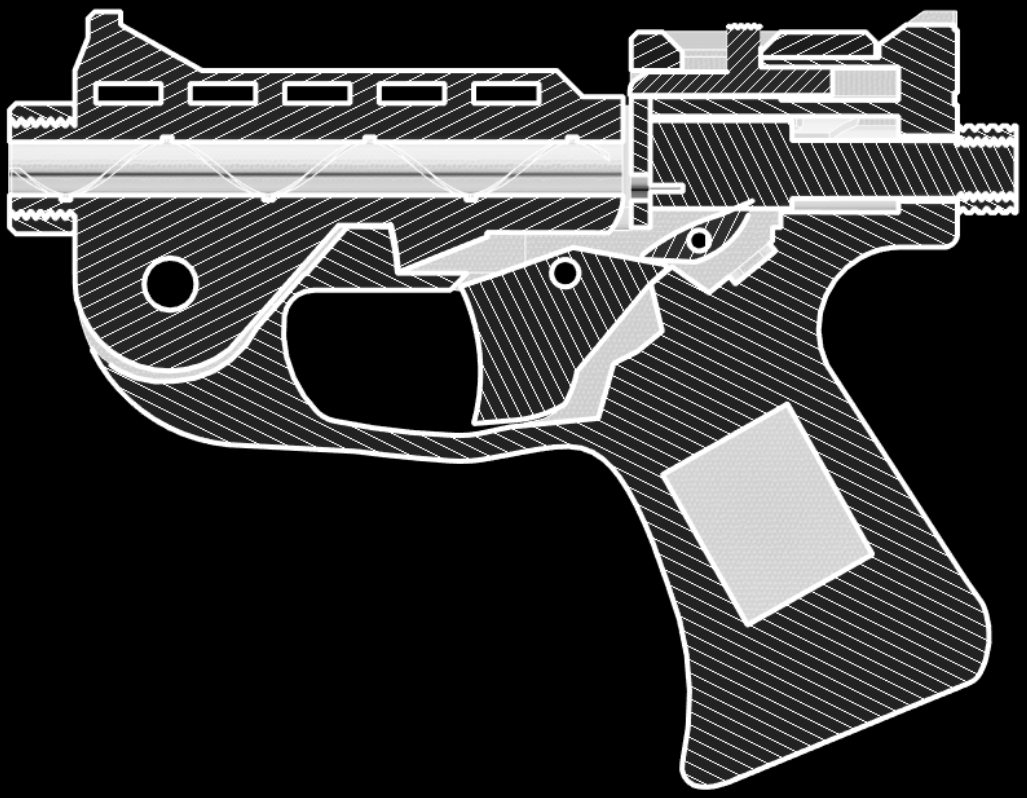
Baconman121 and DirtEater

COVID-22



An instructional build guide to help you build your own COVID-22 V3

Assembly Video:
Assembly Video

Items Needed:
Tools:

- Dremel or Angle Grinder
- Drill press(Hand drill will work if you're confident enough.)
- A lighter or other heating element
- A 3D Printer
- Strong Filament (eSun PLA+)
- Drill Bit Set(5/16, 1/8, 3/16)
- No.1 Drill Bit(chamber reaming)(No.1 Drill Bit)*The linked liner is pre-chambered. This is only needed if your liner has not had its chamber reamed.*

Printed Parts:

- Barrel
- Frame
- Trigger
- Sear
- Barrel Latch
- Barrel Latch Housing
- Striker
- Charging Handle

Jigs:

- Barrel Liner Press Jig
- Striker Drill Jig
- Breech Face Go/No Go Gauge
- Breech Face Drilling Jig
- Breech Face Example Template

Non-Printed Parts:

- .22 Barrel Liner (Barrel Liner)
- 2x Mechanical Pencil Spring(From these)
- 5/16(8mm) Steel Rod (Barrel Pivot)(8mm Steel Rod)
- 3/16 Steel Rod(3/16 Steel Rod)
- 1/8 drill bit (will be cut)
- Striker Springs (Striker Spring)
- 6x M3-.50x6 Bolts(https://www.mcmaster.com/91290A111/)
- 2x #8-32x3/8 Hex Head Bolts(https://www.mcmaster.com/91251A192/)
- 3mm thick steel plate minimum size is 20mm x 26mm (mild steel will work for this.)(McMaster-Carr 3mm Steel)
- Super Glue/Epoxy

Optional Items:

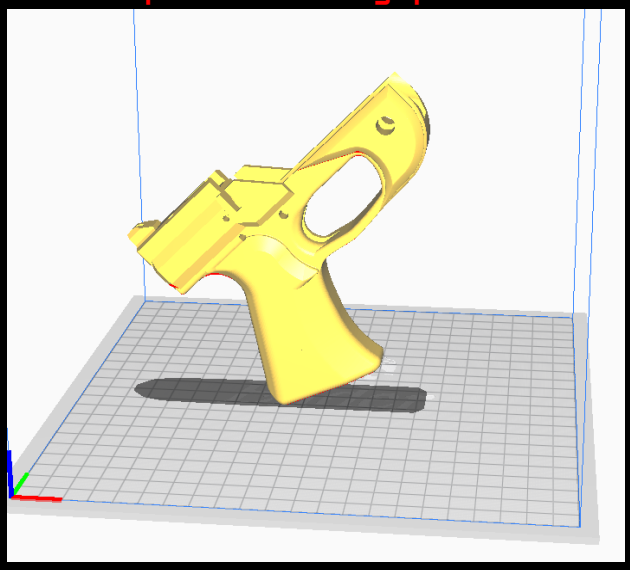
- Calipers (These greatly help in the firing pin installation process)

Printing your parts:

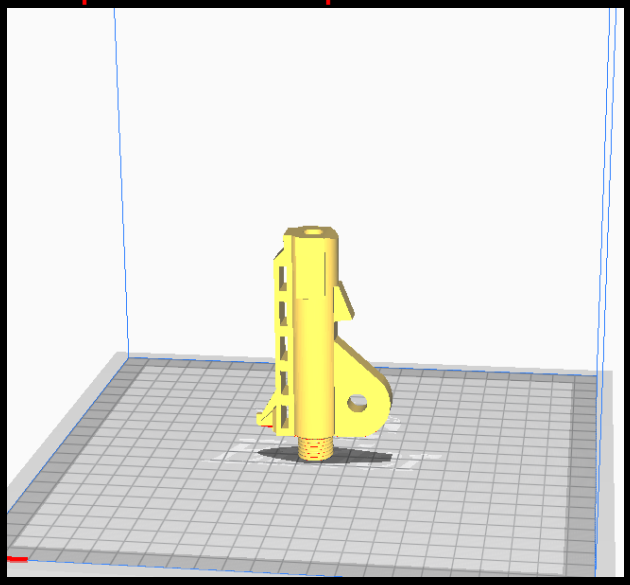
All parts are printed with 100% infill. I recommend using eSun PLA+ for this project as it is very strong and fairly easy to print with.

Print Orientations:

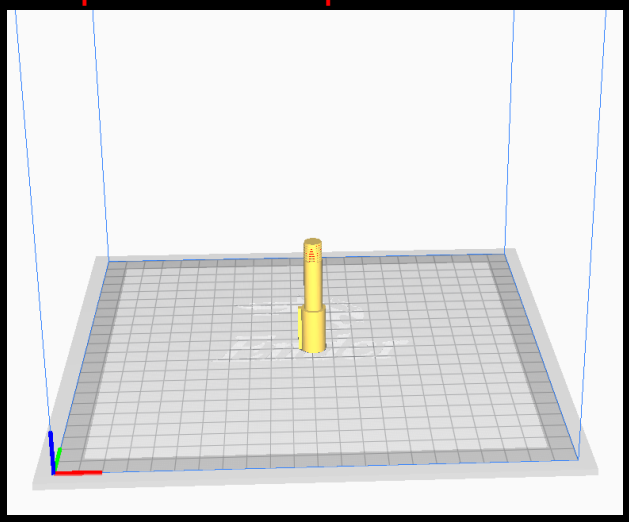
- Frame:
  - This part should be printed at a 45° angle with the frame making contact at the rear portion of the grip.



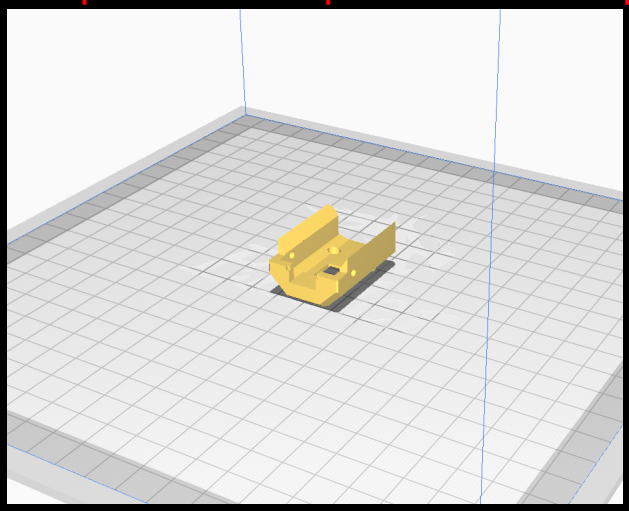
- Barrel
  - This part should be printed at a 90° angle from the build plate.



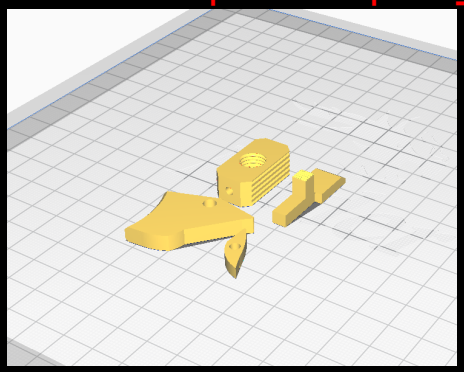
- Striker
  - This part should be printed at a 90° angle from the build plate.



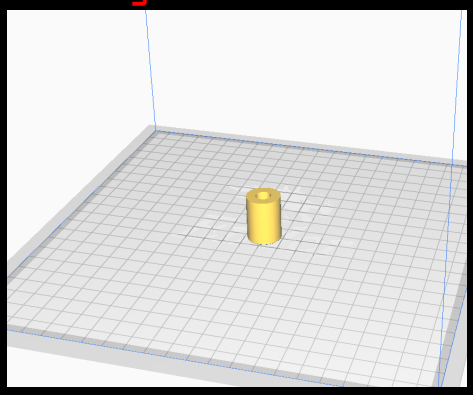
- Latch Housing
  - This part should be printed with the top placed on the build plate.

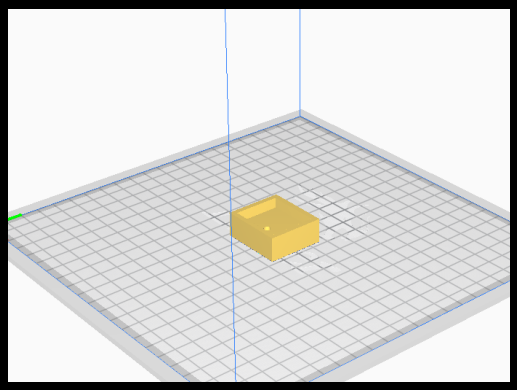


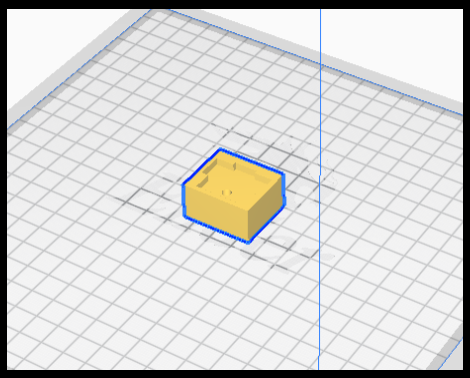
- Other Parts
  - These parts are pretty simple. Just print them on their largest side.

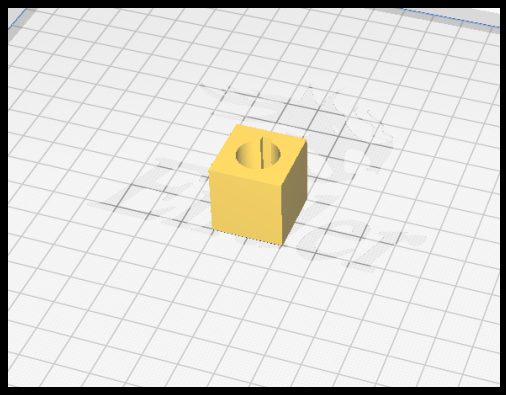


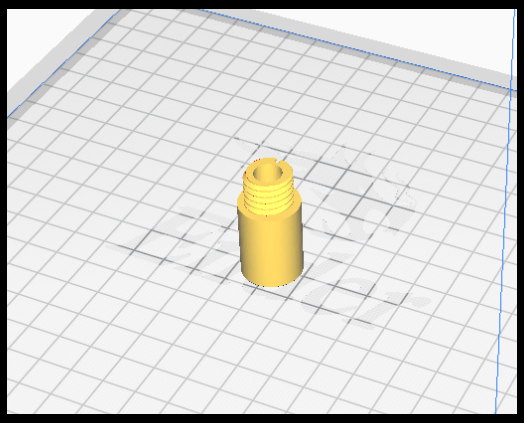
- Jigs

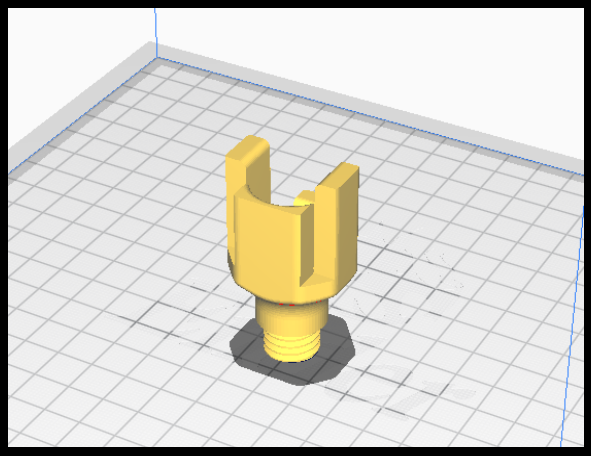


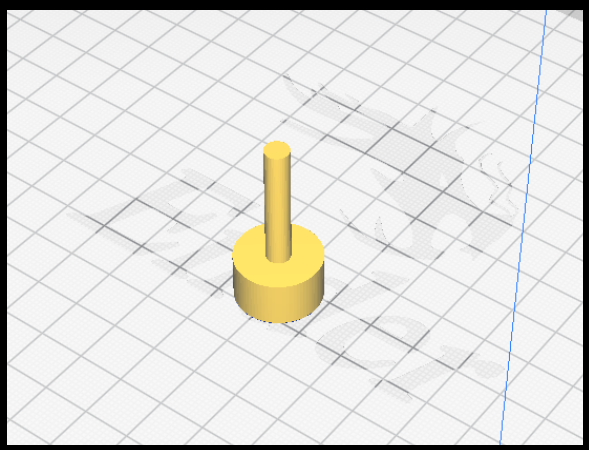












Assembly:

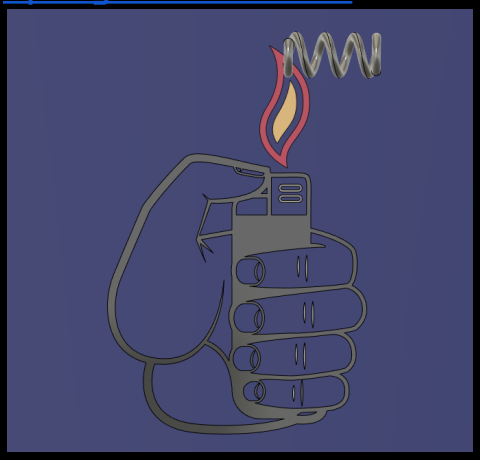
1. Clean your prints.
2. Make sure your threaded prints properly thread together. (The charging handle may need some cleaning to fit nicely on the striker threads.)
3. Drill out all pin holes to fit the respective pins.

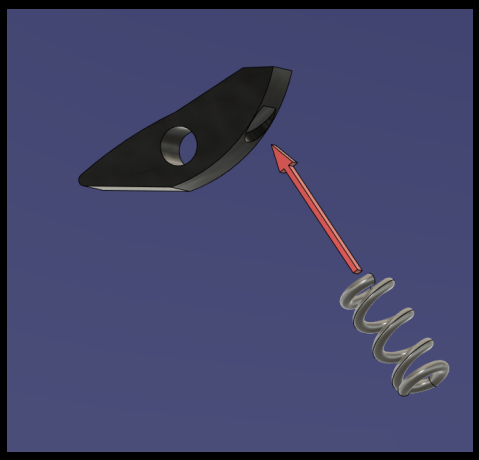
Drill out the barrel pivot pin hole, but not the frame's barrel pivot pin hole unless necessary

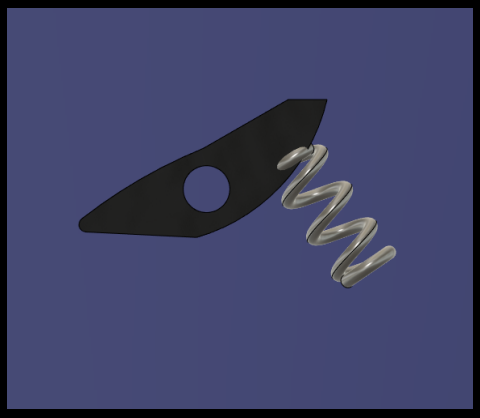
4. Trigger and Sear:

a. Remove the spring from a BIC mechanical pencil. (The spring should not be modified after removal.)

b. Using a lighter, melt the sear spring into the rear section of the sear.(Sear Spring Install Tutorial)





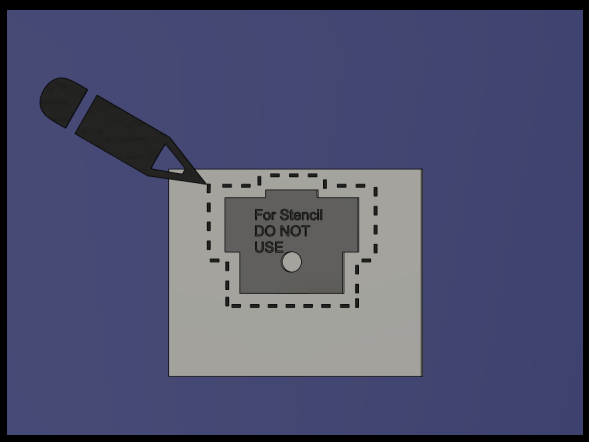


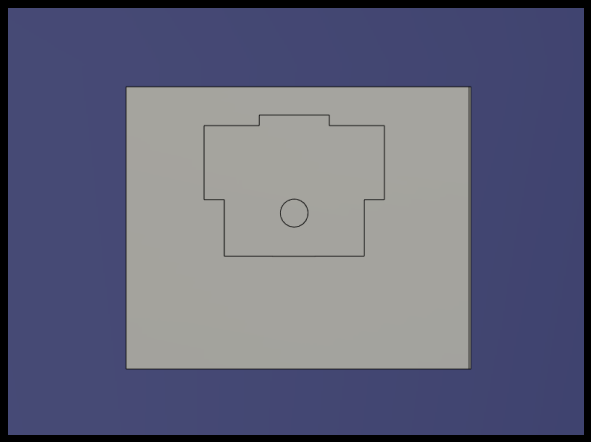
c. Cut both a 3/16 and 1/8 steel rod to have a length of 20mm.

d. Install trigger and sear through the top of the frame.

5. Breech Face:

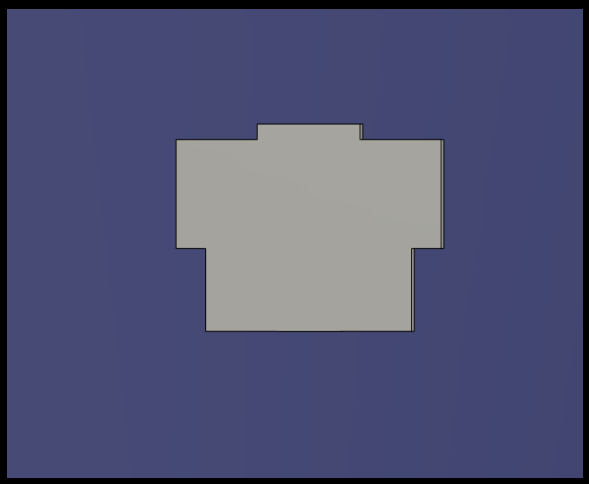
a. Trace the printed breech face stencil on your steel plate.



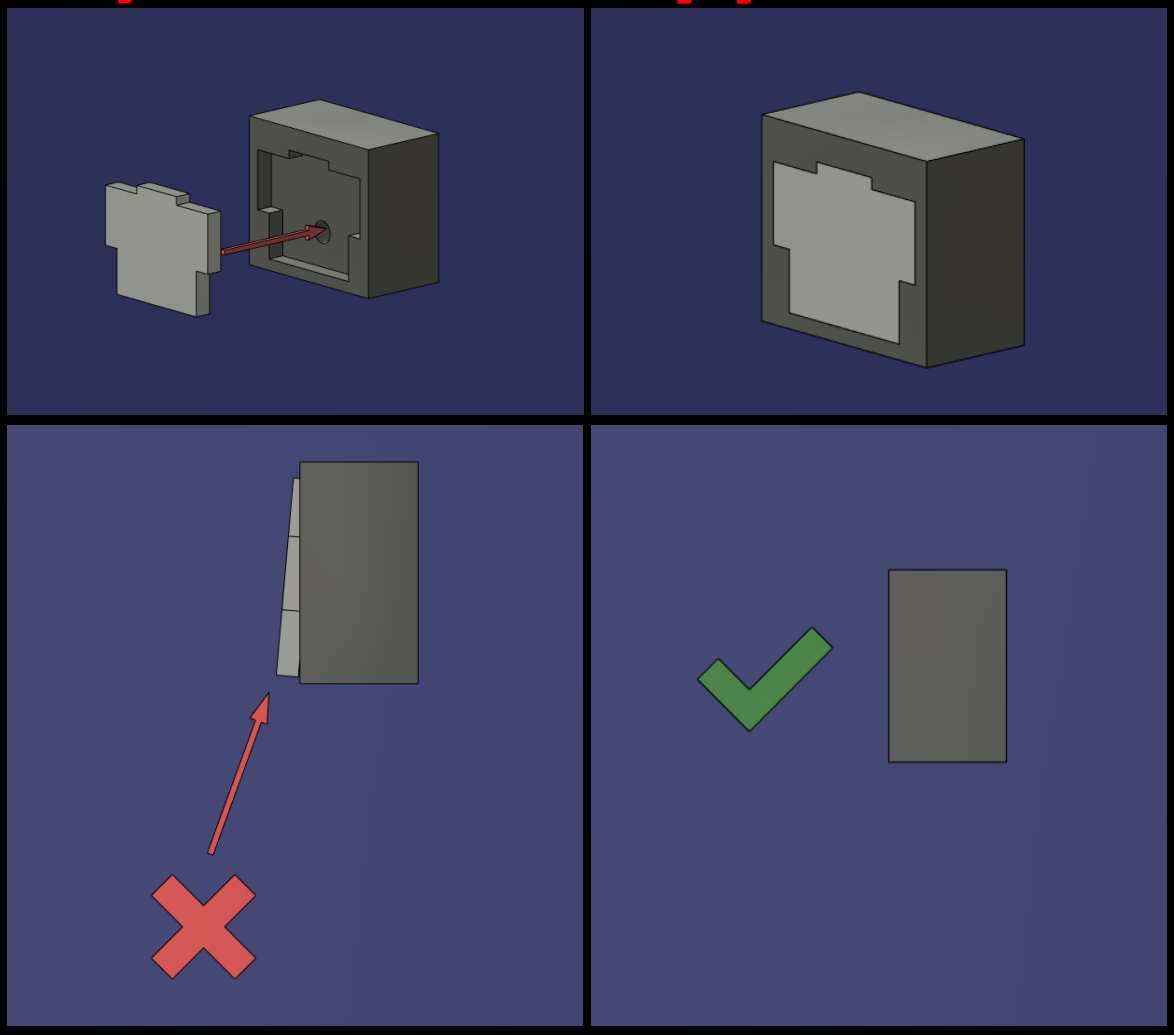


b. Cut out your rough breech face.

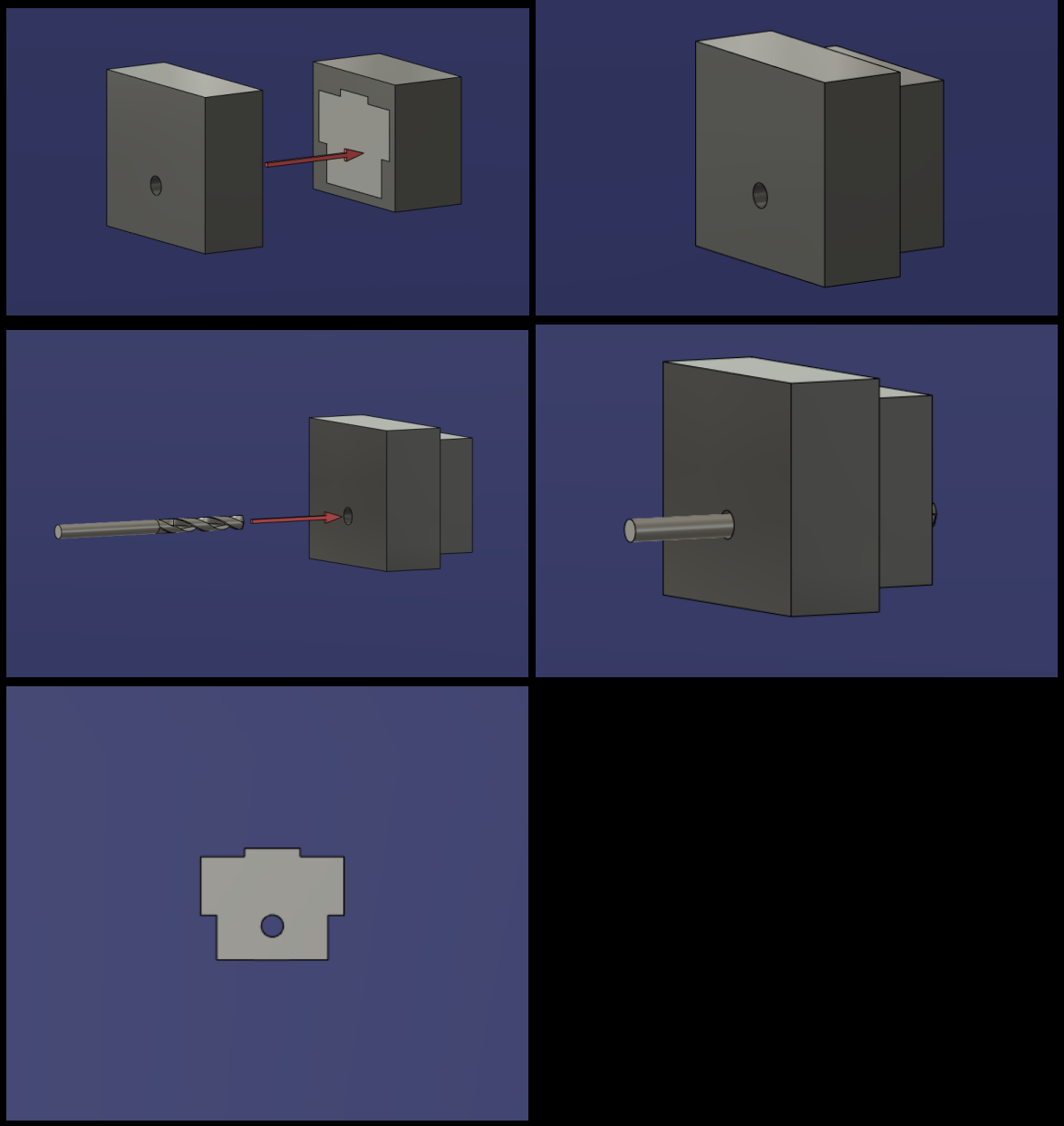
c. Use a dremel or file to size the breech face to the right size.



d. Check your dimensions with the included gauge. It should be flush.

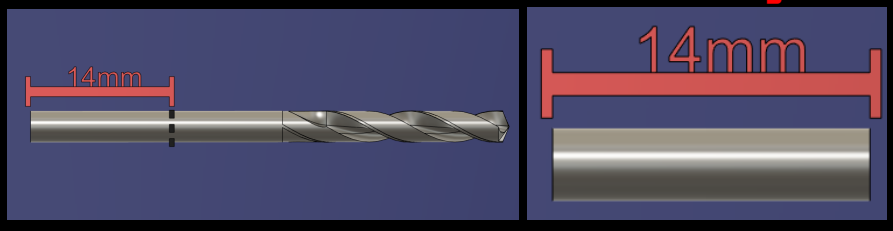


e. Using a ⅛ drill bit and jig, drill the firing pin hole.

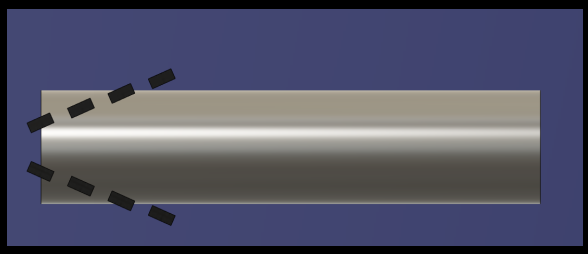


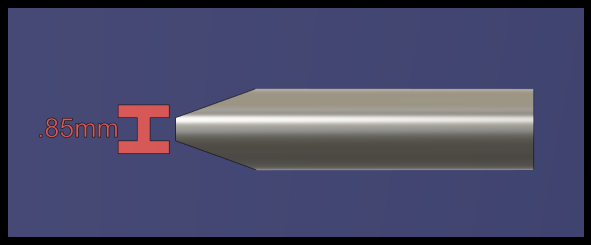
6. Striker:

a. Cut the back end of a 1/8 drill bit to 14mm in length.

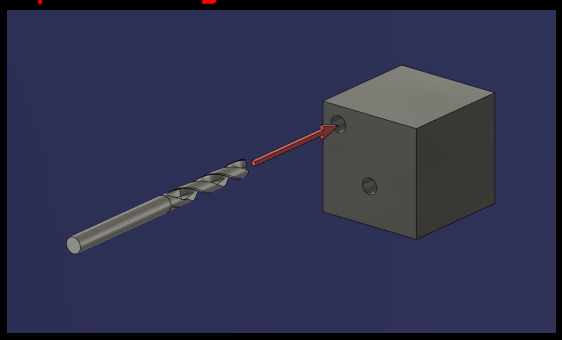


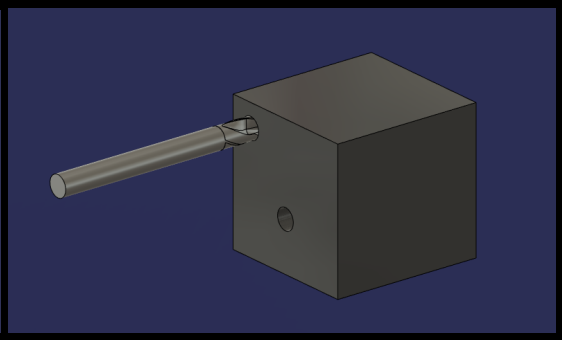
b. Grind the front of the firing pin into a flathead shape with a thickness of .85mm

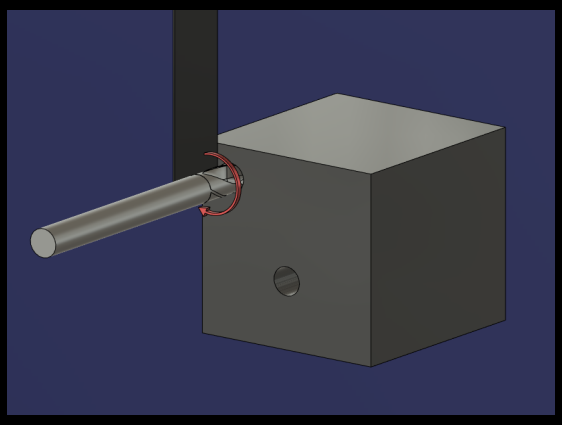


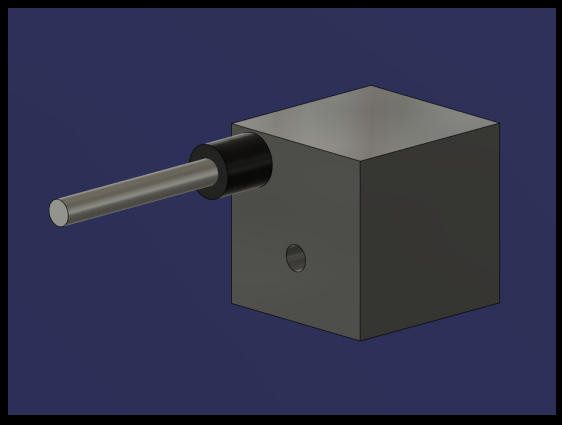


c. Using the drilling jig, make a drill stop on your drill bit with tape(electrical tape works great.)

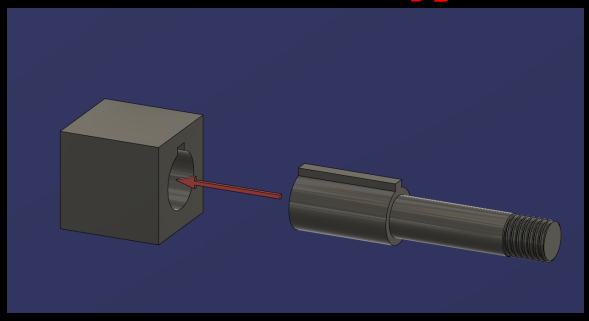
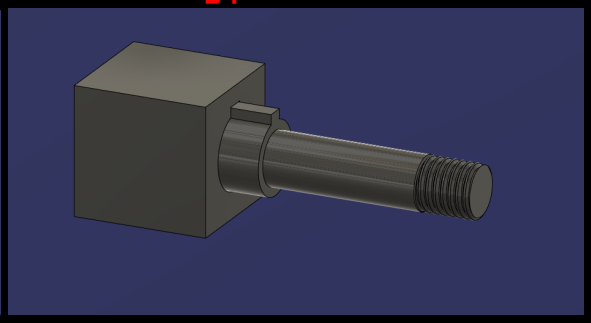
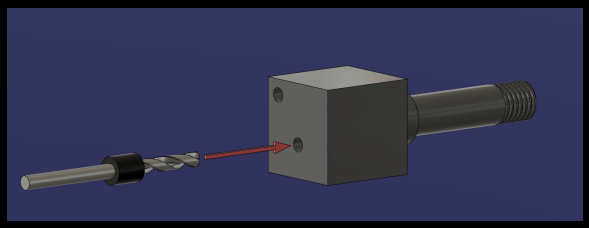
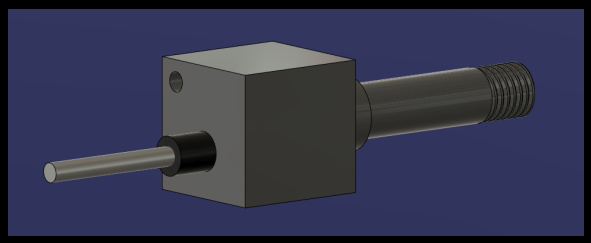
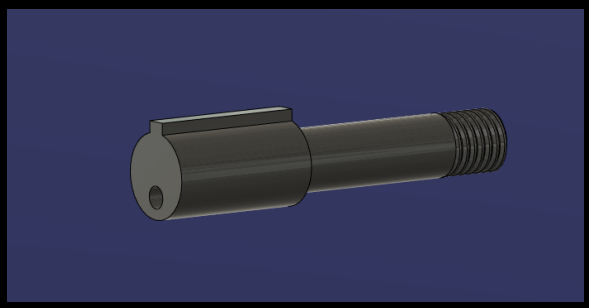




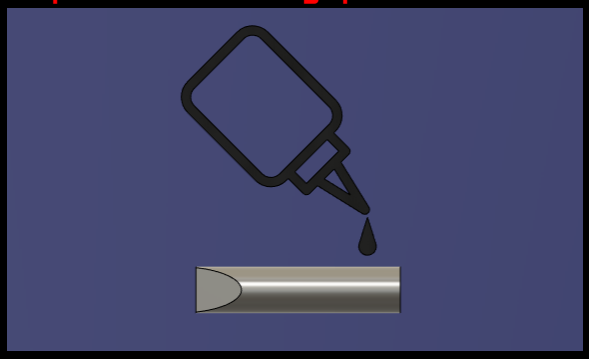
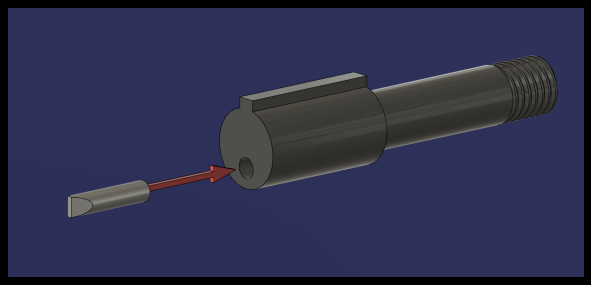
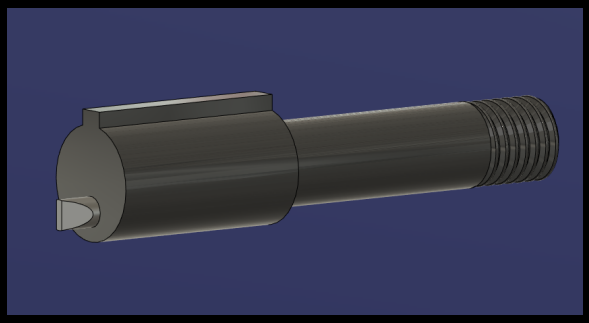




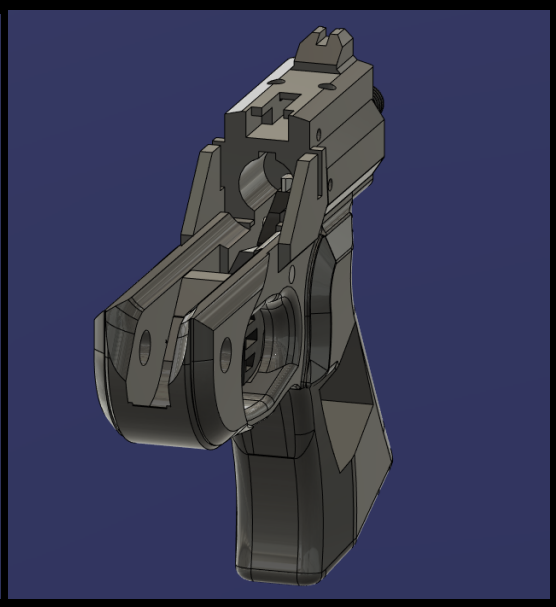
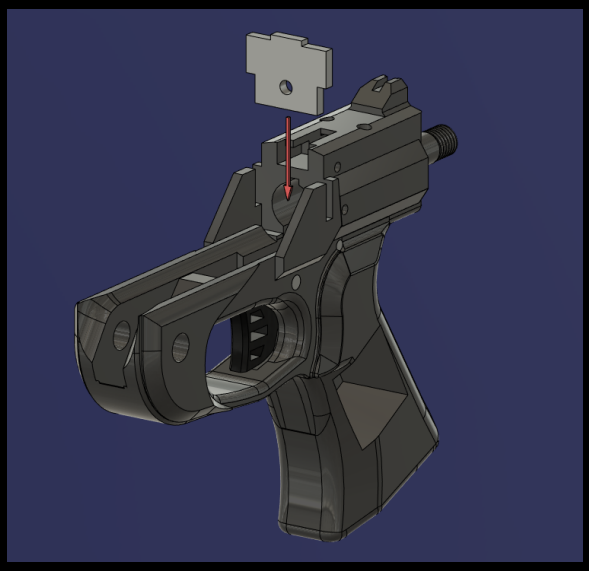
d. Place the striker into the jig and drill out the firing pin hole.

e. Use super glue or epoxy to secure the firing pin into the striker. The "blade" should be vertical.
(optional) Roughing up the rear portion of the pin with sandpaper or a file will help the adhesive grip better.

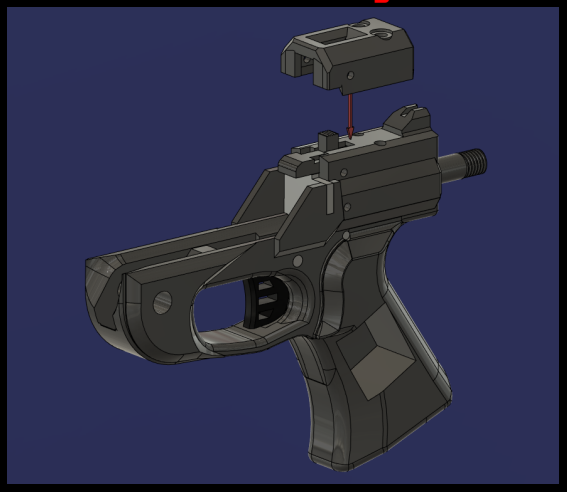
f. Install striker and breech face into the frame.


7. Barrel Latch & Housing:

a. Install the barrel latch and spring.


b. Install the latch housing



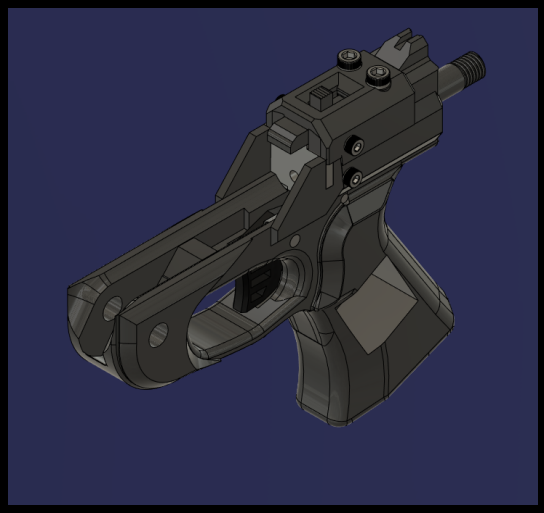

c. Insert the two #8-32x3/8 bolts into the top of the housing.


d. Insert the two M3-.50x6 bolts into the side of the housing.


If the latch spring does not push the latch completely forward, you may need to stretch it slightly

8. Charging Handle:

a. Install an M3-.50x6 bolt on either side of the frame.

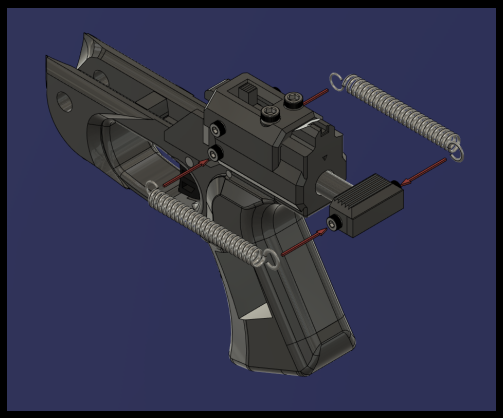



b. Thread charging handle onto the striker.


c. Install an M3-.50x6 bolt on either side of the charging handle.

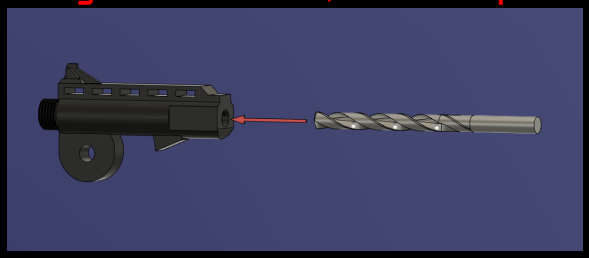

d. Cut the striker springs to the appropriate length.(The length depends on what springs you choose to use. I found that cutting the springs to about 26mm is ideal.)

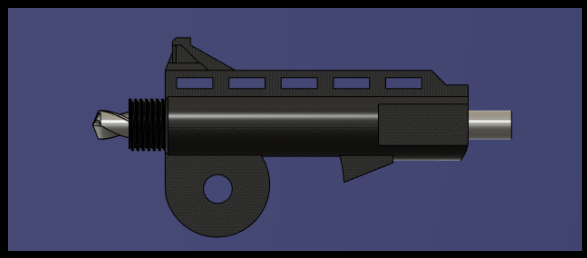
e. Install the striker springs onto the side of the frame.
you may have to unscrew the bolts a little to give the spring a notch to sit in



9. Barrel:

a. Using a 5/16 drill bit, ream the printed barrel out.

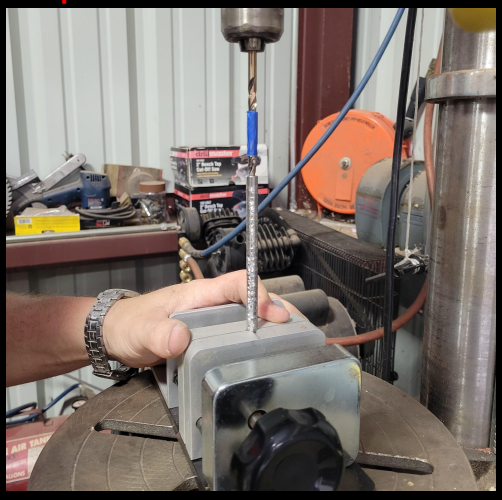




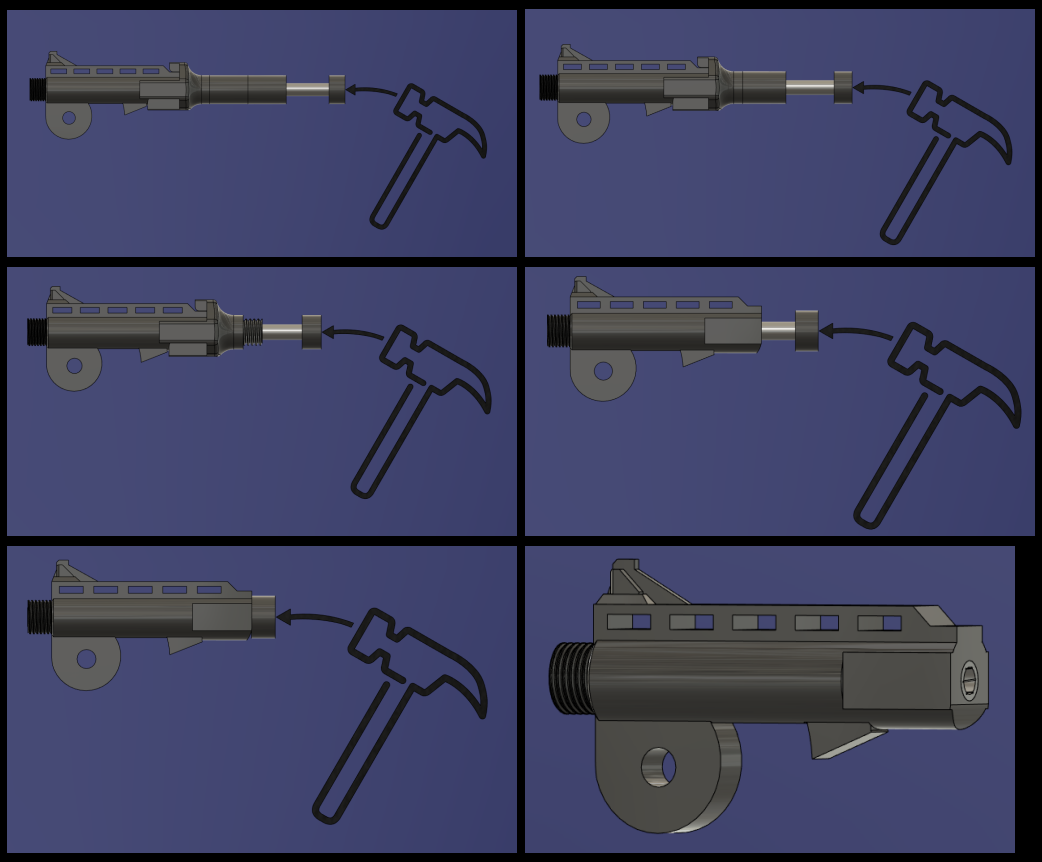
b. Cut a 5/16 steel rod to 28mm.

c. Rough up the outside of the barrel liner. Mounting the barrel into a drill and roughing it with a dremel, angle grinder, rough sandpaper or a file will work.

   i. Using the No.1 Drill Bit, drill into the barrel liner approximately 3/4" deep.

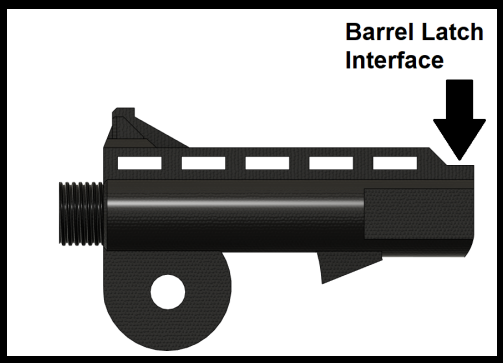


d. Using the barrel install jig, tap the barrel liner into the barrel with a hammer. Unless you use epoxy or JBWeld, the liner will be friction fit.(This is perfectly viable.) Your barrel should be flush with the breech side of your barrel. Remove or add center sections of the support jig as necessary. *applying a light coat of JB Weld to the barrel before inserting it and wiping away excess may help with adhesion.)



e. Install the barrel into the frame with the barrel pivot pin.

f. If your barrel latch does not extend when the barrel is closed, sand the latch interface on the barrel until it fits.



g. If your barrel latch is too loose when the barrel is closed, apply a thin layer of superglue to the latch interface on the barrel. After applying the superglue, lightly sprinkle baking soda onto the super glue. Repeat this process until it reaches the proper height. Sanding the superglue+baking soda may be needed to make the locking process smoother.

10. UFA Compartment:

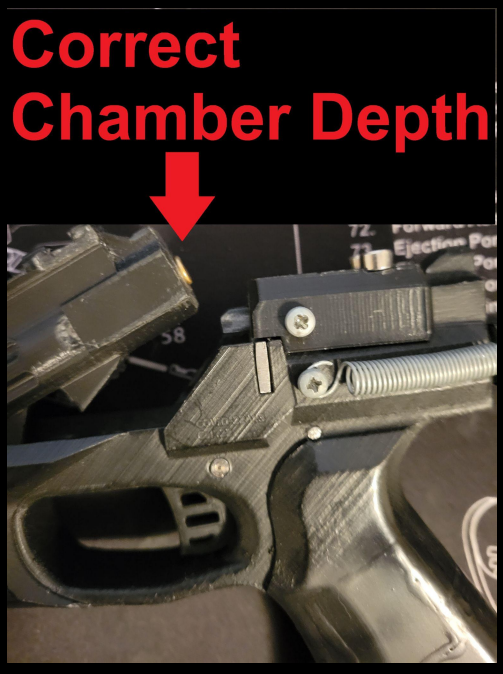
The Undetectable Firearms Act requires any firearm to have a minimum of 3.7oz of steel to be present in the firearm at all times.

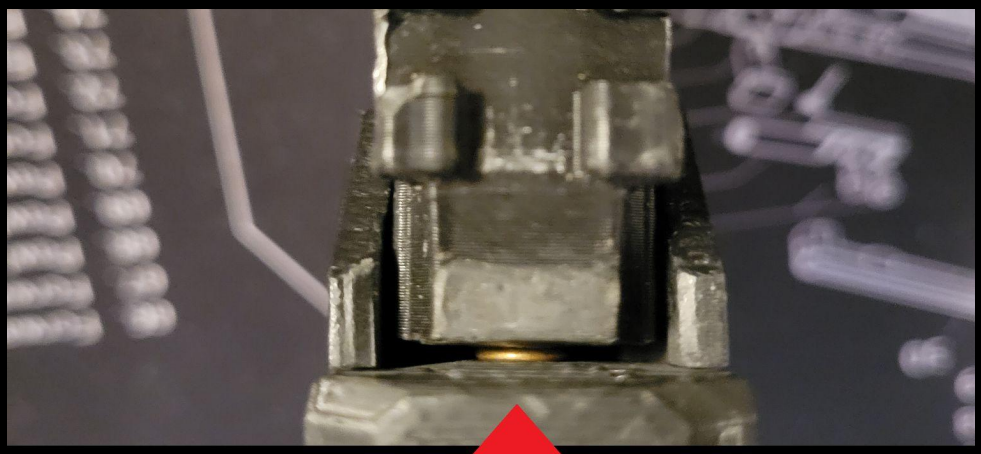
a. Using the UFA Cover print, cut the appropriate amount of steel to fit in the compartment.
b. Glue or melt the UFA cover into the provided slot.

Testing your build:

1. Check your build quality:
   If at any point you feel that the guide was inadequate, watch the assembly video.
   Assembly Video

2. Check your chambering:
   This only applies if you had to ream your barrel liner
   Making sure that your chamber has been drilled to the proper depth is imperative. Using this guide, compare your chamber with a spent .22 casing. When your barrel is closed, the rim of the .22 round should not be able to move in either direction.





Proper Chambering

3. Test firing your COVID-22

Though the COVID-22 is a strong design, it is important to test fire your build before shooting it by hand. I recommend mounting it in a vise and using a string to pull the trigger. Do this for the first 5 to 10 rounds.

Thank you for following my guide. Enjoy your COVID-22! Be safe, be smart, and if you are dumb, always have a backup plan.