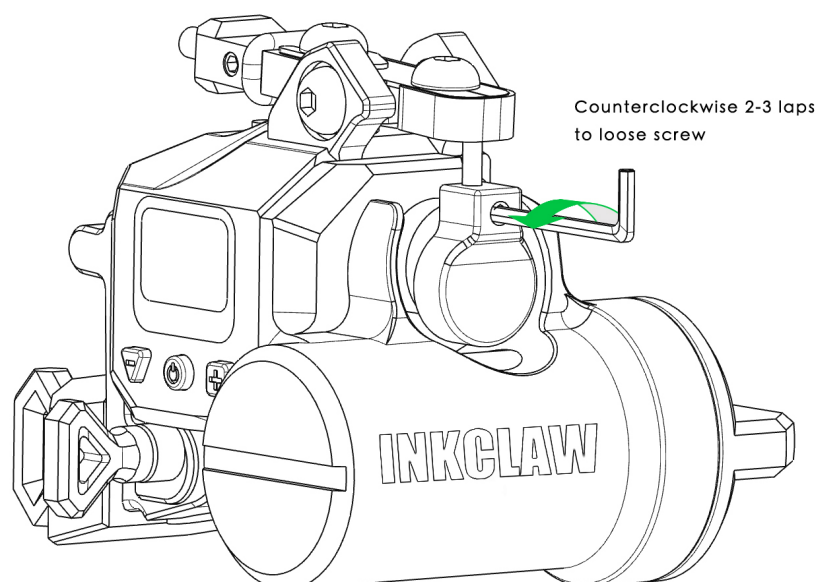
Clockwise fully
tighten screw after
adjusting

2. Counterclockwise loose ⑭ Push Rod Screw 2 to 3 turns. Then adjust the position of ⑫ Main Spring Component. Press down on the ④ Armature bar and the ⑫ Main Spring Component will lift up, the stroke will now be shorter. On the contrary, lift up ④ Armature bar and the ⑫ Main Spring Component will go down, will provide a longer stroke length. Remember do not adjust the stroke way too large, it will lead a ink spreading issue, or easily break membrane of cartridge needles.

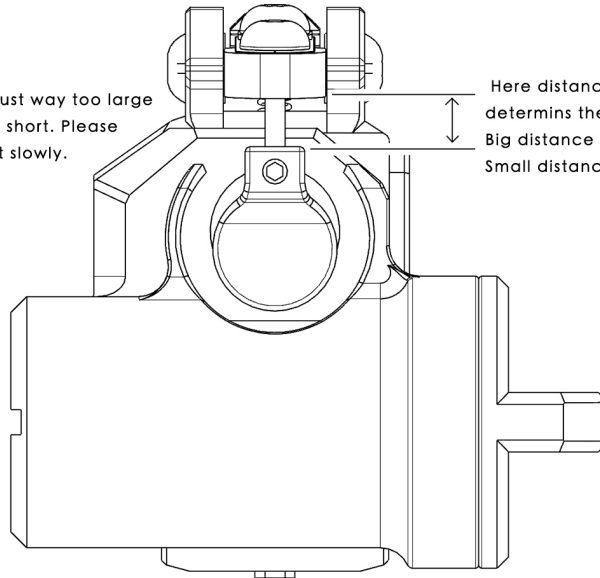
2.Stroke Adjustment of Single or Duo Rubber Knocking



1.For single rubber or duo rubber hitting, there is no place to adjust the stroke at the armature bar part. Counterclockwise loosen ⑭ Push Rod Screw 2 to 3 turns. Then adjust the position of ⑫ Main Spring Component. Press down on the ④ Armature bar and the ⑫ Main Spring Component will lift up, the stroke will be shorter. On the contrary, lift up ④ Armature bar and the ⑫ Main Spring Component will go down, this will provide a longer stroke length. Remember do not adjust the stroke way too large, it will lead a ink spreading issue, or to easy breaking of cartridge membrane.



Do not adjust way too large
or way too short. Please
adjusting it slowly.



Here distance in between
determines the stroke length.
Big distance shorter stroke
Small distance large stroke

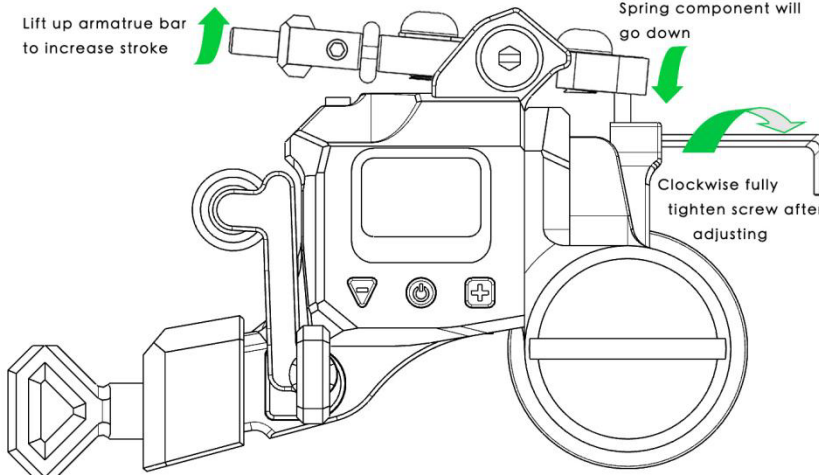
Lift up armature bar
to increase stroke



Spring component will
go down



Clockwise fully
tighten screw after
adjusting



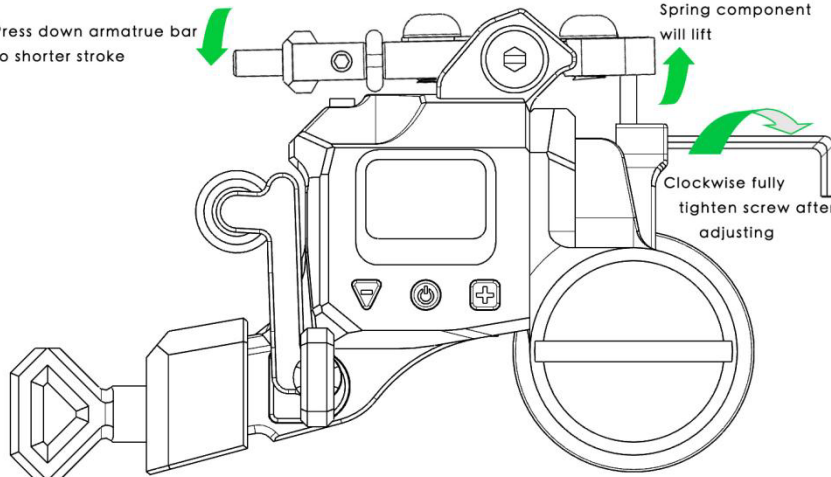
Press down armature bar
to shorter stroke



Spring component
will lift

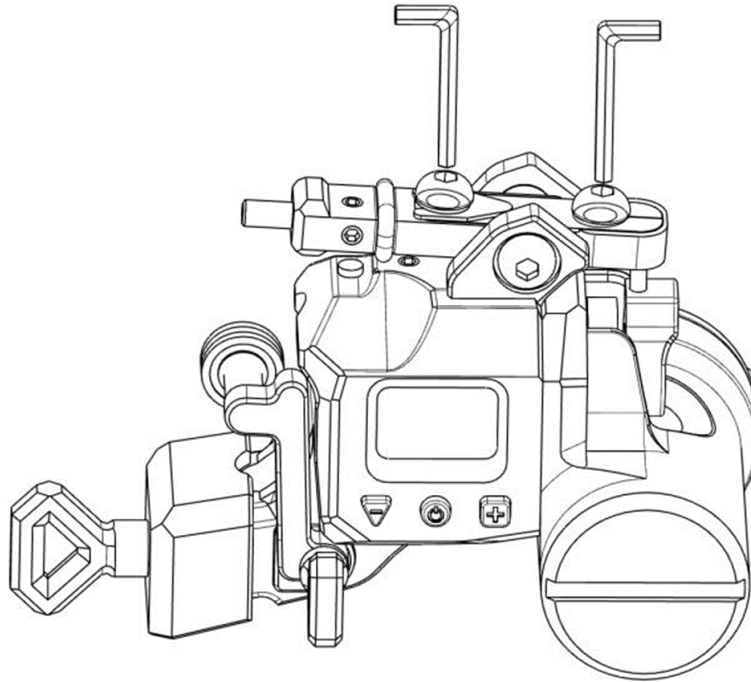


Clockwise fully
tighten screw after
adjusting

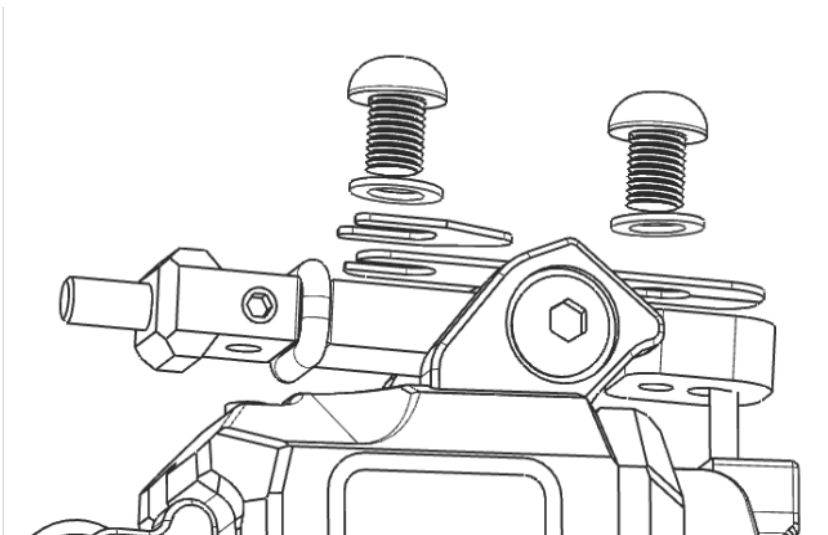


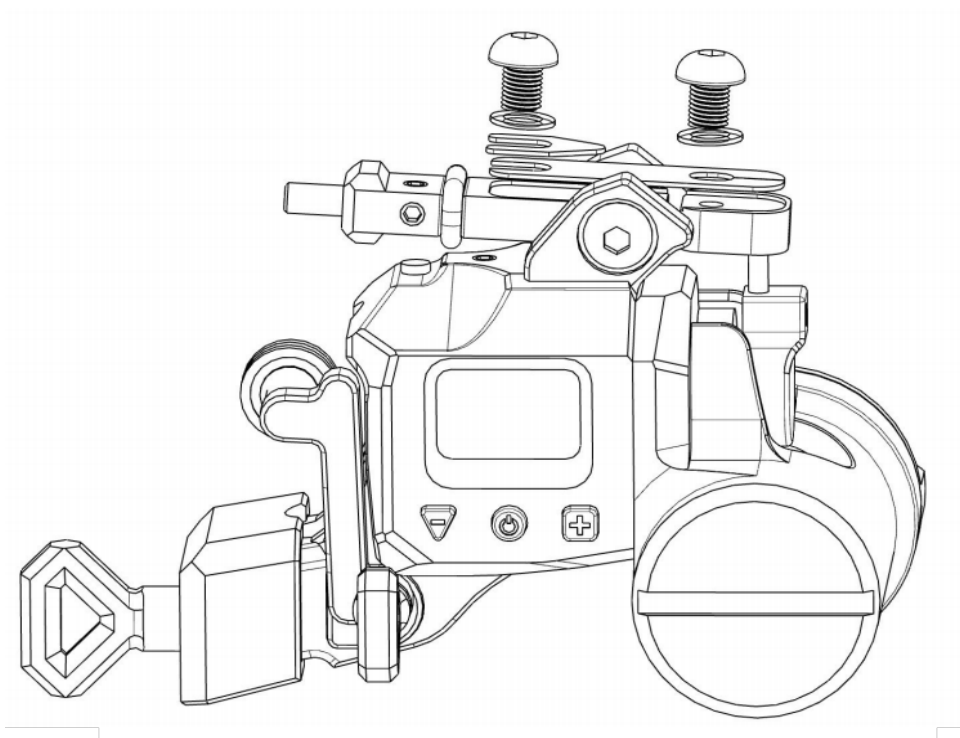
7. Changing The Spring

After the machine has been working for a long time, the spring piece will have been subjected to upward pressure for and will slowly deform. Slight deformation can be restored by adjusting the stroke. However, if the deformation is serious or the spring piece is broken, the spring piece needs to be replaced.

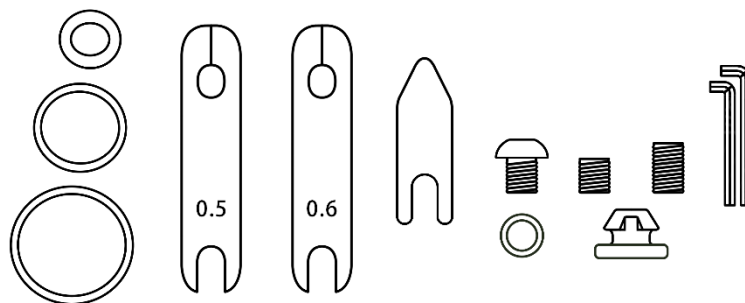


1. Counterclockwise loosen both ⑦ Vice Spring Screw and ⑩ Main Spring Screw, take off both screws, gaskets, and springs(⑧ and ⑩). Then Install the ⑩main spring, gasket, and screws first, then install the ⑧ vice spring plate, gasket, and screws. Before tightening the screws, check whether the gasket and springs are installed in the correct position. For reminder, Tighten the ⑦ Vice Spring Screw slightly, then tighten the ⑩ Main Spring Screw, and fully tighten the ⑦ Vice Spring Screw after the ⑩ Main Spring is fully tightened.





8. Accessories



- 1x 1.5 Allen Key 1x 2.0 Allen Key**
- 2x Main Springs 1x Vice Spring**
- 6x Rubber Knocking O-Ring**
- 3x Mid-Size Battery Cover O-Ring**
- 3x Big-Size Battery Cover O-Ring**
- 2x M3 Spring Locker Screw**
- 3x ⑭ Push Rod Screw (⑤ side locker screw) Same sizing**
- 1 pack needle nipple**