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# The Scarab

By SwarmTech



From your friends at Are We Cool Yet?



## Contents

Introduction . . . . .	3
Parts List . . . . .	4
Assembly: . . . . .	6
Notes . . . . .	14
Printing notes . . . . .	14
Assembly notes and tips . . . . .	15
Magazine notes . . . . .	16
Feed Ramp Dimensions . . . . .	17
Acknowledgments . . . . .	20
Contact . . . . .	22

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## Introduction

Welcome to the Scarab README!

The Scarab is inspired by the B+T TP9 and the HK MP7. It is built around the VMAC9 complete kit, is compatible with MPA polymer and printed magazines, and shoots better if you have a mullet. This model is compatible with both side charging and top charging kits from Velocity. Parts kits from MAF are not recommended. The recommended printed magazine is made by Danny Meatball.



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## Parts List

What you will need:

- 1 Complete VMAC9 kit
- 1 4x4 sheet of  $\frac{1}{4}$ " Fabric reinforced nitrile rubber,  $\frac{1}{8}$ " thickness ([McMaster's price is nuts](#), would recommend seeking out DanishBulldog or substituting with a similarly impact-resistant material. Beta testers reported success using various rubber-like material, including yoga mats and rubber gym flooring. The frame with the highest round count uses the McMaster component.)
- 1kg of PLA+ or Fabric Reinforced Nylon(Duramic PLA+ or eSun black PLA+ recommended, Coex Glass filled nylon also recommended)
- STEN mags (see note below)
- 2 55mm M3 Screws
- 2 60mm M3 Screws
- 3 13mm M3 Screws
- 2 8mm M3 Screws
- 5 M3X5x6 Brass Heatsets
- 4 M3 nuts

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For the Brace System:

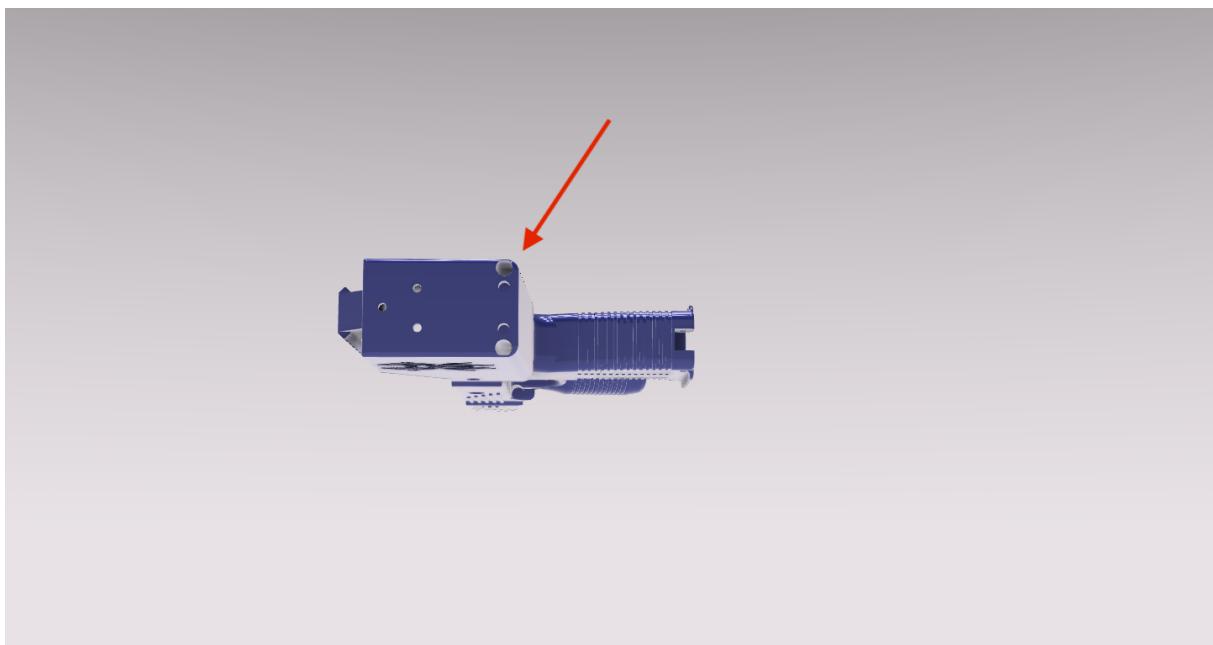
- 2 D- Profile Rotary Shafts ( $\frac{1}{4}$ “, 12” long [link](#))
- 6 12mm M3 Screws
- 6 M3x5x6 Brass Heatsets
- 1 Short section of  $\frac{1}{8}$ “ x  $\frac{1}{2}$ “ bar stock from your SVTR build (if you did not build one, shame on you)
- 1 Ender 3 bed spring

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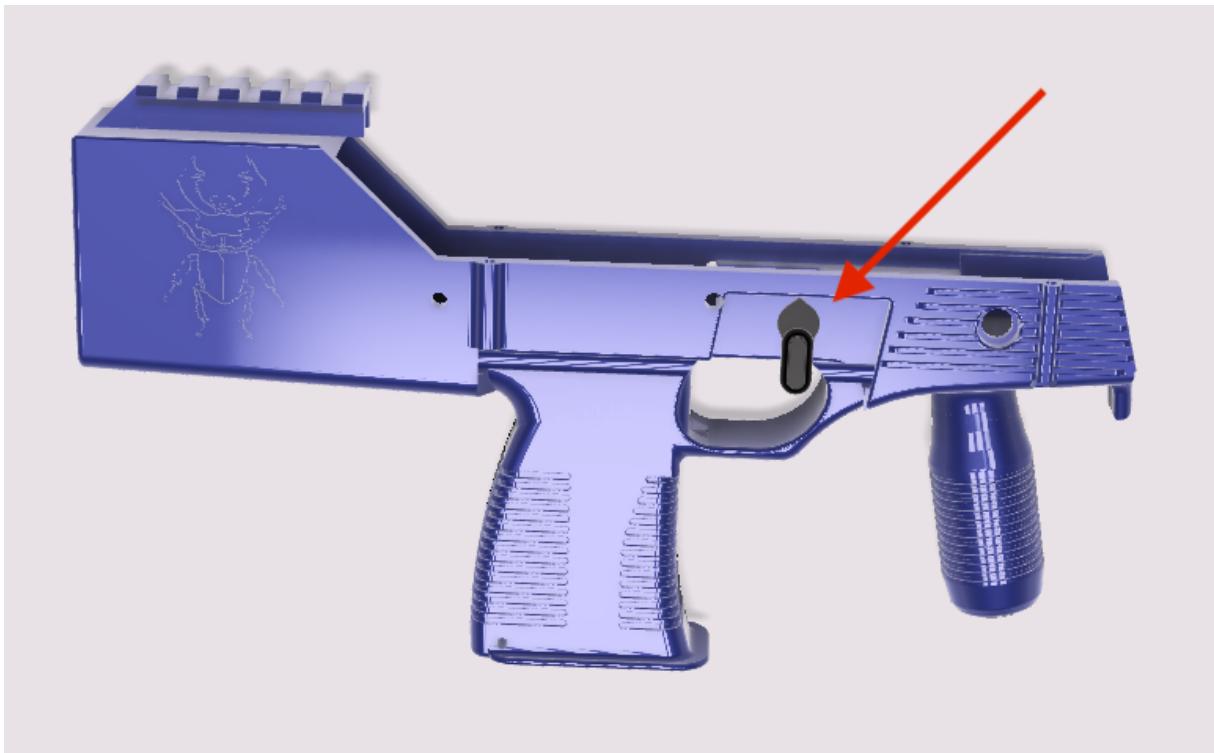
## Assembly:

*NOTE:* Before attempting assembly, read over the **Assembly notes** section of the documentation, as it covers some important information.

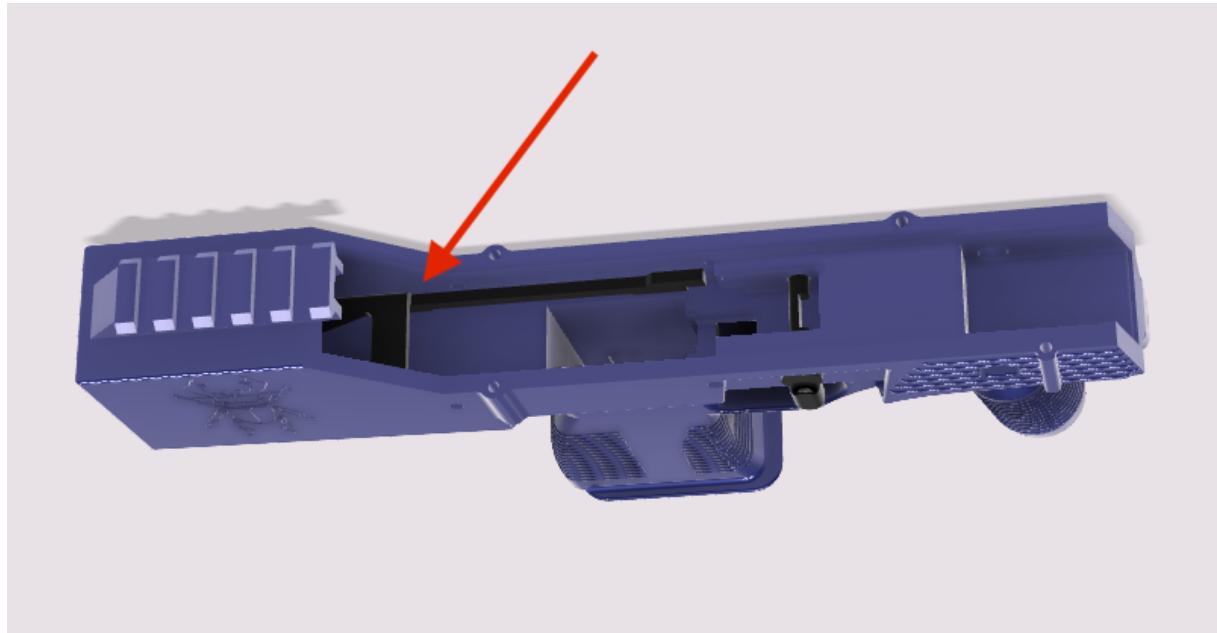
- Carefully ensure all supports are removed and all support interface material is removed from flat surfaces.
- Install (2) M3 heatsets into rear of lower receiver, next to rail slots. Install heatsets into the triangle of holes in receiver cap.



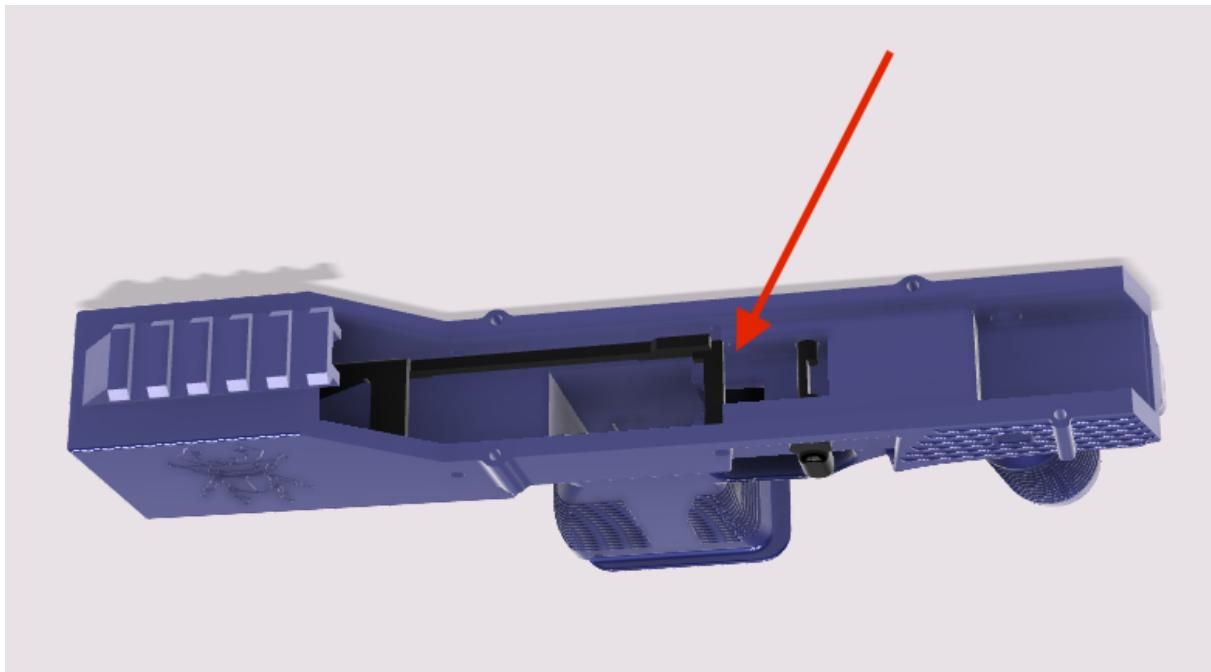
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- Insert Ender spring, then receiver cap button, and then  $\frac{1}{8}'' \times \frac{1}{2}''$  bar stock piece into the receiver cap to complete the rail locking mechanism if building a rail brace model. Cut  $\frac{1}{8}'' \times \frac{1}{2}''$  bar stock as needed to make flush with receiver cap.
  - Remove the picatinny rail from the top of the metal upper receiver by removing the retaining nuts. Yeet rail in the general direction of Europe to honor B+T and HK.
  - Using a  $\frac{1}{4}''$  drill bit, widen the safety hole. Insert safety.



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- Insert sear clip + sear bar retaining spring.

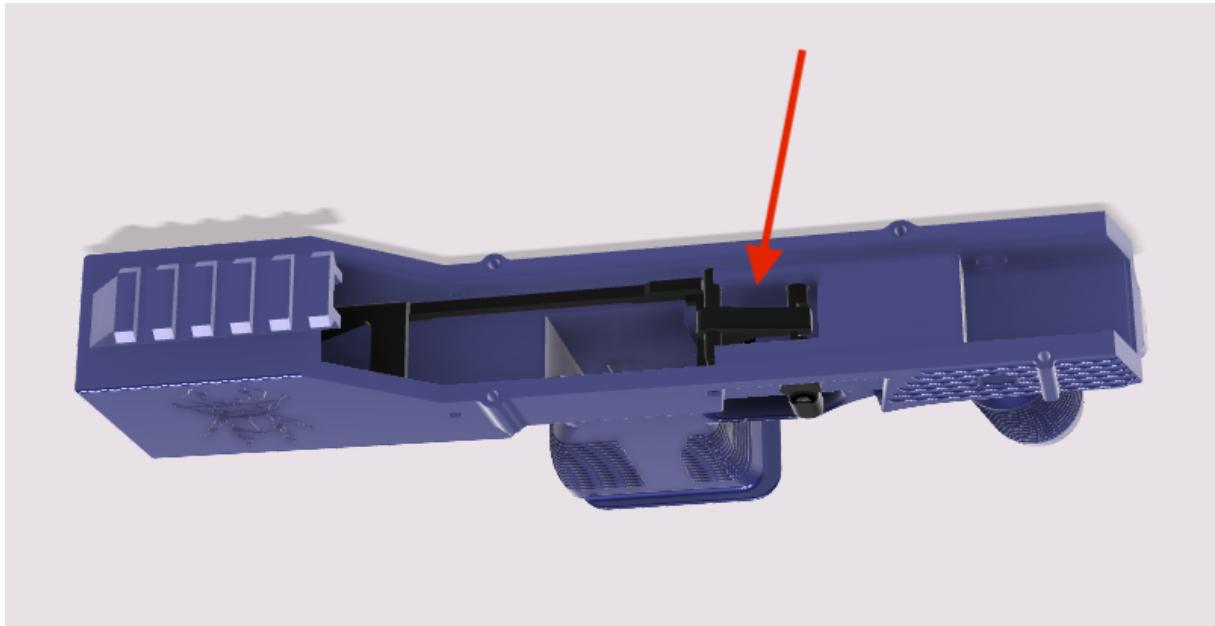


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- Insert sear plate + trigger bar. If you received a trigger bar that has an angled face, make sure to place the forward most edge down towards the magazine.

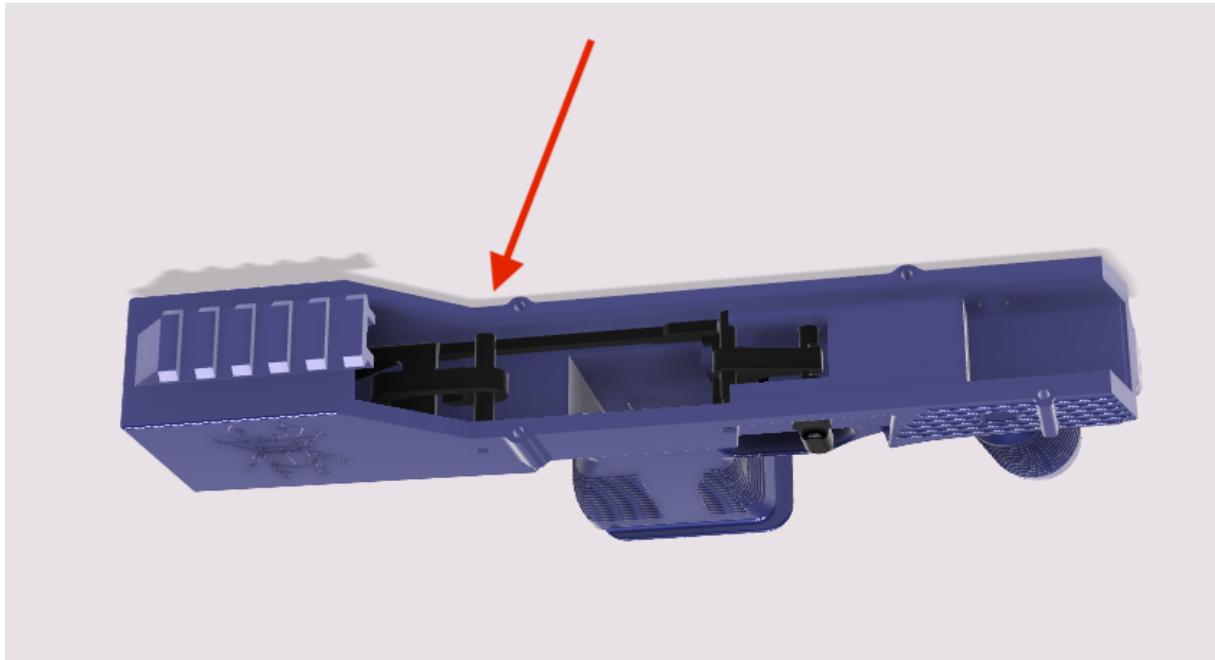


- Insert feed ramp fabricated from VMAC trigger guard (see below).

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- Insert trigger pin + trigger.



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- Install hammer + hammer pin. Keeping both the hammer and trigger pin holes tight is recommended, as is using a nylon hammer to get them seated.

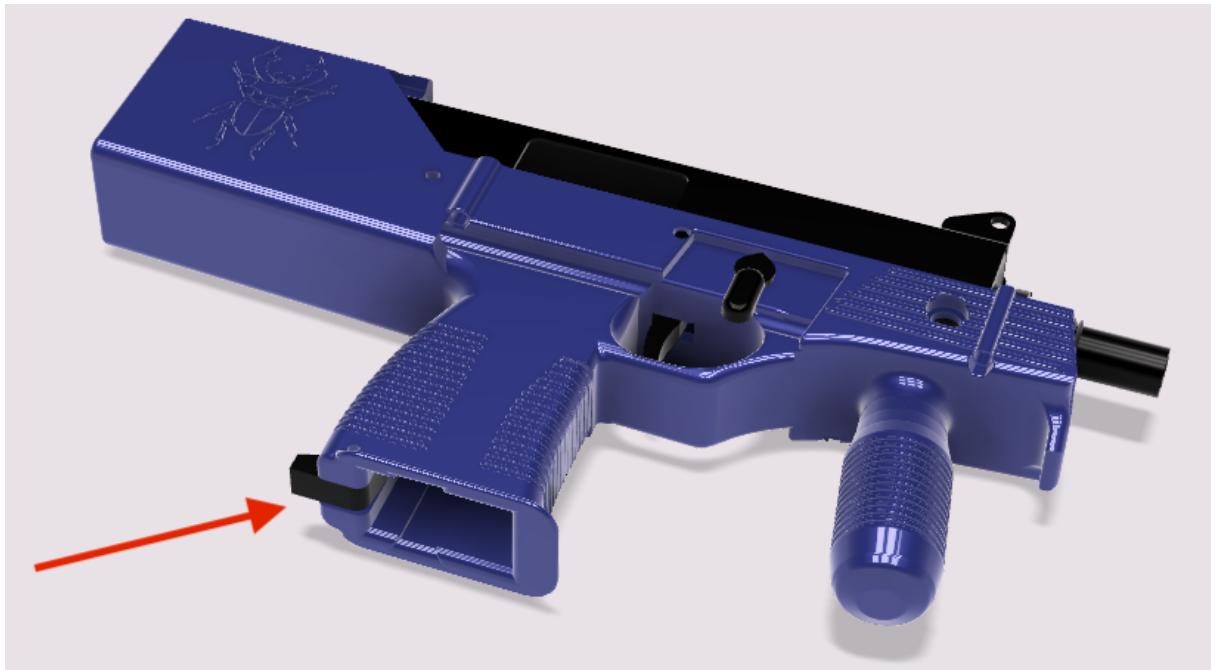


- Using M3 screws, attach rear cap to rear of receiver.

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- Seat the reinforcement fabric into the rear tower and install upper receiver.



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- Install mag catch using spring and roll pin from VMAC kit. A printed mag catch can also accomplish the job.



- Install upper shroud.
- Run appropriate length M3 Screws through upper and lower clamshell pieces into hex nuts
- Thoroughly function test using snap caps before firing.

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## Notes

### Printing notes

Best results have been printing at a 45 degree angle and using low (7-12%) density tree supports. Users have reported success using a flat orientation as well. Using normal supports is *not recommended*, as removing supports from the rear tower area can be especially frustrating.



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## Assembly notes and tips

You will need to cut your fabric reinforced rubber to the dimensions of the rear tower. See the diagram of dimensions in the [Feed Ramp Dimensions](#) section below. Notch out the top corner on the ejection port side. If you do not, removing the piece of reinforcement will be difficult when you have the rear cap attached. If you got the  $\frac{1}{8}$ " sheets of reinforcement, use two, it will work just fine. They press fit in, if your cutting was accurate they should stick with no issues.

This model uses the Velocity feed ramp/trigger guard. Using an angle grinder, hack saw, or broken Dairy Queen spoon, cut the trigger guard portion such that 7.5mm sticks off out from the bend. This gets seated directly behind your trigger bar, and should press fit in for assembly. This is very tough steel, a hack-saw will take you a while. Use an angle grinder.

The holes in the rail jigs are meant to be drilled to 3mm. Using a drill press will make this task significantly easier. Use the rail jigs where possible. A full 12" rail will result in an LOP greater than 12", and is not recommended to stay in compliance with ATF regulations on braced pistols. Consult your own firearms-specialized attorney for more information.

The rails may be difficult to insert into the lower receiver at first. Work them back and forth a good 10-

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15 times before becoming concerned. You probably did it right, it just needs to widen up a little. Don't be afraid to polish your rails to reduce friction even further. Once polished, rails should glide very easily between lock positions.

You may need to reduce some coils from your magazine catch spring. This is totally fine and should be considered if the fit between the catch and the magazine is too tight.

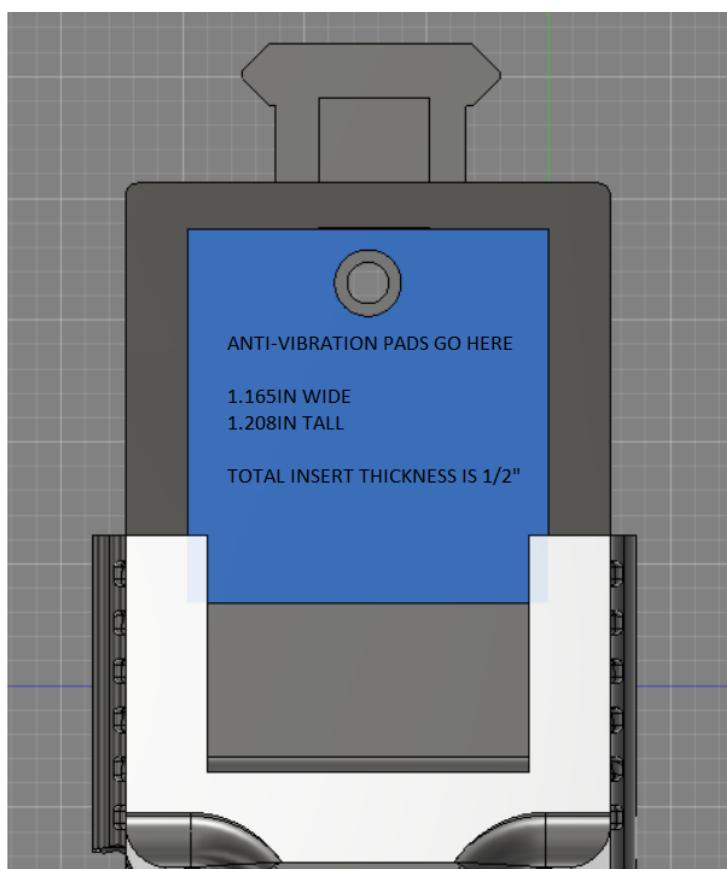
### **Magazine notes**

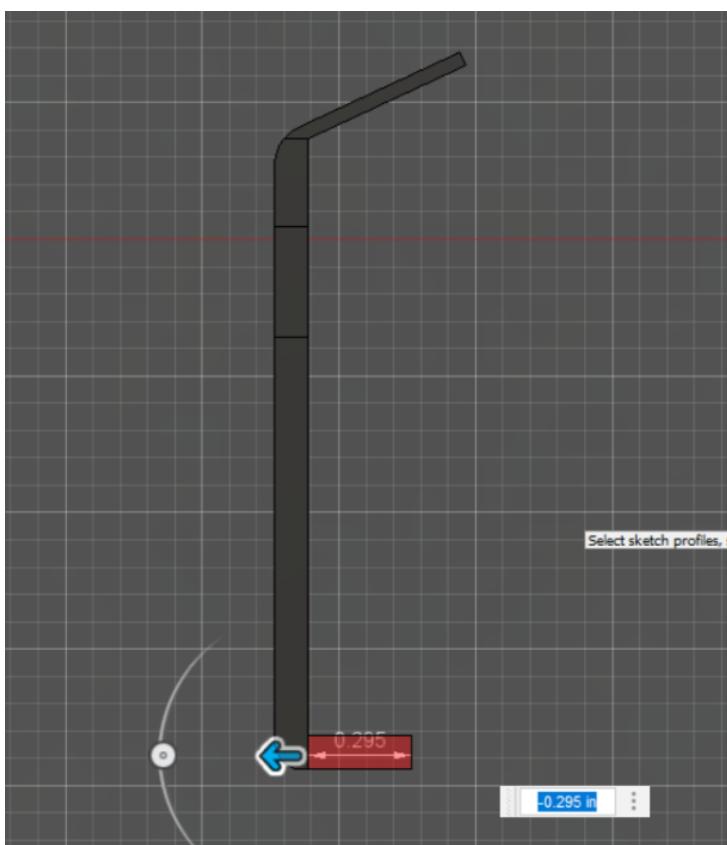
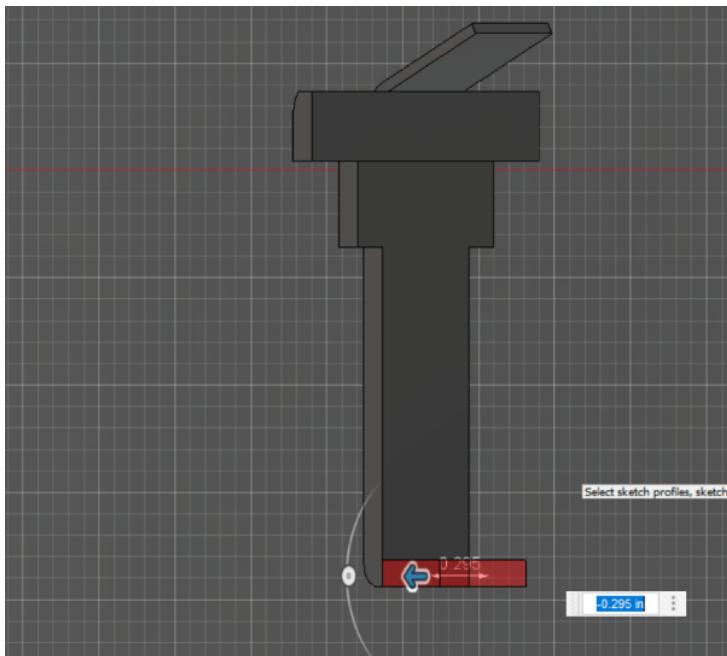
MPA magazines have been found to be the most effective commercially available magazines. Surplus STEN mags can also work but may require hand fitment, and quality between magazines varies wildly. A printed magazine has been created by Danny Meatball and Co. Danny is a beautiful, talented man and deserves your praise. His mags run flawlessly.

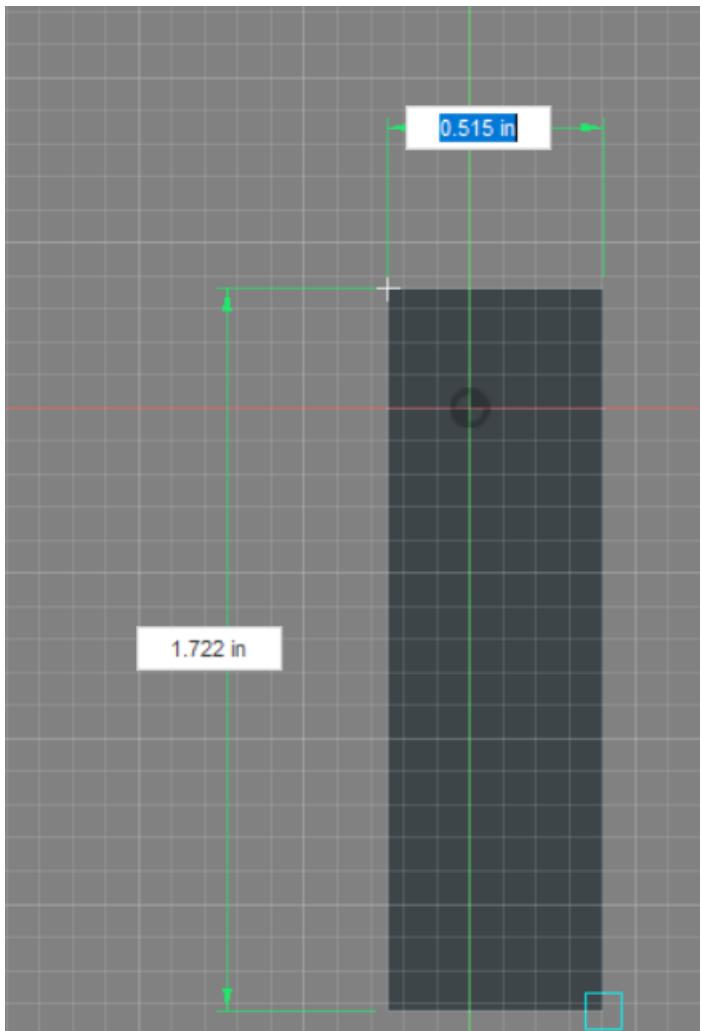
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## Feed Ramp Dimensions

The following images show the dimensions of the metal feed ramp. If you have handled the feed ramp and trigger guard correctly, you should get the same dimensions on your build.







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## Acknowledgments

For questions, please [contact SwarmTech](#). SwarmTech-FlopDongDan and SwarmTech-LongJohnson were also instrumental in the development of this model. They are able to answer questions but are much harder to find in the wild.

Logsleeve did the initial CAD modeling of the component parts and laid down the TP9 lines. This project would not exist were it not for him. Find out if you can buy him a beer.

A special thanks to Bitplumb (the Nylon Don) for doing an incredible amount of printing and testing during the beta. He and ManyEnemies (The People's Choice) were fantastic advocates for this project, and pushed the project to completion while SwarmTech's ADHD made him work on other things. They have very much earned their status as Beta Badasses.

A thank you goes out to Capekoviroboti and DrunkRebel. Cape's work on this readme and DrunkRebel's work on the release videos were key in getting this project into your hands. They are also some of the most genuine, helpful, and kind people you'll ever meet.

A special thanks is also in order to, in no particular order, SwiftStealth, SidTheKid, BeakerTheGunTweaker, Krrawn, Danny Meatball, DrunkRebel,

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LokiWartooth, ManyEnemiesBringMuchHonor, Red Daddy, Zer0Fux, and all of the other people who helped in the beta or otherwise contributed to the development of this model.

This project would not exist without the great community at AWCY?, and these listed people especially.

Enjoy!



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## Contact

To reach out to AWCY?, visit the AWCY? Lobby on Matrix ([#AWCYwaitingroom:matrix.org](#)).

Someone there will be able to point you in the direction of the Scarab room.

