

# 3D Printed Toy Gun Assembly Manual

By: 3dPrinting99

## Materials and Tools:

M4 Threaded Rod or equivalent, 1m is more than enough.

A hacksaw to cut the rods (A vise would be great too).

PLA filament (And a 3d Printer).

Sandpaper (if the print doesn't come out well).

Lubricant, like wax, soap or wax, those will work good.

Springs Needed (You can easily test the springs you'll need; they don't have to be exactly the ones specified here, this is just a guide, but I recommend to have them in your hands before buying them):

1<sup>st</sup> Spring: Ext.  $\varnothing$  = 12 – 15 mm.

Length = 50 mm~.

Compressed to 15mm~.

Wire  $\varnothing$  = 0,4 - 0,7 mm.

2<sup>nd</sup> Spring: Ext.  $\varnothing$  = 8 – 6 mm.

Length = 30mm~.

Compressed to 20mm~.

Wire  $\varnothing$  = 0,4 - 0,7 mm.

3<sup>rd</sup> Spring: (This is the magazine one): Ext.  $\varnothing$  = 12-15mm.

Length = 100mm~.

Compressed to 20 - 10mm (Very low power spring).

Wire  $\varnothing$  = 0,4mm~.

4<sup>th</sup> Spring: A regular pen spring.

((as you may noticed, my technical English may not be %100 accurate, and the way I've named the components are not based on real gun terms, I just named them the way they look or/and work. If you find trouble looking for the specified part, the name is on the STL file, you can use them as a guide))

First, before 3d printing all the parts, you're going to need to make the next components:

If you choose the Full Frame option, you will need:

M4 x 27mm long. = 4 Units

M4 x 14mm long. = 4 Units

If you choose the Half Frame option, you will need:

M4 x 27mm long. = 11 Units

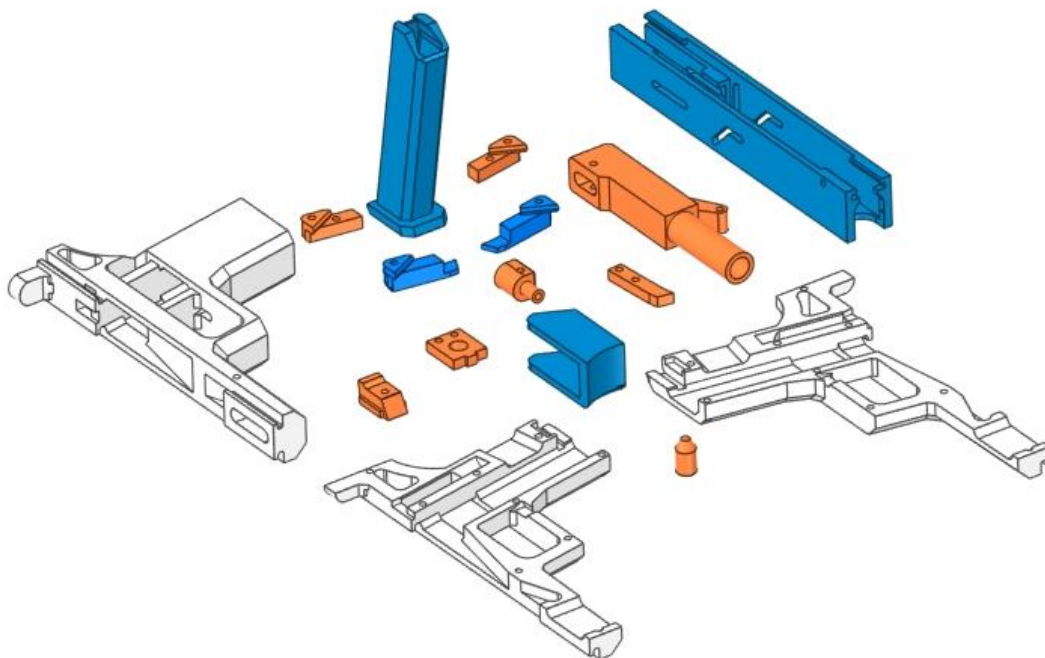
M4 x 14mm long. = 4 Units

To make the worm screws is as easy as just cutting the proper length from the m4 rod, and then to make the slotted head, just cut in the middle of the end with the hacksaw. (you could buy 30mm long m4 worm screws and then cut them. It's all up to you).

### 3D Printing

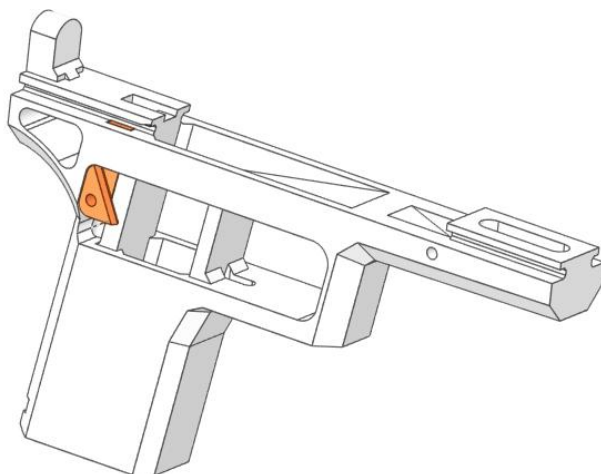
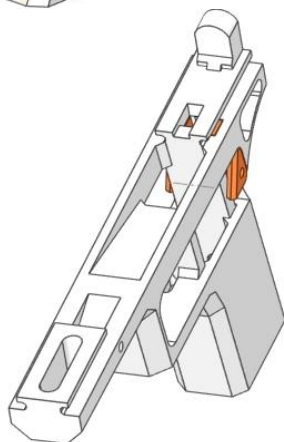
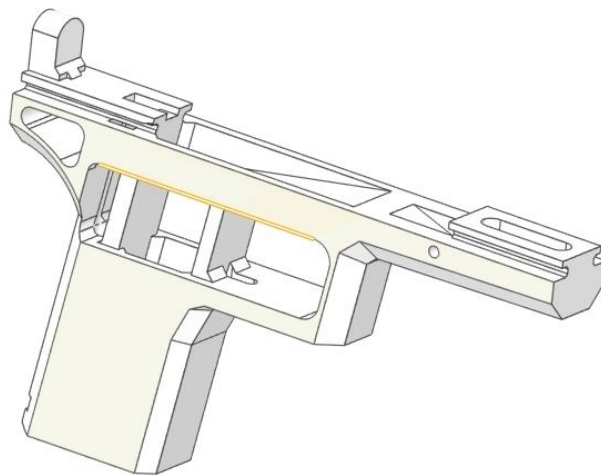
Here's an image where is showed how all parts must be oriented for best mechanical performance:

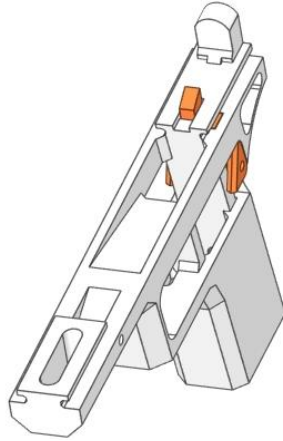
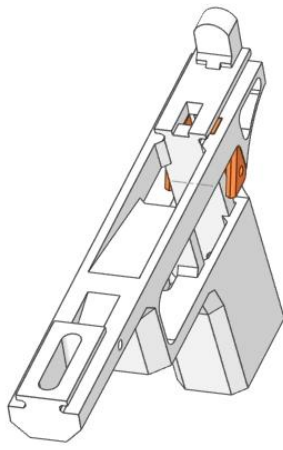
About print details, there's not much to say, the little parts can be printed at low layer height and high infill, and the bigger like the frame and slide can be printed at lower resolutions, but all must be printed below 0.15 layer height.



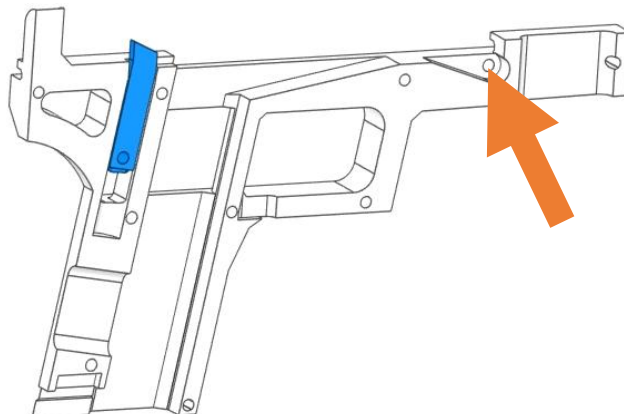
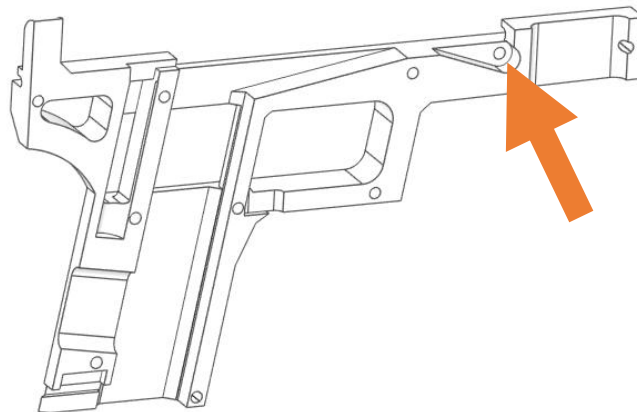
## Assembly

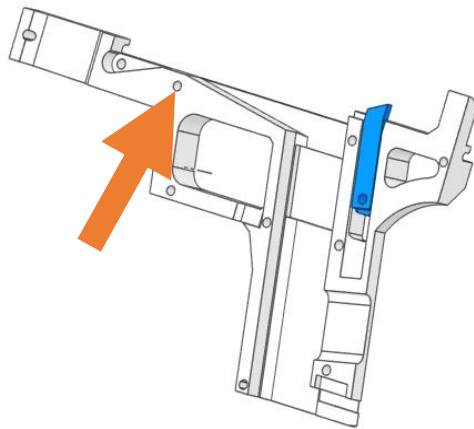
Full Frame Steps: For the single part frame, you just need to first insert the 2<sup>nd</sup> spring (specified at the beginning) where you will later insert angled pin releaser left and right, and finally the “though” pin from above, then screw all orange parts like a sandwich with 27mm long m4 screws. (You may find this difficult because the spring will be constantly causing pressure on the pins, but you must simple push it back with the help of a screwdriver).





Half Frame Steps: Insert left and right angled pin releasers, secondly the 2<sup>nd</sup> spring and then screw everything except the orange marked hole. Use 27mm long m4 screws.

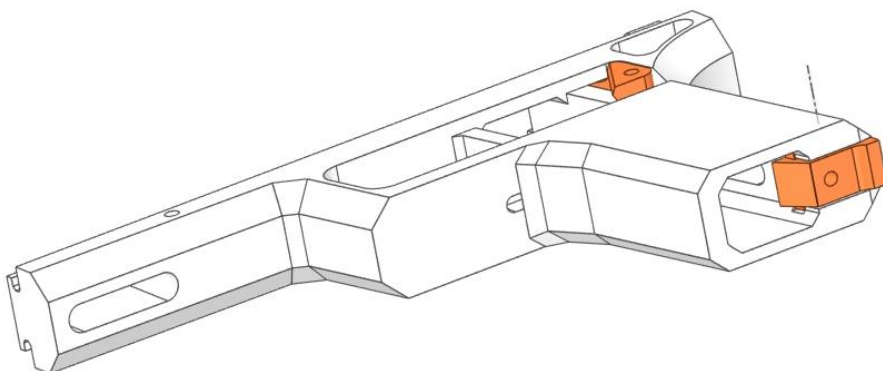
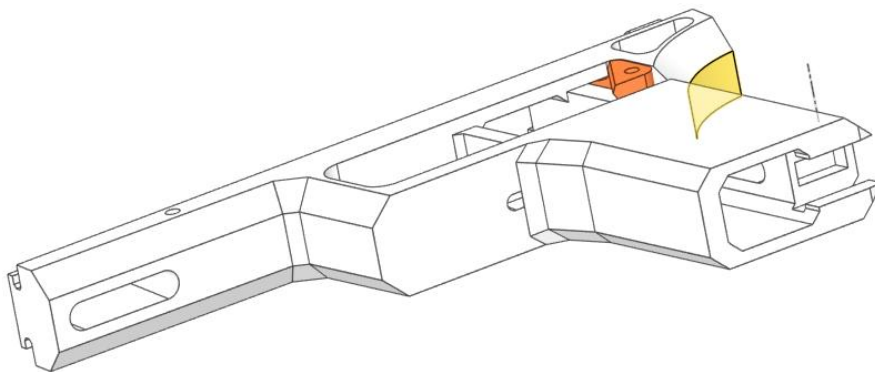




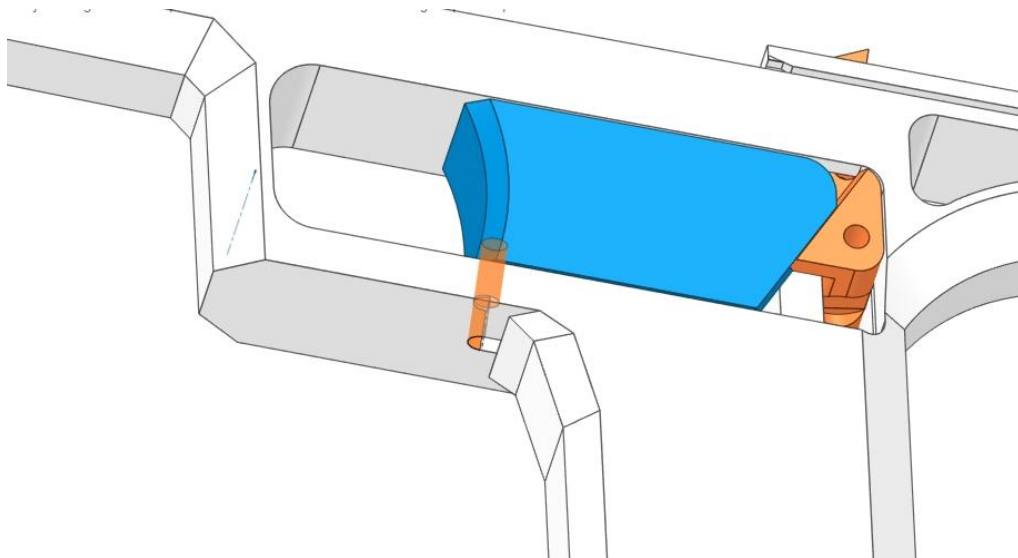
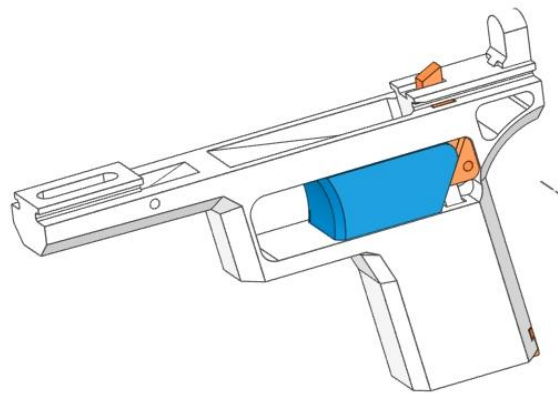
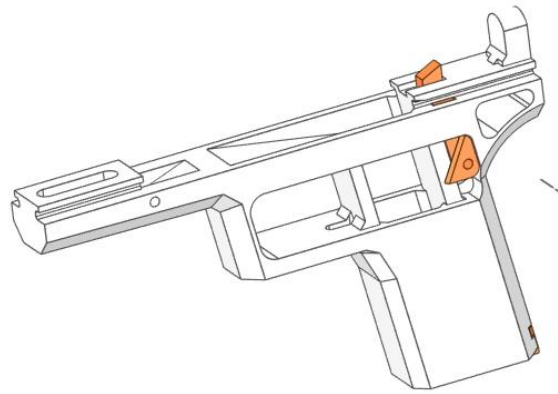
(You may find this difficult because the spring will be constantly causing pressure on the pins, but you must simply push it back with the help of a screwdriver).

The following steps apply for both frames, but I'm going to show them only in the FullFrame because it is the most visually appealing.

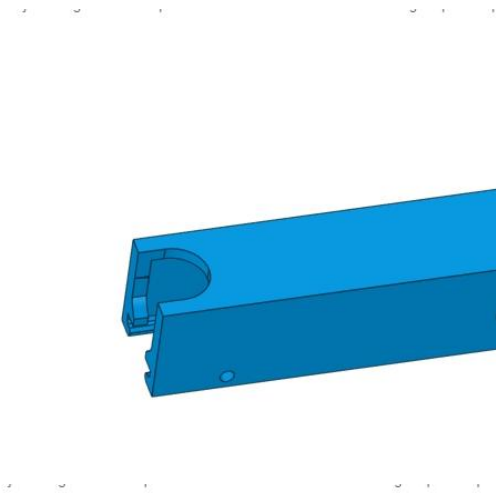
Next, insert the little 4<sup>th</sup> spring where shown, and then the magazine locking pin. Then just screw it with the 14mm long. M4 screw.



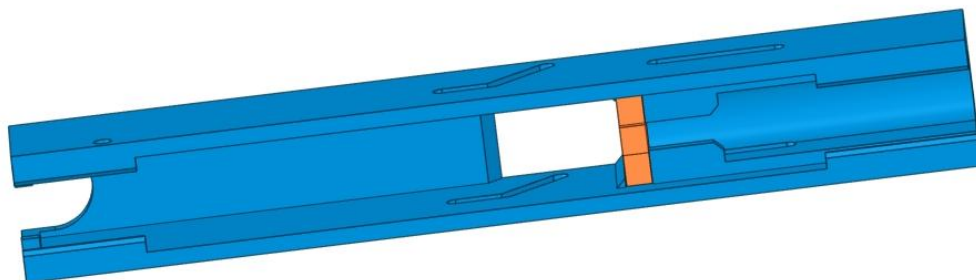
Insert the trigger into the frame like shown, and then use 27mm long M4 screw in the specified hole.



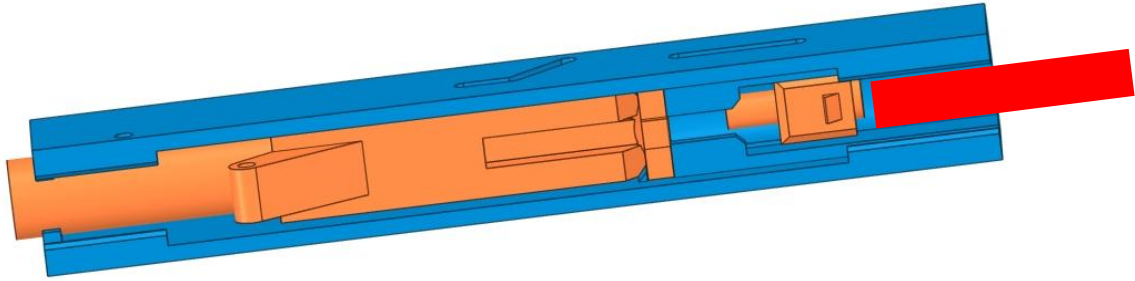
Well, let's move to the slide. Take the slide and insert the "bullet picker" where shown. Then screw it with two 14mm long. M4 screws.



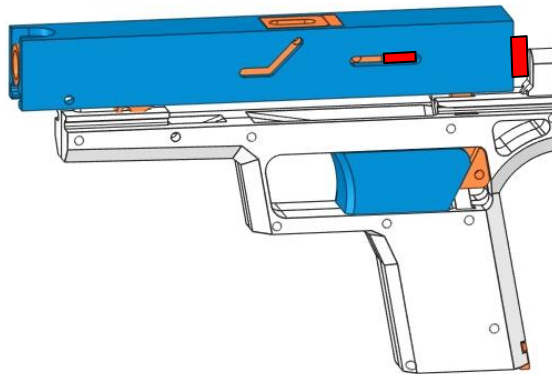
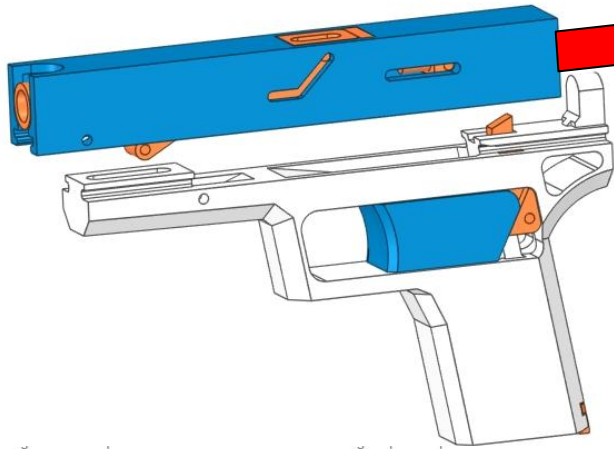
Then put the Barrel and firing pin in place like shown. Then only screw the firing pin with 27mm long. M4 screw. And put the 1<sup>st</sup> where shown in red.

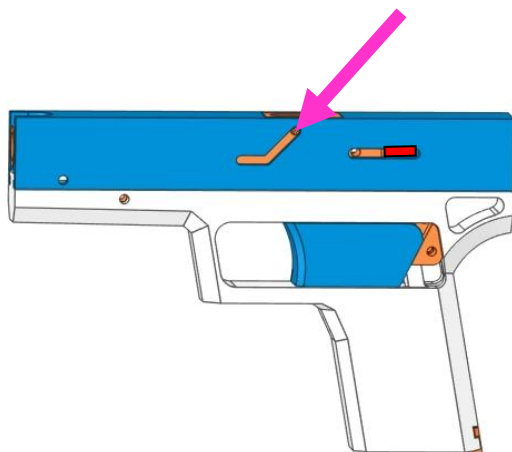
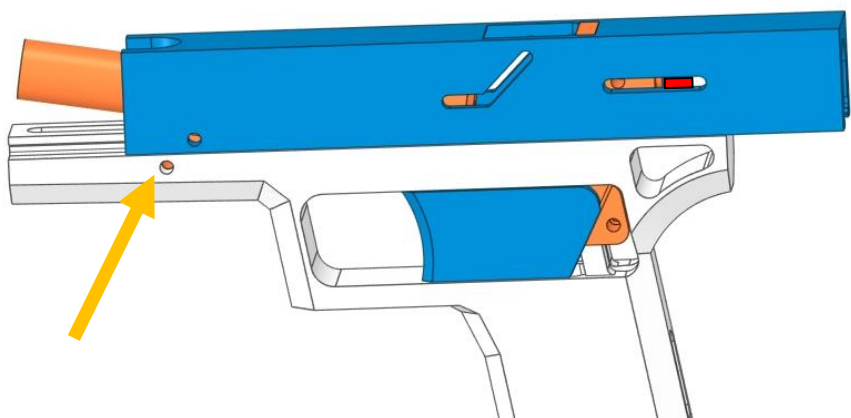
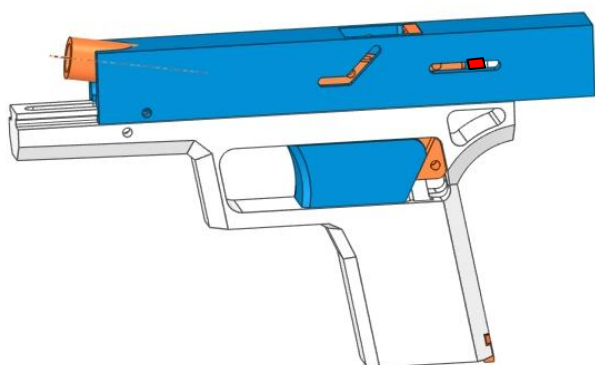
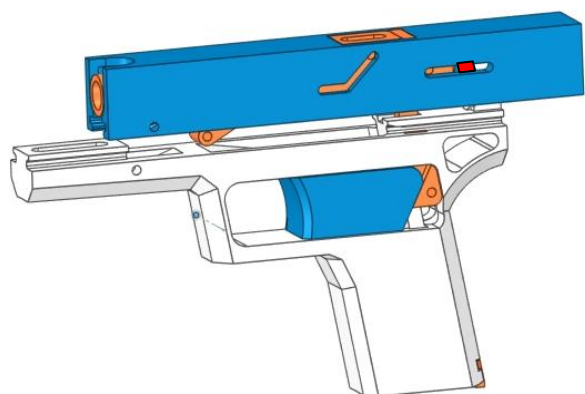




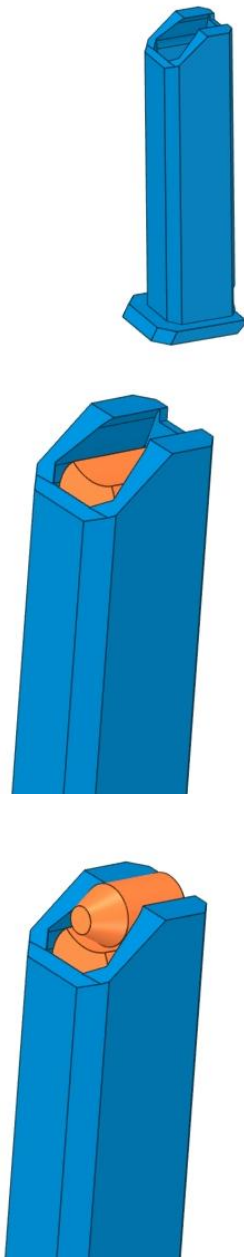


Assemble everything together following the next steps. The 1<sup>st</sup> spring (red) will be compressed between the firing pin and the frame. Then, the slide will be able to move into the frame, and the firing pin will be locked in place by the "Pin Releaser"/"Through Pin". Put the arm of the barrel into the frame as shown. Screw it where shown in yellow with 27mm long. M4 screw and then move the slide forward. At this point, if you pull the trigger the gun should do a dry fire (shoot without be loaded). Then screw the pink marked hole of the barrel with 27mm long screw.





The gun is finished, let's move to the magazine. Insert the 3<sup>rd</sup> long spring, then the "Magazine Follower". And it's done, just load some bullets and you are ready to go!



Finishing Touches: If the gun works but it's hard to use, just sand or/and lubricate any components that are touching each other, like the firing pin, slide, all "Pin Releaser", etc. Of course that all printers are not the same so your results may vary from mine. But I hope yours work properly.

Congratulations for have made it this far, thank you for support my first ever project published in PinShape. If you've experienced any issues or problems with this guide or the STL files, please contact me instantly through the PinShape website.