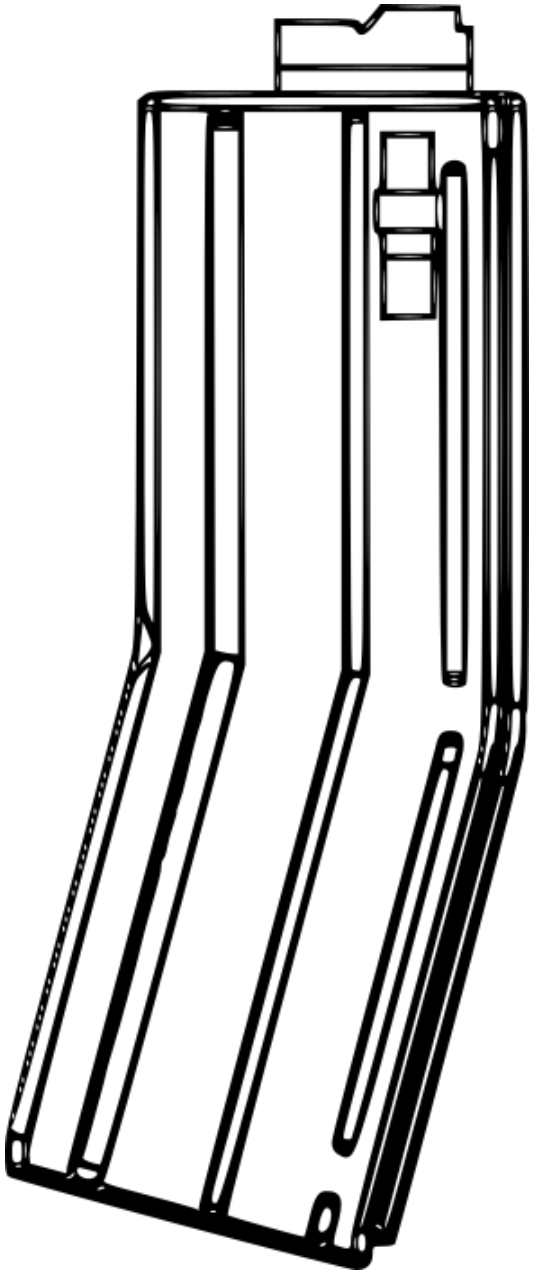
“Everytown” 22lr AR-15 Magazine

by Freeman1337

(a FDM-printable CMMG-compatible 22lr AR15 mag with a standard 25 round capacity)



Released: 6/25/2021
Version: 1.0

Acknowledgments

Thank you to the Rocketchat beta team at Det_Disp, which spent months putting this standard capacity magazine through it’s paces, giving good feedback, and testing the various followers and assembly methods discussed in this document. A special thanks goes to LaughlinResearchandDevelopment, with whom I collaborated as we moved out models into closed-beta for testing and development.

Description

This is a magazine compatible with CMMG 22lr conversion bolts and dedicated bolts for the AR15 sporting rifle. Internal parts are interchangeable with CMMG's OEM parts. The magazine internals here can be used interchangeably with CMMGs parts/mag bodies/springs and vice-versa.

With the prices of these OEM magazines going up during the COVID19 pandemic, not to mention the scarcity of these magazine regardless of cost, I set about designing my own 3d printable version of this magazine for myself. As the design proved reliable and durable, I decided to further develop it for public release and consumption by the masses.

Instructions

Materials Required:

- PLA+ filament of your choosing. Extensive testing done using esun PLA+ and Overture PLAPro

- OEM CMMG mag spring for 22lr 25 round magazine

or

- x1 Black Dog Machining 11" compression spring (available here) :
  http://blackdogmachinellc.net/ciener-replacement-recoil-spring.aspx

*if building as a clam-shell design

- x6 M3x16 machine countersunk screws:
- x1 M3x0.5 tap

Tools:

The only tools required for this release are related to post-print cleanup. Sandpaper, a sharp knife, etc could be helpful here. Use tools that allow you to remove small amounts of material in specific locations. Cleanup is most important on the magazine follower, but also on the internal channel on the magazine body halves (if printing as a two-piece body and using support) .

Print Settings:

Layer Height

Body	0.3mm
Internals	0.2mm

Shell

Wall Line Count	10
Outer Wall Wipe Dist	0.4
Top/Bottom Thickness	1.32mm
Top Layers	10

Infill

Infill	45% min, higher % doesn’t use much more material
Pattern	Grid

Material

Print Temp	217 C
Bed Temp	60 C

Speed

Print Speed	50 mm/s
Infill Speed	60 mm/s
Outer Wall Speed	30 mm/s
Inner Wall Speed	60 mm/s
Top/Bottom Speed	40 mm/s

Travel

Enable Retraction	True
Combing Mode	All

Cooling

Enable Fan Cooling	True
Fan Speed	100%

Support

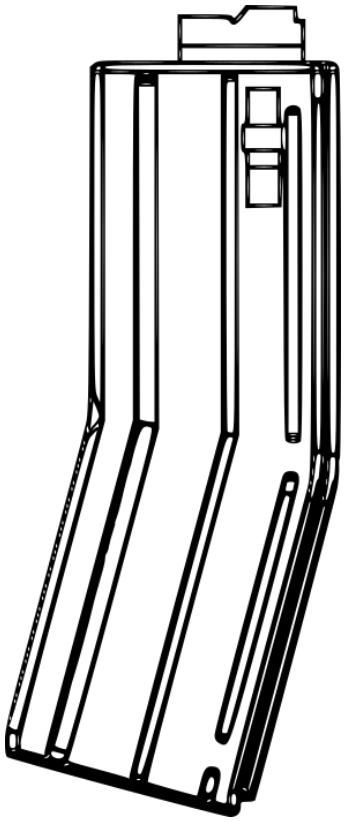
Two-part body & Internals:

Generate Support	True
Support Structure	Tree
Support Placement	Touching Build Plate
Support Overhang Angle	Autogen (cura)

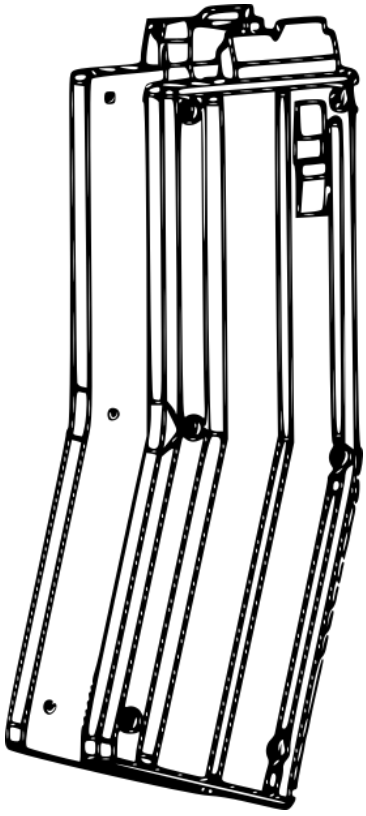
One-piece body:

Generate Support	False

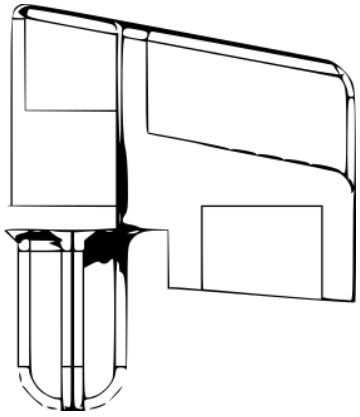
Material List:



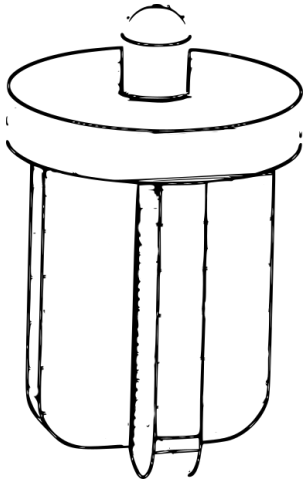
Mag Body (one piece)



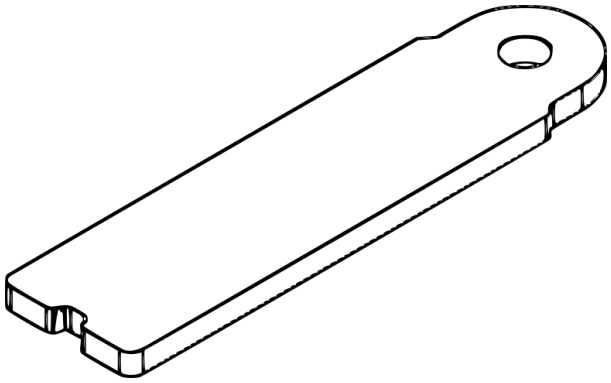
Mag Body (two piece)



Follower



Baseplate Lock (by nguyenkvvn)

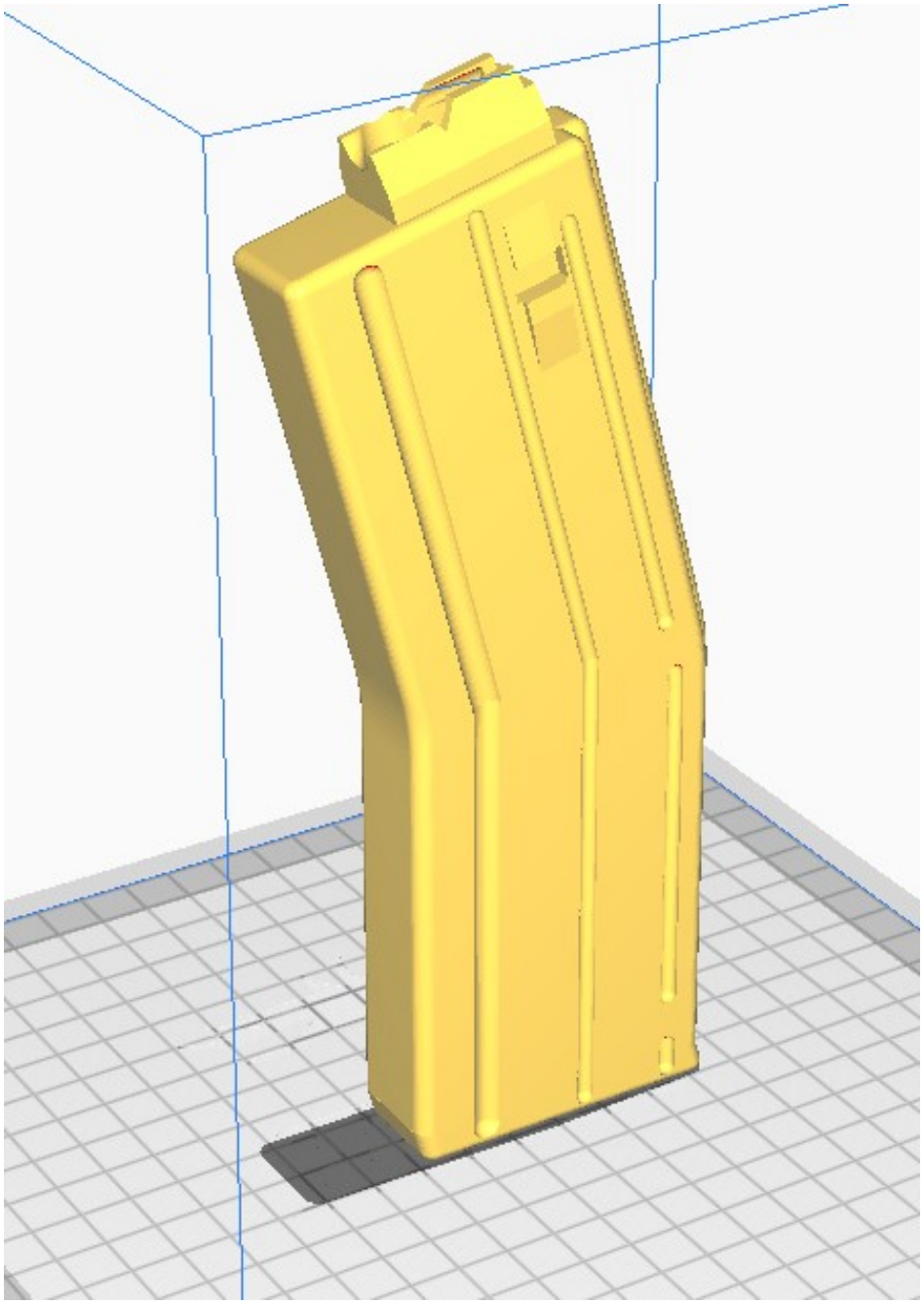


Baseplate (by nguyenkvvn)

Print Orientation

Mag Body (one piece)

Print in this orientation:

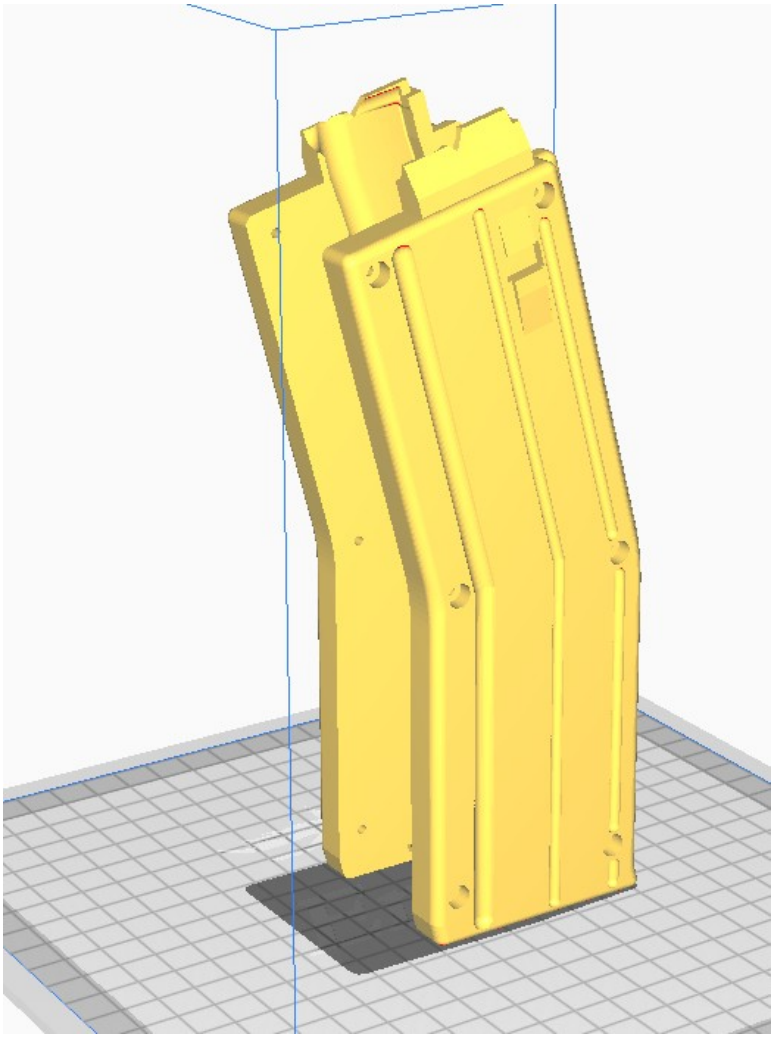


When printing as one piece, material may droop in this area:

Clean up with a sharp knife, and you’re ready to assemble:

Mag Body (two piece)

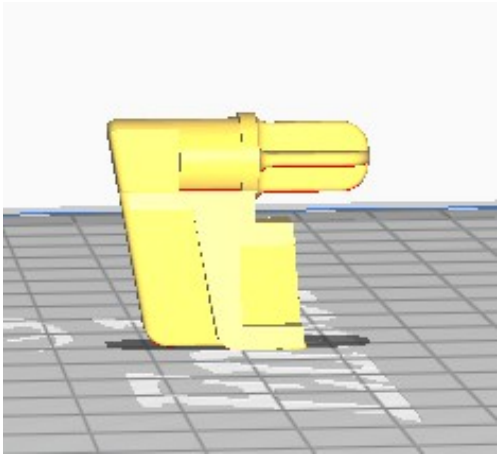
When printing the two-piece mag body, I find that printing vertically with support comes out best:



Some have printed with the mag body lying flat (outside-surface down), though this method can cause some serious warping issues in my experience.

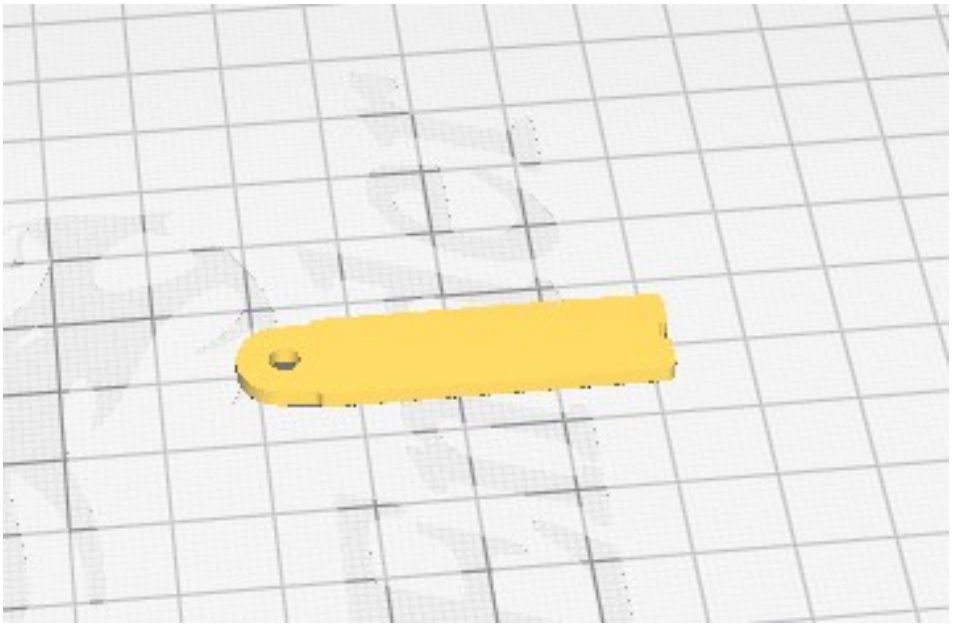
When printing in this orientation, ensure that all surfaces where rounds will feed are smooth and free of support.

Follower



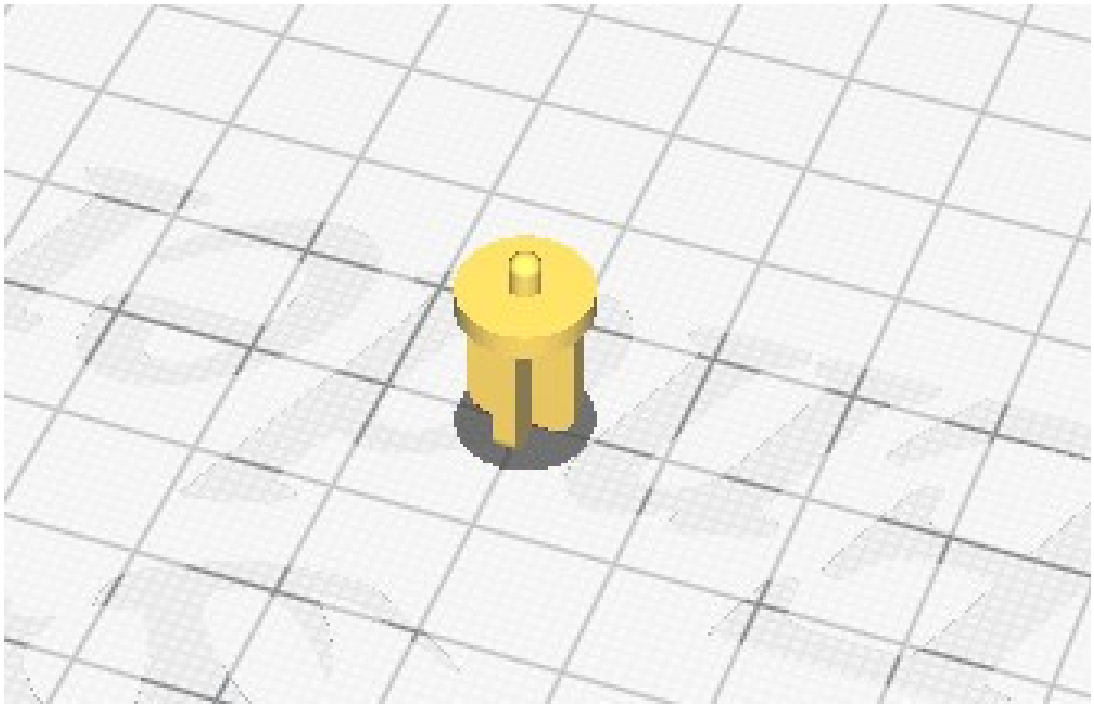
Post-print cleanup on this part is most important. Ensure that there's no elephants foot on the flat surface contacting the print bed. This surface rides against the back of the internal round channel, and can get caught on errant layer lines or stringing if using taller layer heights or combing is not enabled on one-piece body prints.

Baseplate



Baseplate Lock

Print the baseplate lock in this orientation:



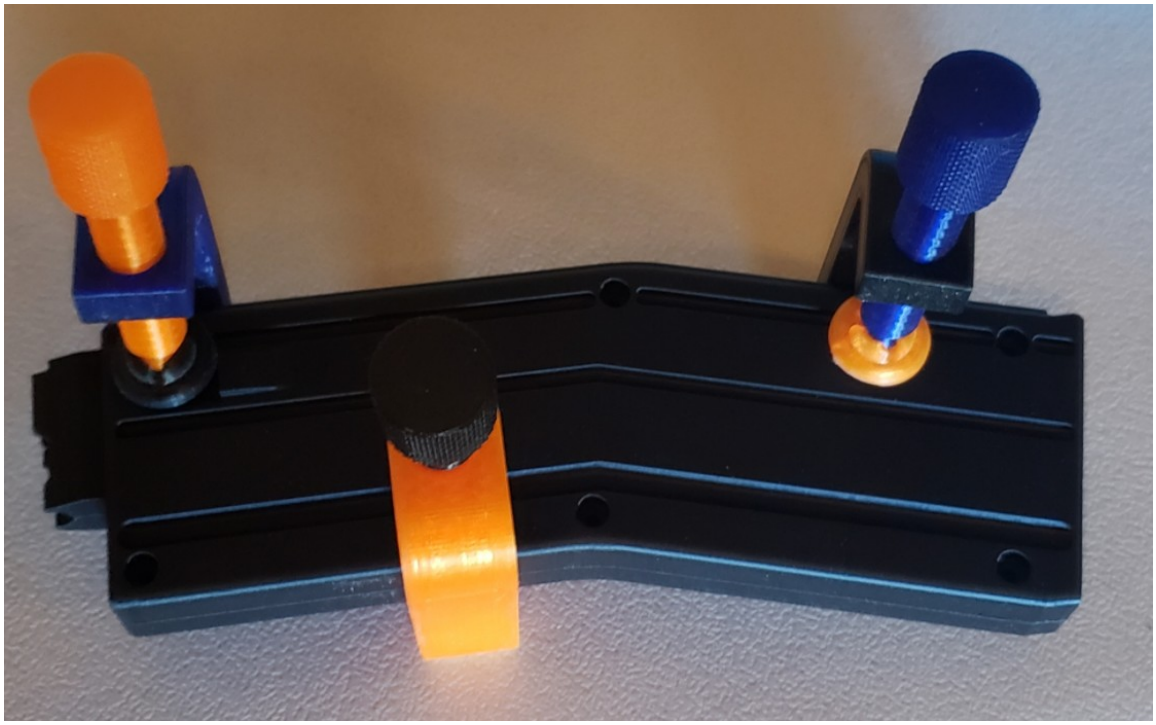
Assembly

*** If assembling a one-piece mag body, proceed to step 2 ***

01a). On the magazine half with thru-holes, run an M3x0.5 tap through these holes carefully. A cordless drill on the lowest setting can be used successfully here, just go slow and use the lowest torque setting.

01b).

Combine both halves of the magazine and insert all screws. If needed, lightly clamp magazine together. A cordless drill or impact driver may be used, just go slowly and use the lowest possible torque setting. If any of the holes are stripped out, gluing together of the mag body may be attempted. Even if stripped, the screw holes can serve for alignment of the body halves when clamping after glue is applied.



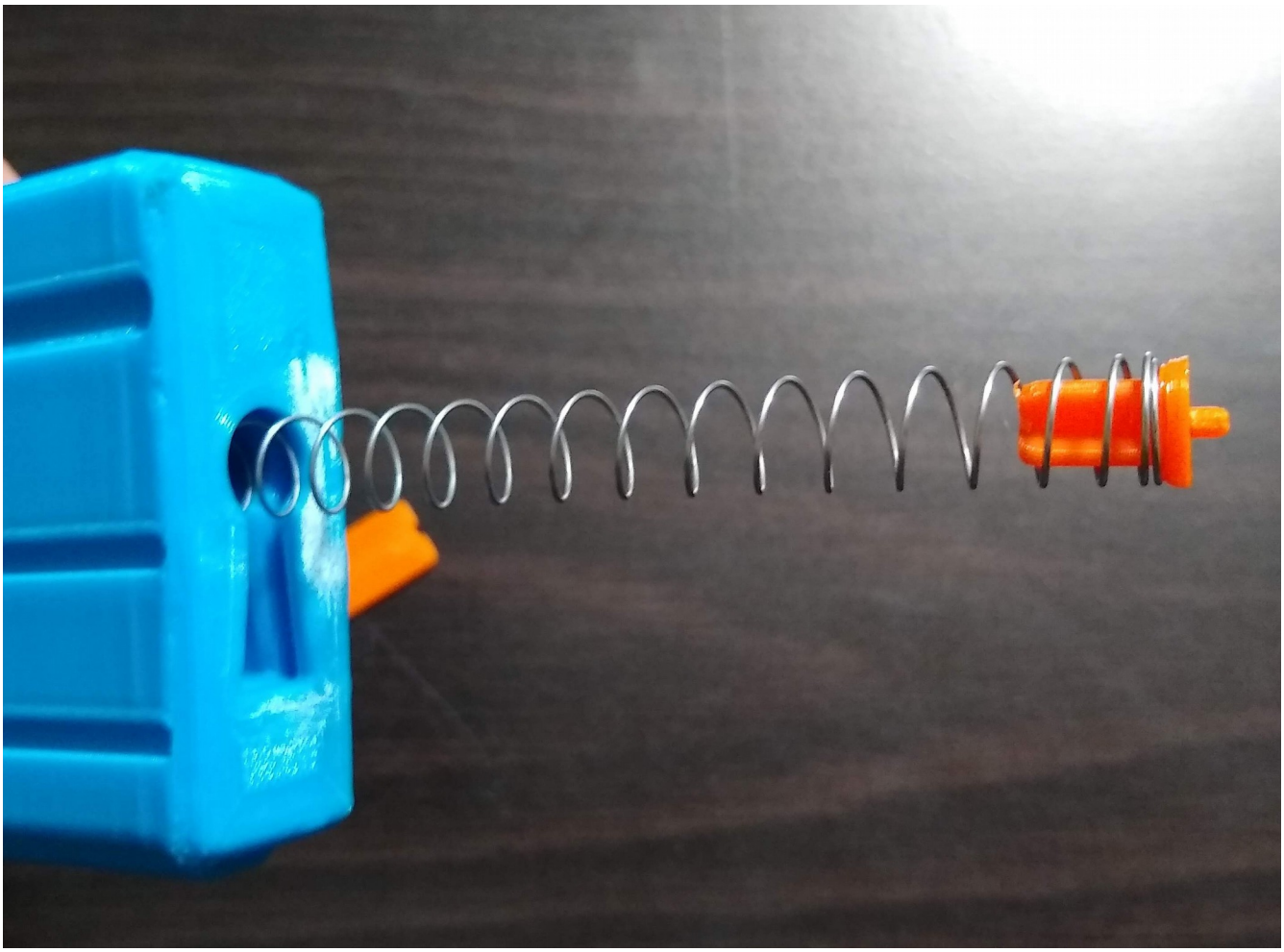
Pro-tip: *If slight warpage is experienced, clamping might help. If more extreme warpage is experienced on your mag body halves, it's recommended to re-print.*

02).

Insert the follower into the mag body through the bottom hole (as shown in the manual). The mag follower should move freely through the mag body and without effort.

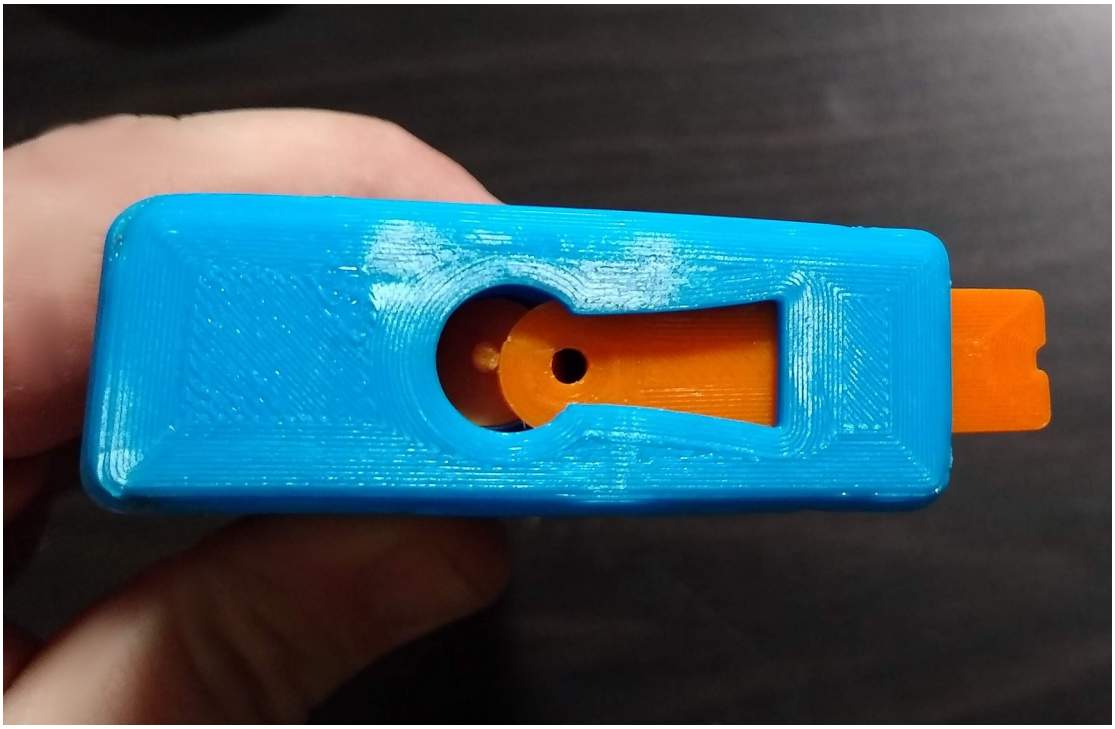
03).

Insert the mag baseplate lock into one end of the magazine spring, and then slide the mag spring into the body (with the baseplate lock facing down (as shown in the manual).



04).

Slide the baseplate in through the appropriate slot. Hold down the baseplate lock with a punch/screwdriver/etc in order to allow the baseplate to be fully inserted into the mag body.



05).

Ensure the baseplate lock has engages with the baseplate.

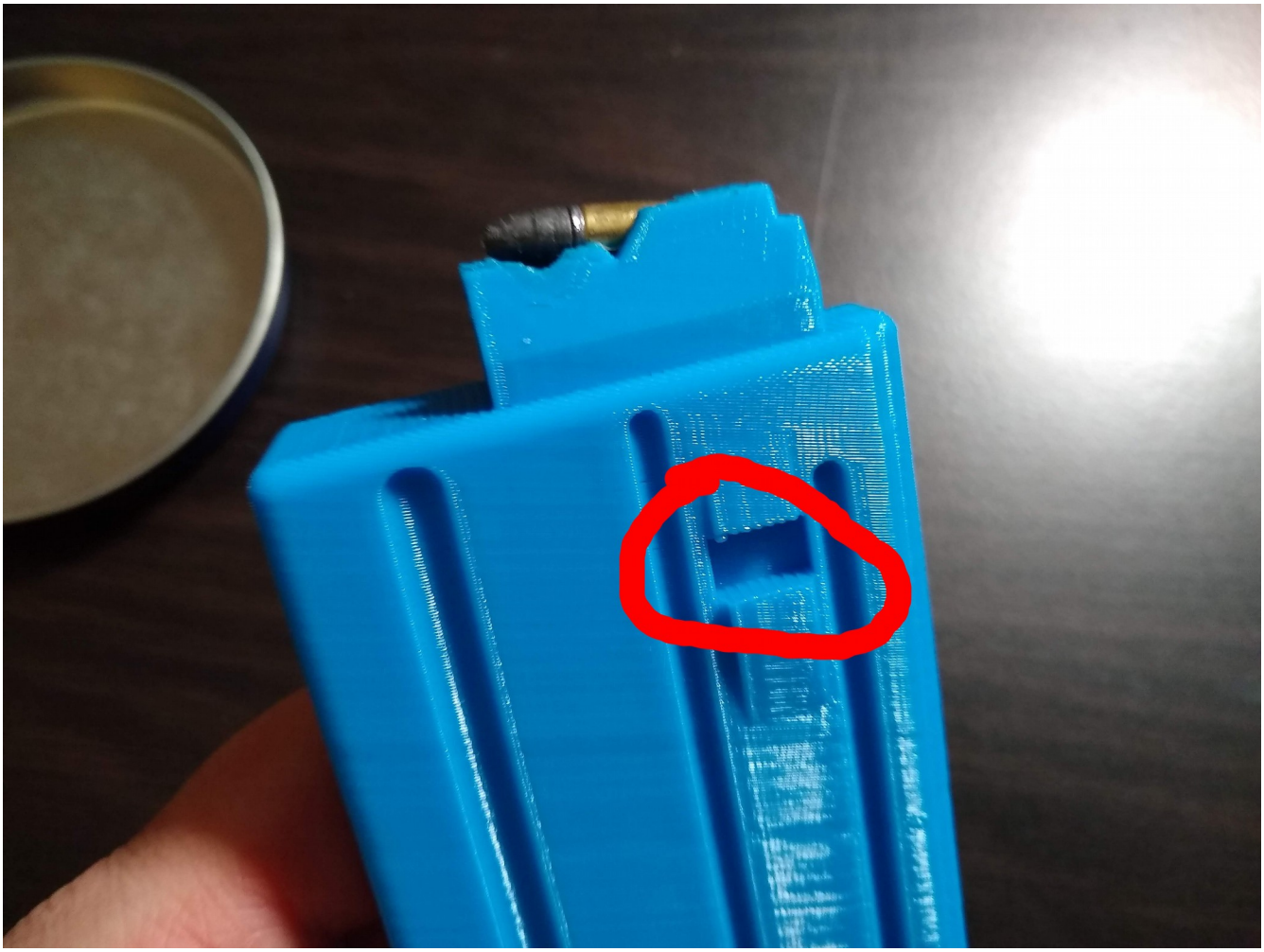
06).

At this point, the magazine is fully assembled and ready for use.

Function Check and Troubleshooting:

01).

Insert your magazine into your firearm and be secured in place. If the mag doesn't want to lock in place, check to ensure that there isn't excess support material in the mag catch hole. If the mag can be inserted, but requires more force then usual to insert/wont drop free, ensure that the magazine isn't warped (if using a 2 piece clamshell built mag body. Mag should also drop free of the rifle easily (even if the bolt is being held open by the follower).



02).

If using a follower without LRHO (v1), the bolt should move freely back and forth. If using a follower that features LRHO (v2 or v3), the bolt should lock the bolt open when no rounds are in the magazine.

Ex. 1, bolt pulled all the way forward w/ charging handle

Ex. 2 – Mag (with Follower v2 or v3) locking bolt open

03).

Load a few rounds into the magazine, then strip them back out. Does the follower bind on the back or side of the mag body? If so, cleanup the follower using sandpaper/file/user preferred method. Go slowly and test often.

04).

Load your magazine to capacity. If the follower is binding as you load more round into the magazine, remove all rounds from the magazine and clean up edges on your follower. If stringing is experienced inside the mag body (when printing the mag body as one piece), re-print the mag body with combing=all and outer wall wipe enabled in your slicer of choice.

Licensing

GPL v3.1

Note: Resulting prints derived from this design or it's derivatives may not be sold for commercial purposes or significant financial gain of any kind. The printing and selling of magazine "parts kits" for sale close to the cost of manufacture is encouraged, especially for those of you behind enemy lines.

Closing Thoughts

At this point in time, we are near a red letter day. Soon, the US Senate will be voting on whether David "child killer" Chipman will be confirmed as the head of the AFT, red states are passing constitutional carry at an impressive pace, while blue states and the Federal Government continue to attempt the restriction of their citizens rights.

As we prepare to celebrate the independence of this great nation, let's exercise our god given rights to keep and bear arms. Though there isn't as much ammo out there these days, I'm sure most of us have a few boxes of 22lr and an AR15 that'll send 'em.

Let's show our elected officials that no matter what laws are passed, no matter how hard the political thunder-whores push their agendas, nobody can stop the signal...

Best,

Freeman1337