Hammercannon Neo Build guide



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Change Log:

(Newest to oldest, top to bottom)

29/10/2024 - Public open beta

25/10/2024 - Finished assembly guide beta v1

16/10/2024 - Updated Cover photo to latest version, modified assembly guide to latest version

6/9/2024 - Updated Print guide to correspond with the new prints, tidied up print guide to show prints that require similar settings on buildplate together

28/8/2024 - Added Change Log. Modified certain prints, released in .stp format, pending .stl release. Updated hardware BOM to be inclusive of magnetic slide lock. Updated tested SG FPS Combos to reflect current numbers after magnetic slide lock

19/7/2024 - Build guide started

User Notes

NOTE: This is the beta instructional guide, nothing is finalised, content may be added, replaced, or removed depending on what is deemed necessary.

Hammercannon Neo (Otherwise known as HC Neo) is a top slide prime 3d printed springer pistol blaster that accepts standard worker nightingale slim angled talons. It is an improved variant of the original Hammercannon and hence will be released under CREATIVE COMMONS ATTRIBUTION-NONCOMMERCIAL-SHAREALIKE 4.0 INTERNATIONAL licence. This document serves as a one-stop guide for building, tuning and maintaining your HC Neo.

It is crucial you do not place any body parts in between moving parts of the blaster during operation, Yaow07 does not hold any responsibility for resulting injuries caused by any misuse of the blaster.

This blaster easily exceeds 100fps, you are reminded always to wear proper eye protection when playing with foam dart blasters

You are welcome to personalise your HC Neo with the provided step files. However, should you wish to publish the files online (be it customised parts or a mod kit) or use the design for commercial gain you must abide by the following

Legal

You are free to copy and redistribute the material in any medium or format, and to remix, transform, and build upon the original design. The licensor cannot revoke these freedoms as long as you follow the licence terms:

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You may contact me at yaow07fdb@gmail.com or any other contact I have provided you for any questions regarding licensing or issues you have encountered with your HC Neo, or if you wish to add information regarding spring and barrel FPS combinations below

法律注释

欢迎您使用提供的步骤文件来个性化您的 HC Neo。但是，如果您希望在线发布文件（无论是定制部件还是模组套件）或使用该设计来获取商业利益，您必须遵守以下规定。您可以自由地以任何媒介或格式复制和重新分发材料，并在原始设计的基础上重新混合、转换和构建。只要您遵守许可条款，许可方就不能撤销这些自由：

1. 归属 — 您必须给出适当的信用，提供许可证的链接，并表明是否进行了更改。您可以以任何合理的方式这样做，但不得以任何暗示许可方认可您或您的使用的方式。

2. 非商业用途 — 除非得到 Yaow07 Foam Dart Blasters 的明确许可，否则您不得将这些材料用于商业目的。

3. 相同方式共享—如果您重新混合、转换或构建设计，您必须在与原始版本相同的许可下分发您的贡献。

4. 无额外限制 — 您不得应用任何类型的法律条款或措施来合法限制他人执行许可证允许的任何行为。

如果您对 HC Neo 的许可或遇到的问题有任何疑问，或者如果您希望在下面添加有关弹簧和枪管 FPS 组合的信息，您可以通过 yaow07fdb@gmail.com 或我为您提供的任何其他联系方式与我联系

(这是用谷歌翻译翻译的)

Licensed Distributors

(Refers to shops that have been greenlit for the sale of hardware kits or full builds)

Company/Individual	Location/Country	Listing Link
Yaow07 Foam Dart Blasters	Singapore	(Pending listing)

Bill of Materials:

Item name	Amt
Standard hobby barrel (13 ID, 16 OD, >150 L)	1
Plunger tube (37.5 ID, 40 OD, 100 L)	1
Plunger spring (ID ≥ 20, OD < 30, Compressed length ≤ 40)	1
Catch spring (ret n28 or 0.6 WD x 5 OD x 10 L)	2
33.5x37.5x2 Oring	2
15.5x19.5x2 Oring	1
11x15x2 Oring	1
7x11x2 Oring	1
4.5x8.5x2 Oring	1
M16 washer (OD 32, TH 1.5-1.6)	1
M5 200mm socket cap screw	3
M5 180mm socket cap screw	1
M5 nut	4
M3 80mm pan Phillips / socket cap screw	2
M3 60mm pan Phillips /socket cap screw	2
M3 30mm pan Phillips / socket cap screw	3
M3 16mm pan Phillips / socket cap screw	6
M3 12mm pan Phillips / socket cap screw	4
M3 8mm pan Phillips / socket cap screw	5
M3 5mm pan Phillips / socket cap screw	15
M3 nut	9
OD 8mm, TH 2mm Neodymium magnets	4

*BOM subject to change depending on any modifications made to fileset during beta

Tools required:

- Phillips head screwdriver #1 (if using Phillips screws)
- M3 Allen key
- M5 Allen key
- Silicone grease
- Super glue
- Hammer (if tolerances are whack)
- File (for overhangs)

Printing Guide

For builds done by Yaow07 Foam dart blasters, I've used a general rule of 4 walls with 20% infill, you are welcome to experiment with lower infill or wall values but generally, as long as you treat your HC Neo well the above-mentioned should be well enough.

However, you are advised to print the following parts with upwards of 50% infill:

- Sear
- Trigger

These prints may wear out over time due to the mechanical stress placed on them. If there is any flexibility in these prints it may lead to a shorter lifespan of those prints.

The following prints should be printed with at least 5 walls:

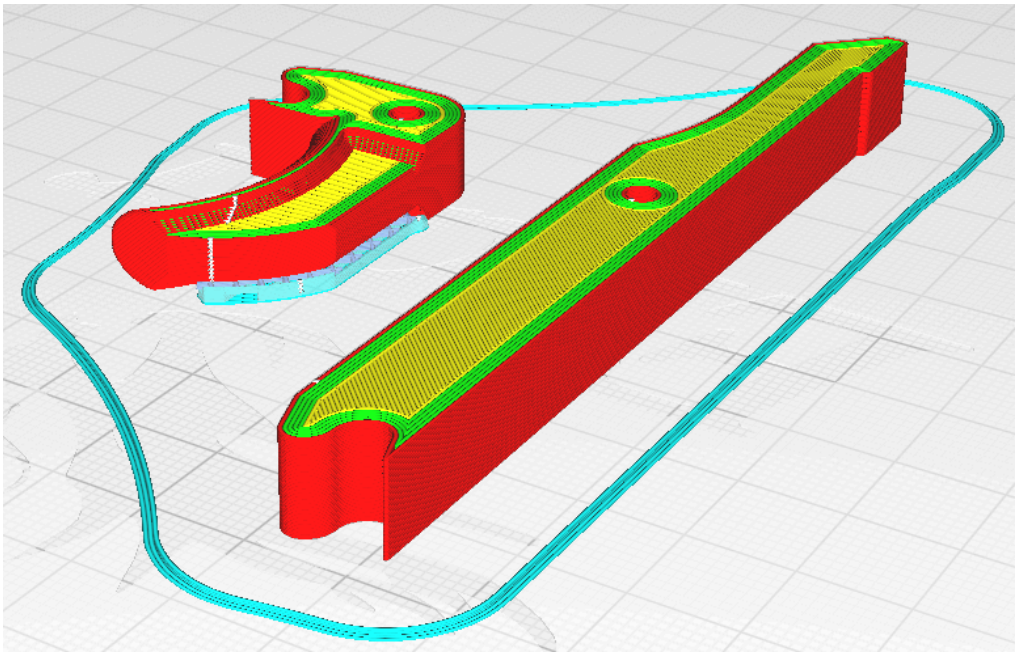
- Turnaround

This is to reduce the chances of air leaking from the print and reduce the air seal.

You are **advised NOT** to print this blaster in full black.

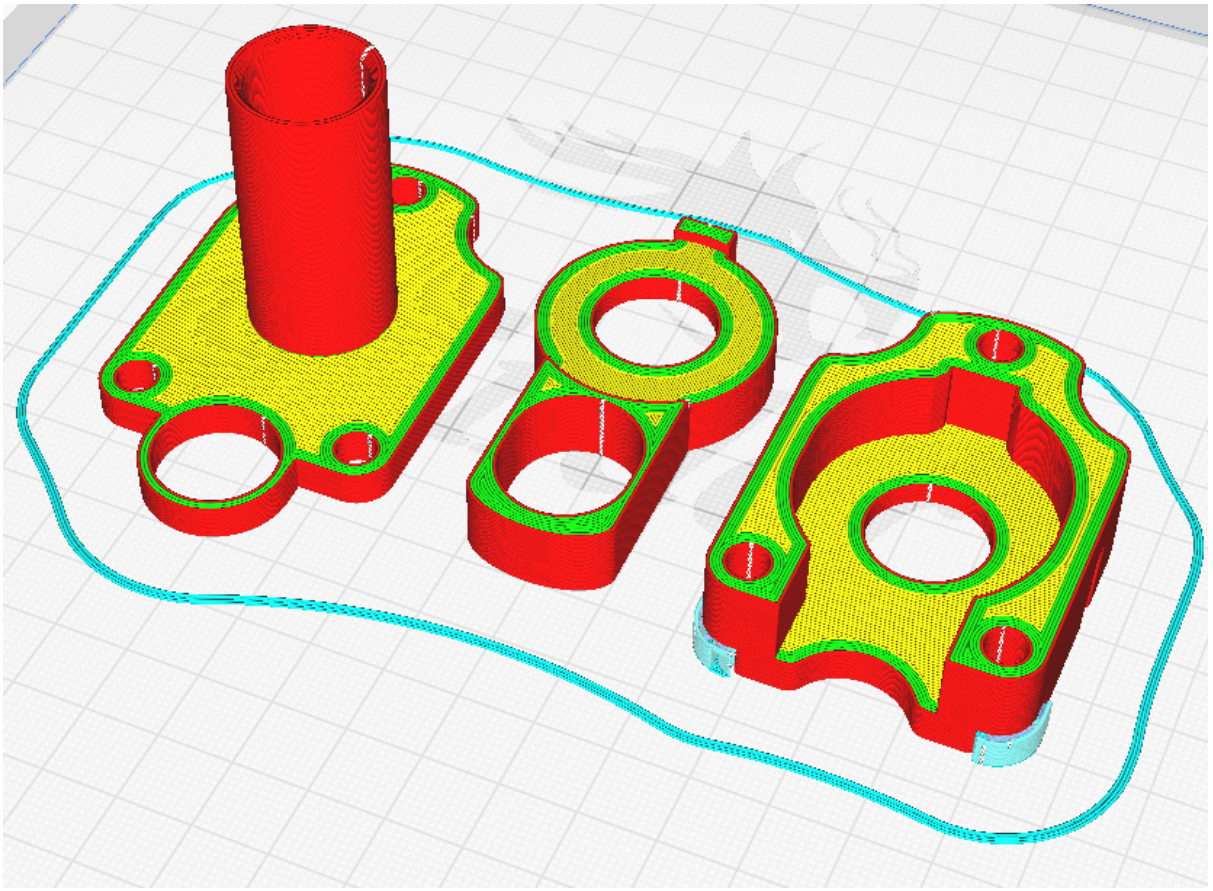
The prints should already be oriented in the below positions when you place them into the slicer, however, do double-check to ensure the files are oriented correctly before printing

Trigger and Sear



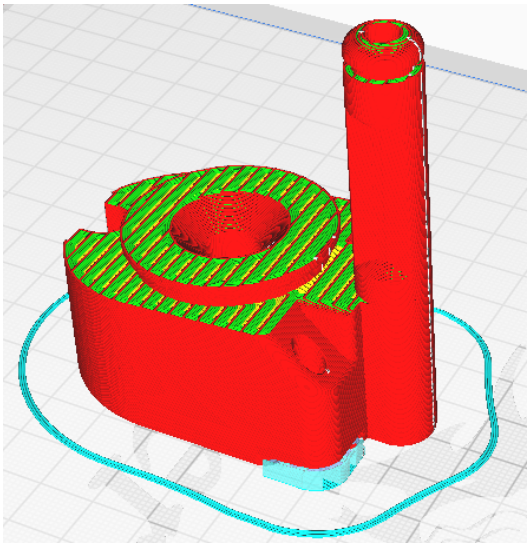
4 walls, 50% infill, Supports touching build plate

Catch Core, Catch, and CatchBody



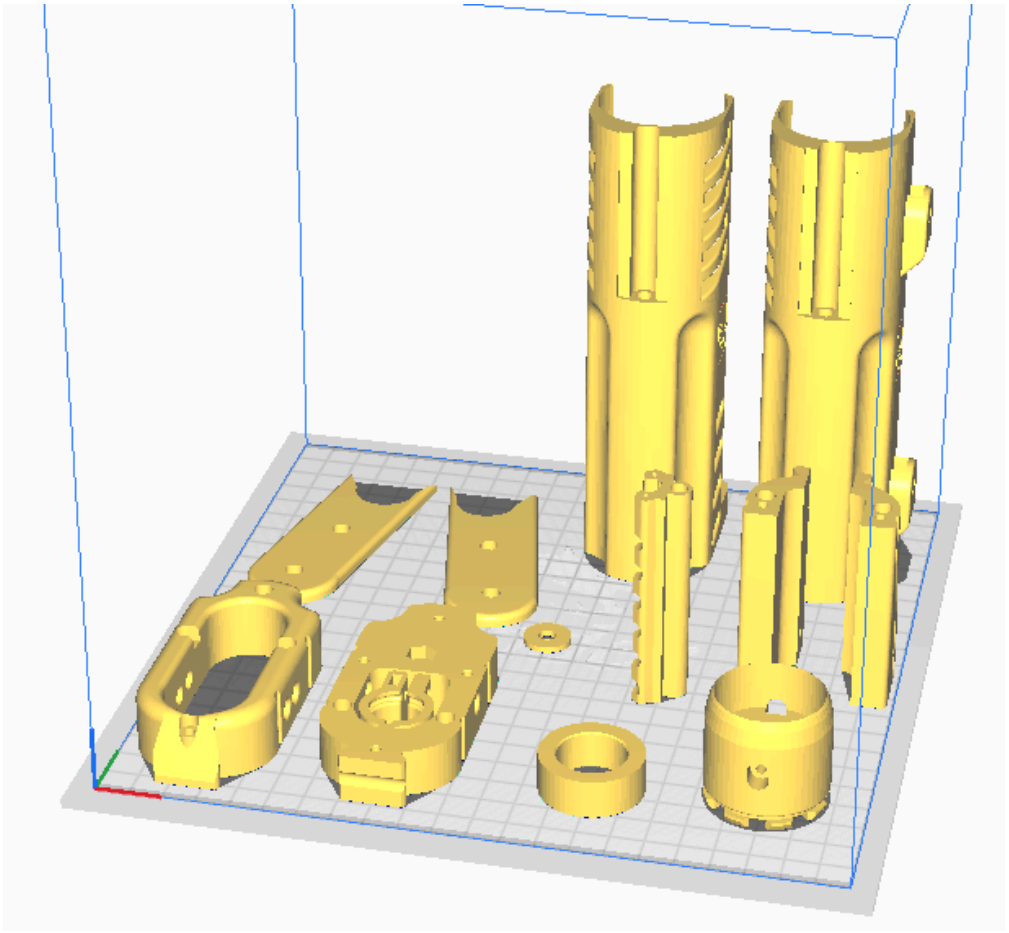
4 walls, 30% infill, supports touching build plate

Turnaround



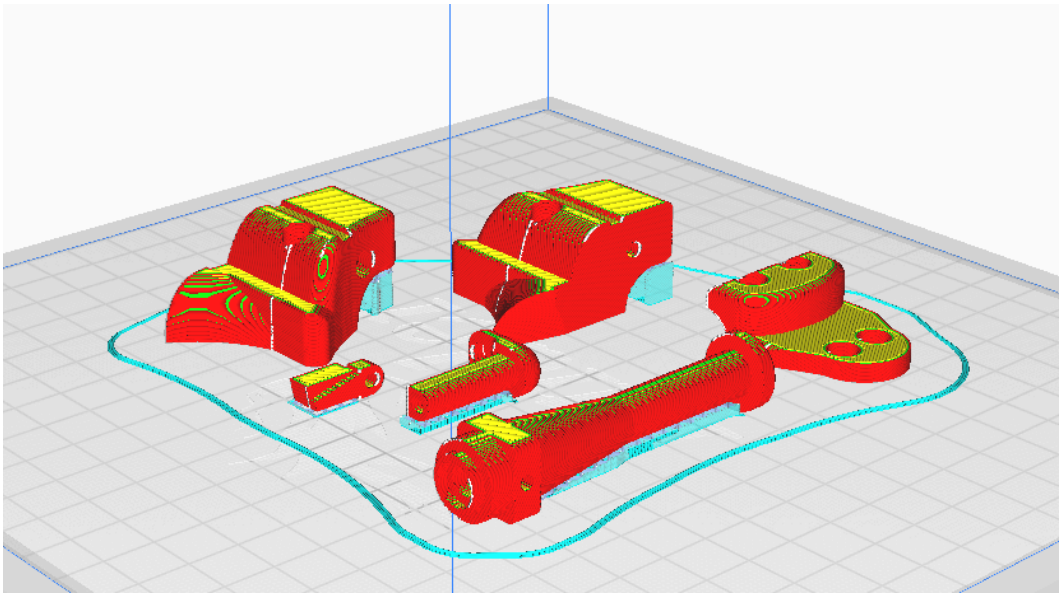
5 walls, 20% infill, Supports touching build plate

Top Slide (Regular or Fidlock), Left and Right Grip plates, Plunger Ring, Plunger Head, Picatinny Irons, FrontEnd, Collet, SBL Spring Spacer, Left and Right Side Prints



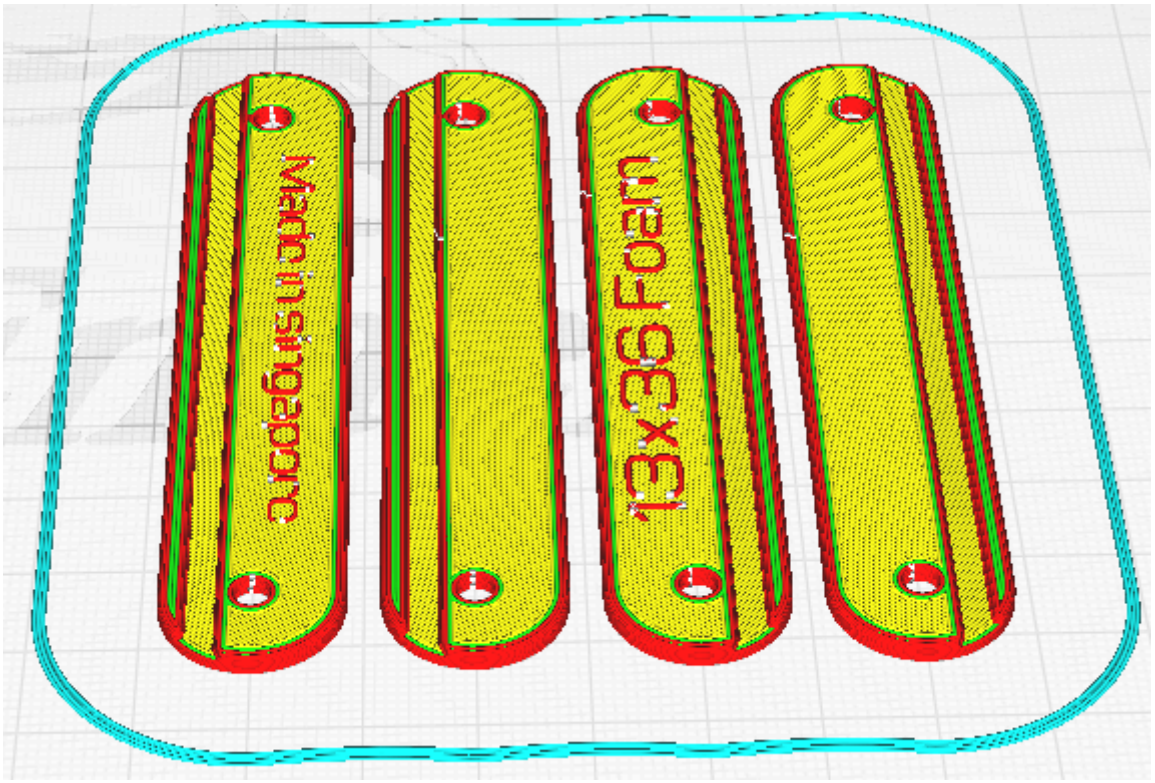
4 walls, 20% infill (Print only one top slide)

Plunger core, Backend Right, Backend Left, Mag button Mag catch, Grip connector



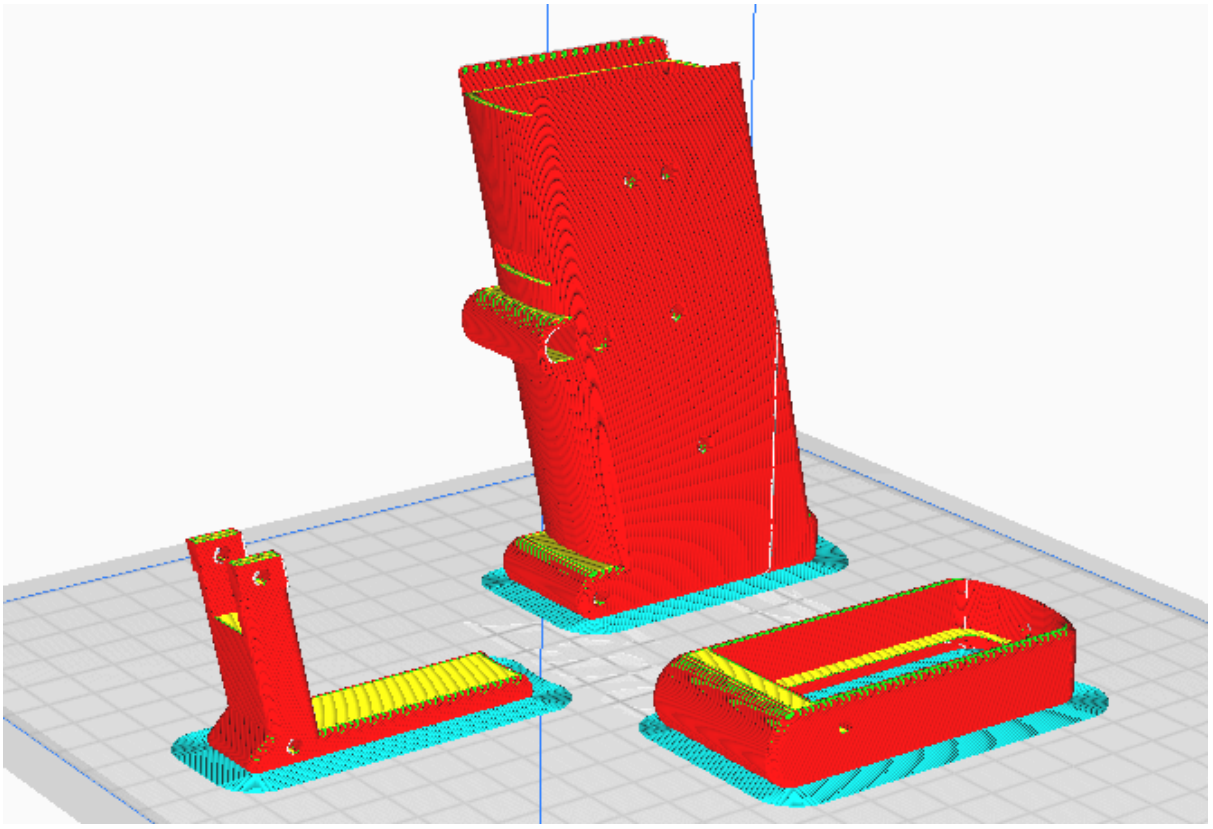
4 walls, 20% infill, supports touching buildplate (Note you will need to print the Grip connector twice, there is no difference between the left and right connectors)

Decorative Receiver side plates



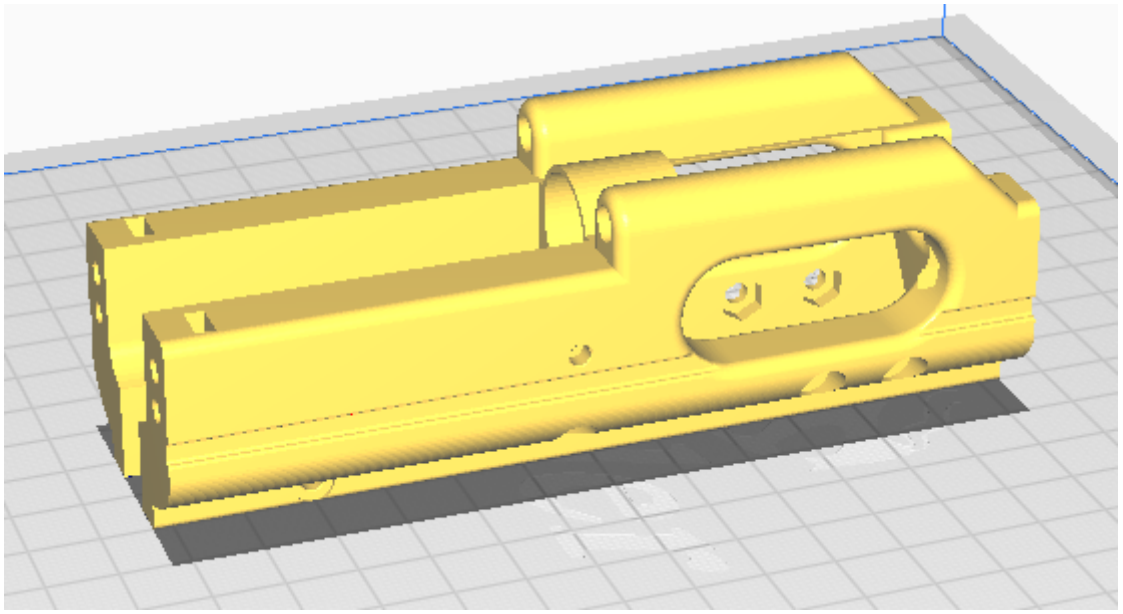
2 walls, 10% infill

Flaired Magwell, **Grip, Trigger guard**



4 walls, 20% infill, brim build plate adhesion, Use heated bed 1st layer

Receiver

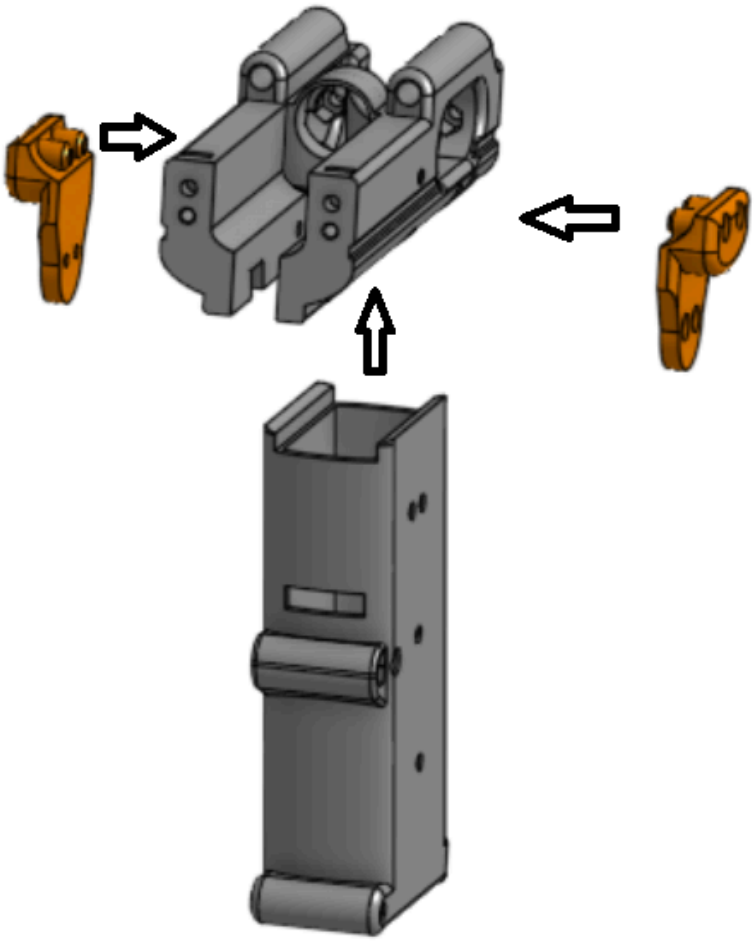


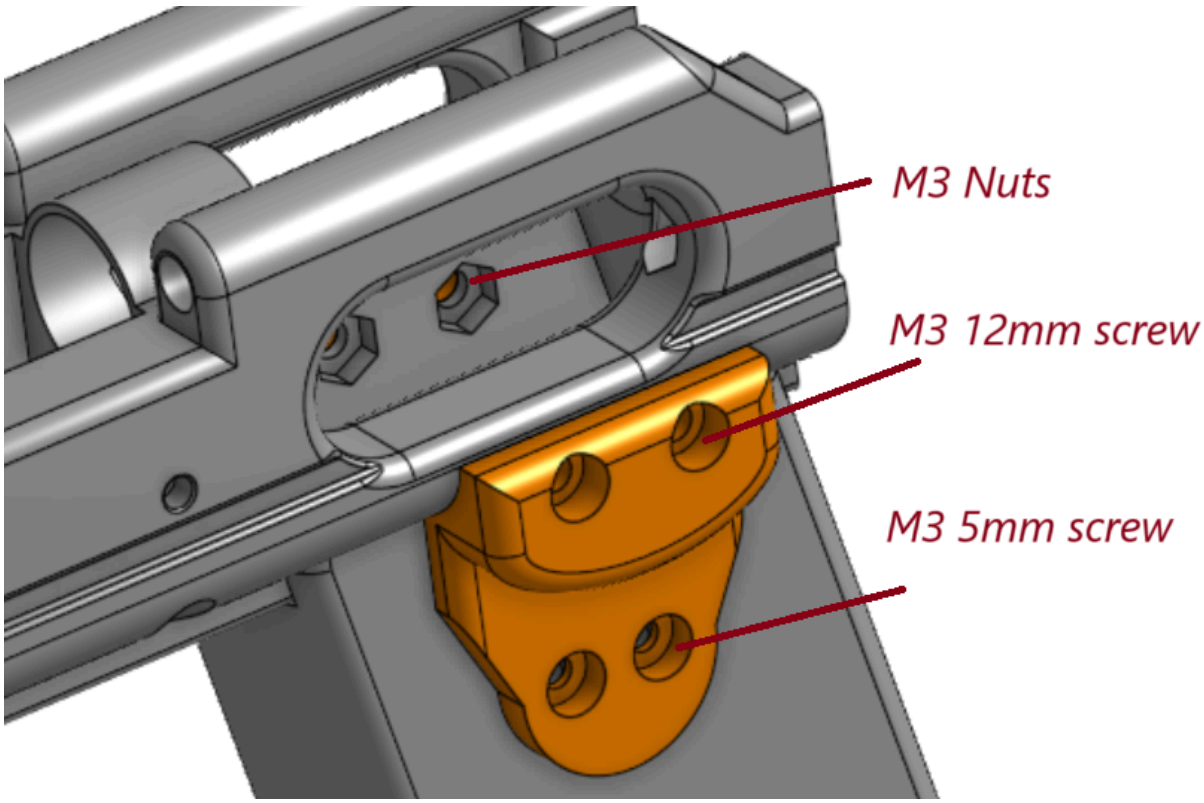
4 walls, 20% infill (For printers with insufficient cooling: use brim build plate adhesion, and a slow heated 1st layer, turn off heated build plate after

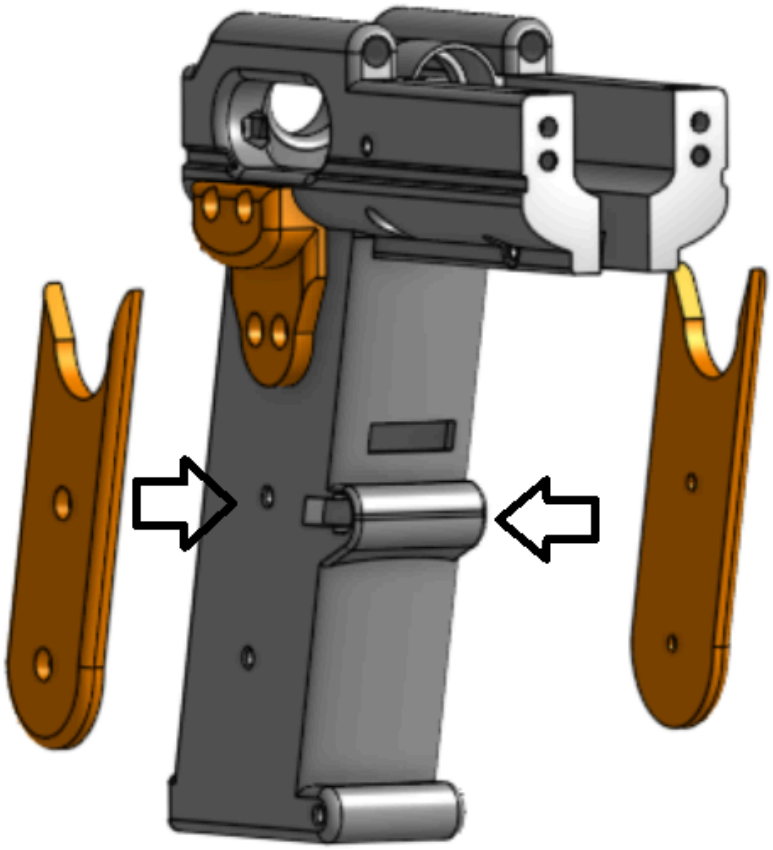
Assembly Guide

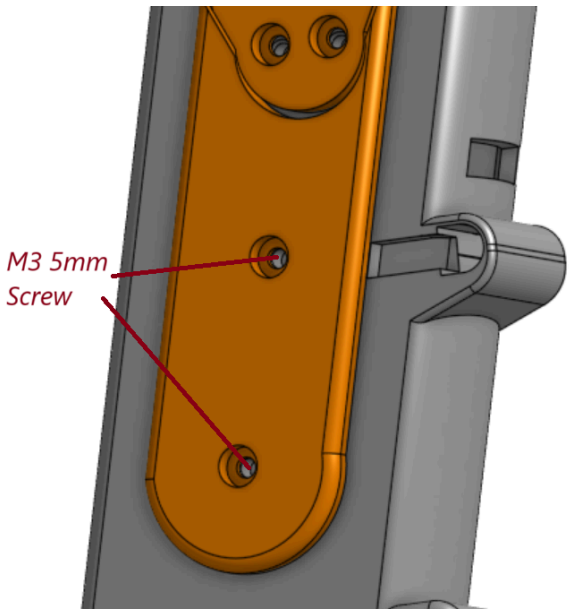
Before assembling the blaster do remember to use a file to file down any leftover overhangs (places such as the jam opening in the receiver or the hole for the mag release) Note that overtightening screws may lead to poor operation of the blaster. **Do Not** overtighten any M5 long screws. Threadlocker is unnecessary but you may use it as you see Fit.

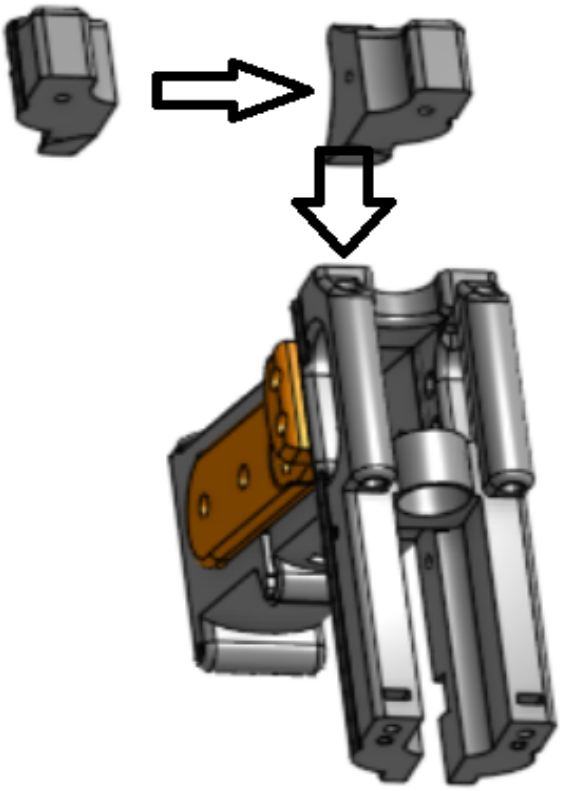
Where hardware is not specified, assume symmetrical installation of hardware

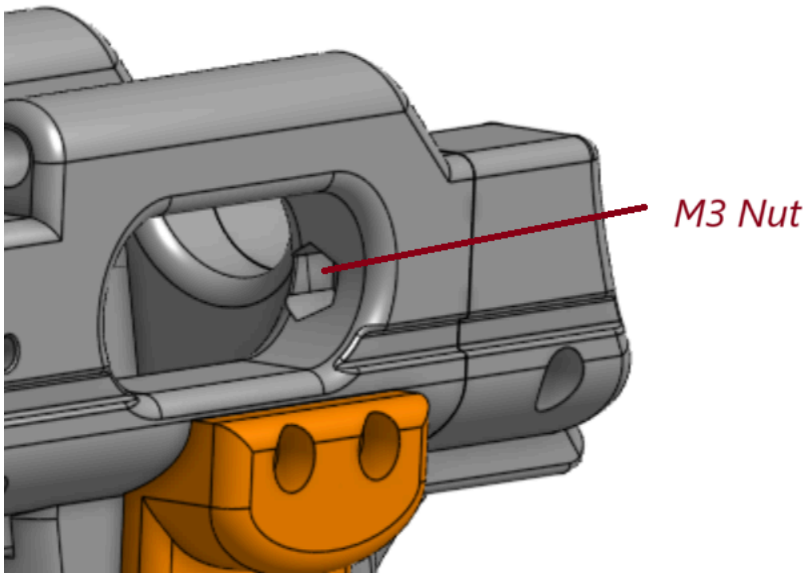


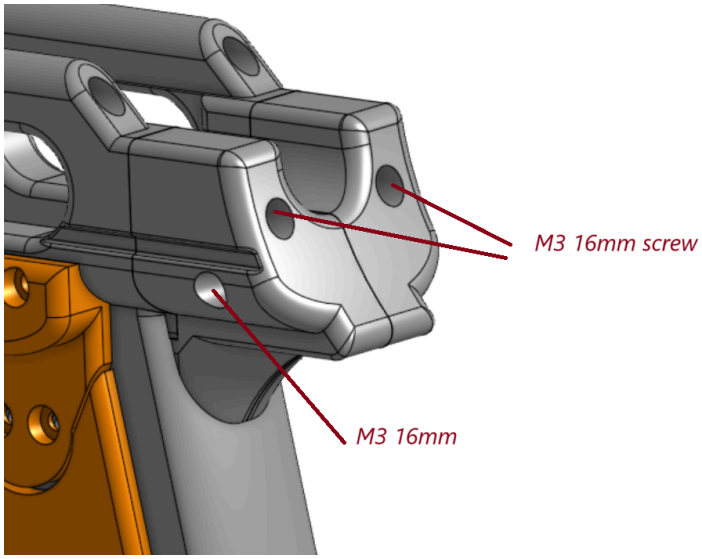

M3 Nuts
M3 12mm screw
M3 5mm screw

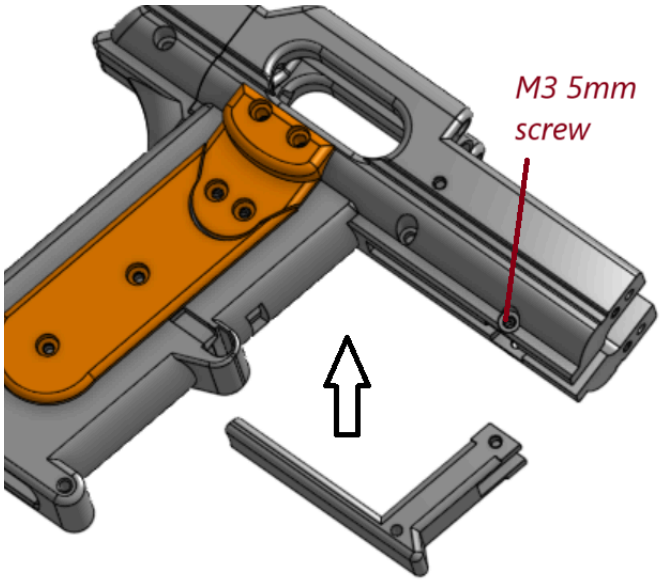


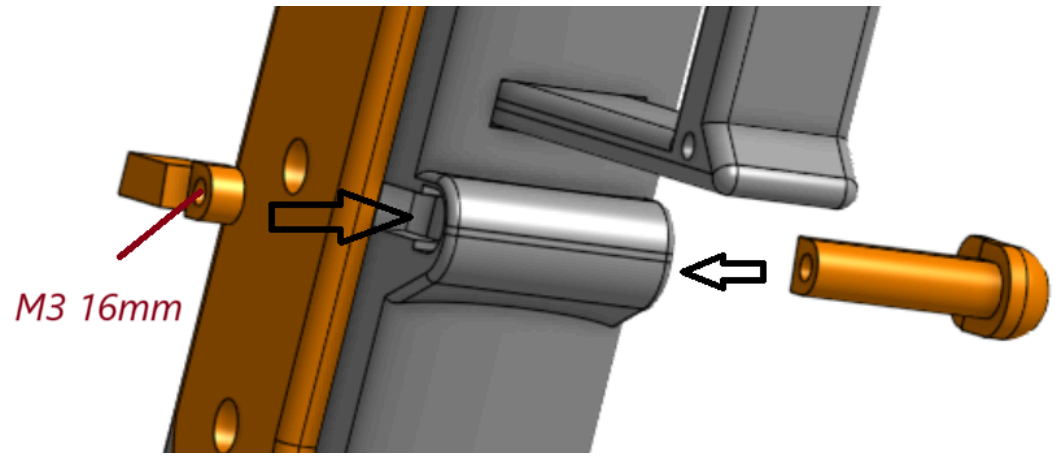

M3 5mm
Screw

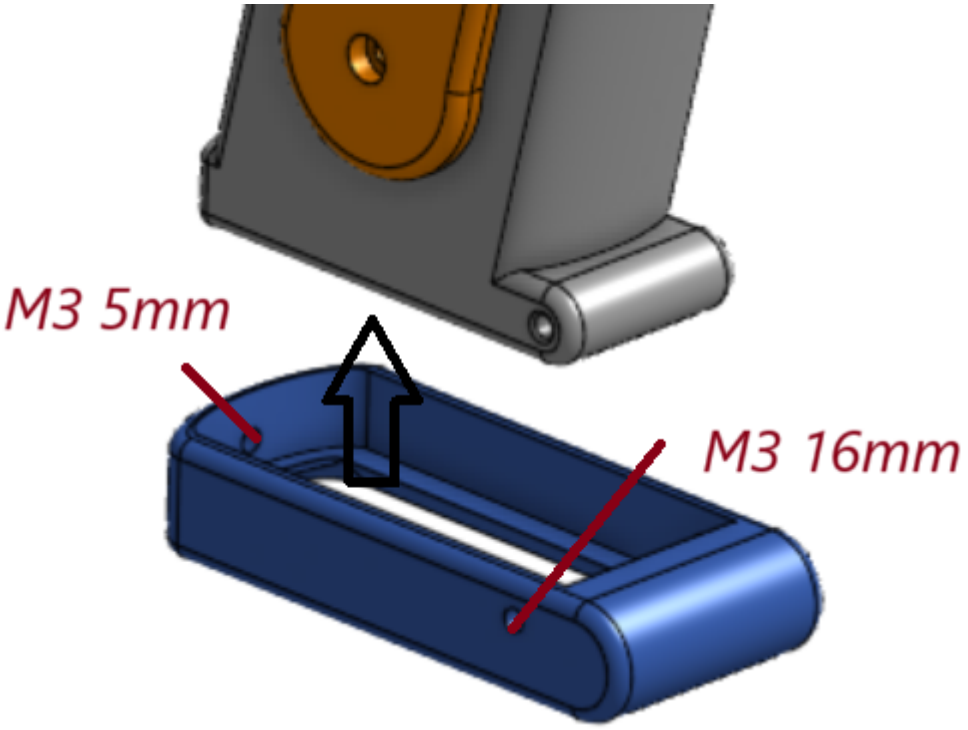


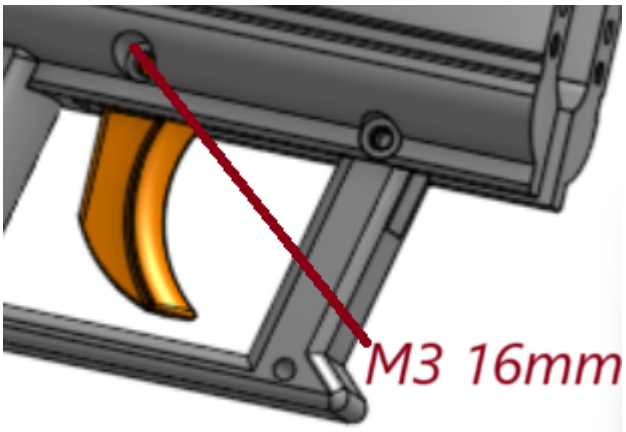

M3 Nut

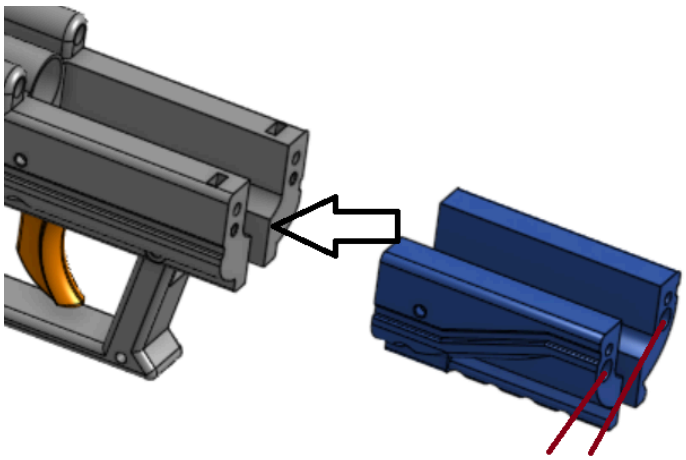

M3 16mm screw
M3 16mm

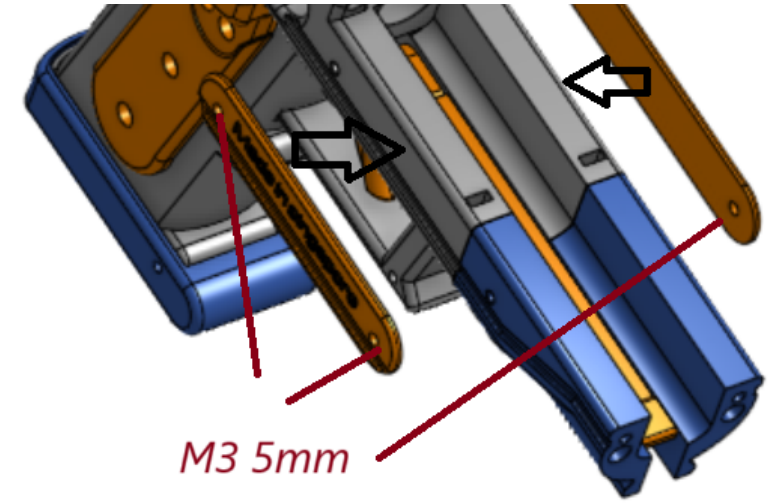

M3 5mm
screw

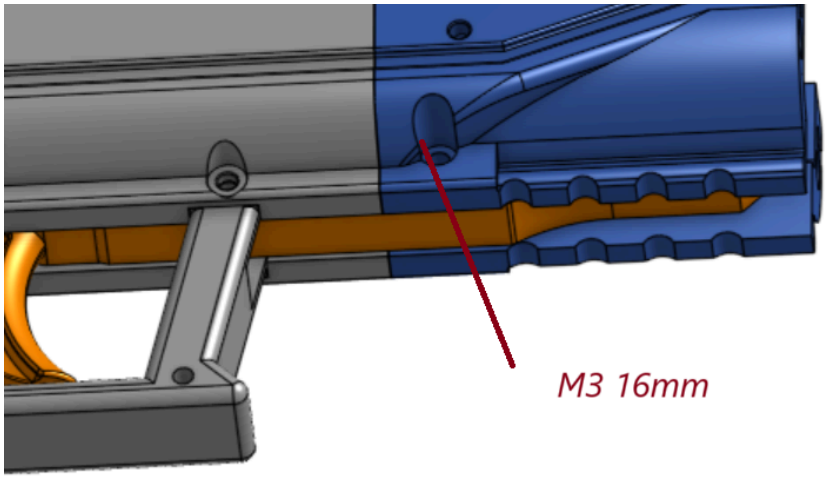

M3 16mm

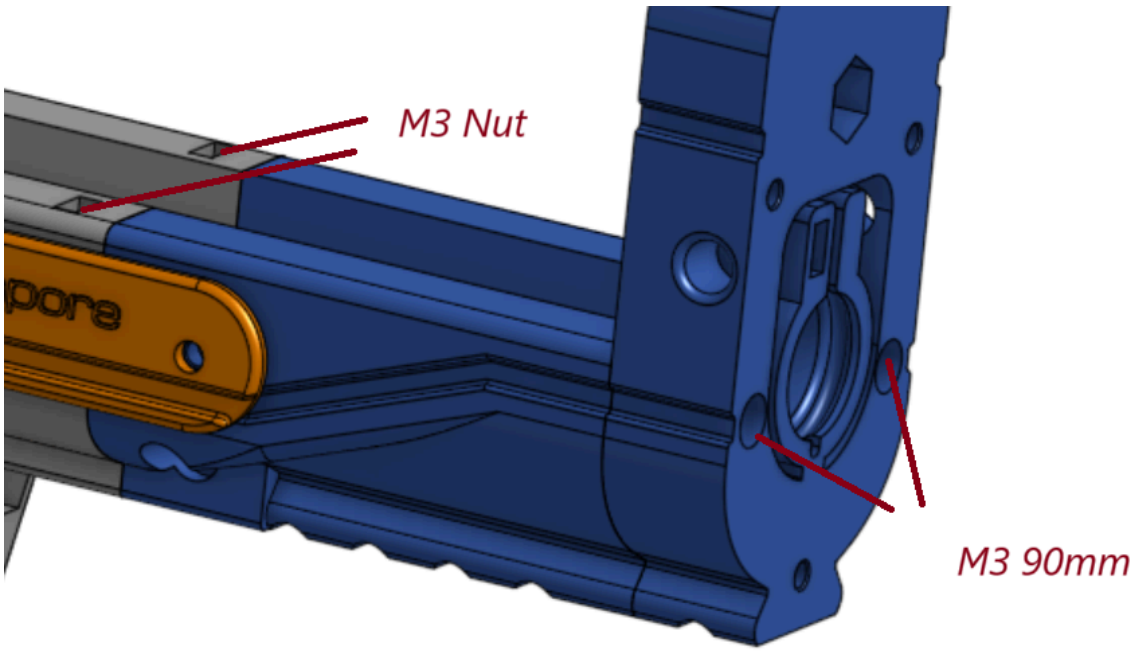

M3 5mm
M3 16mm

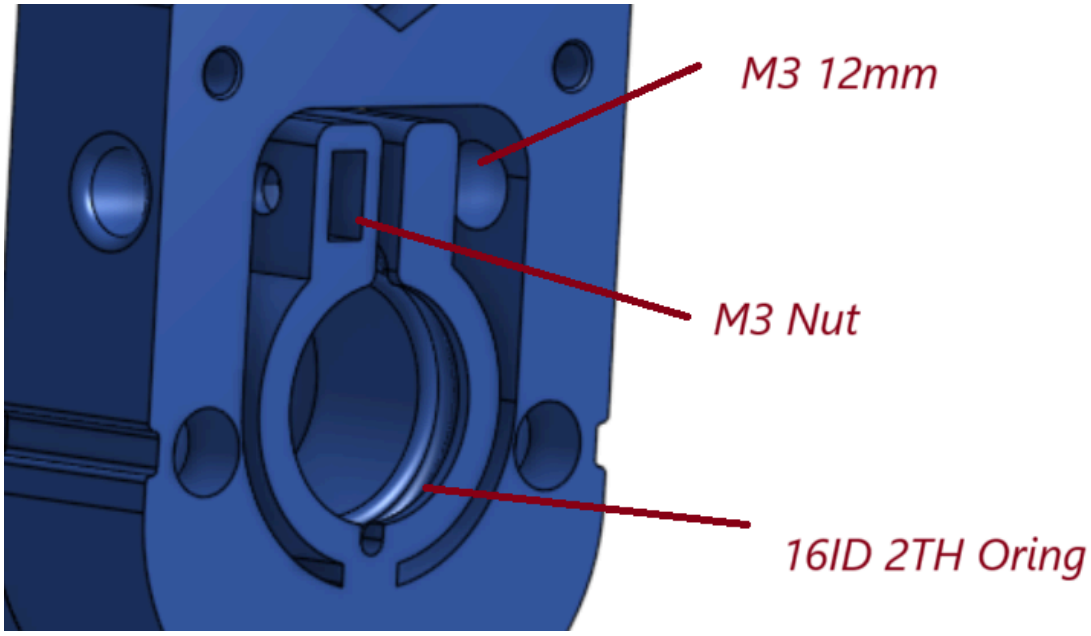

M3 16mm

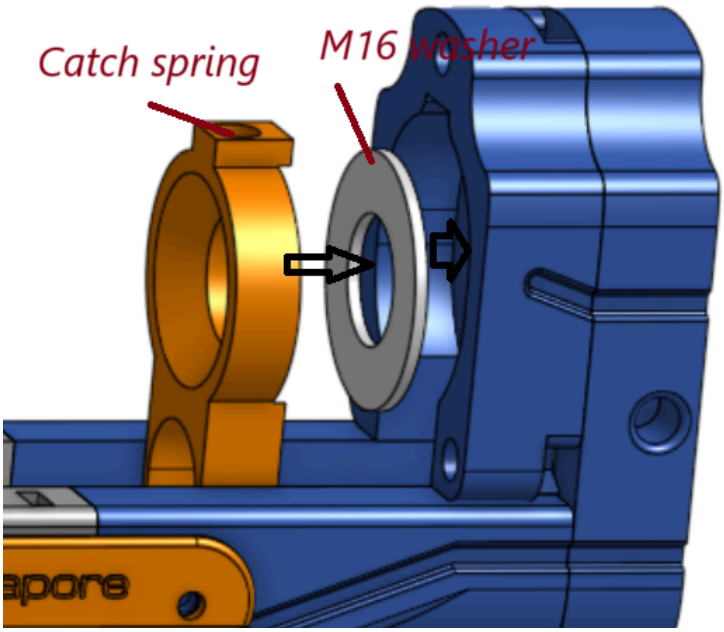

M3 60mm

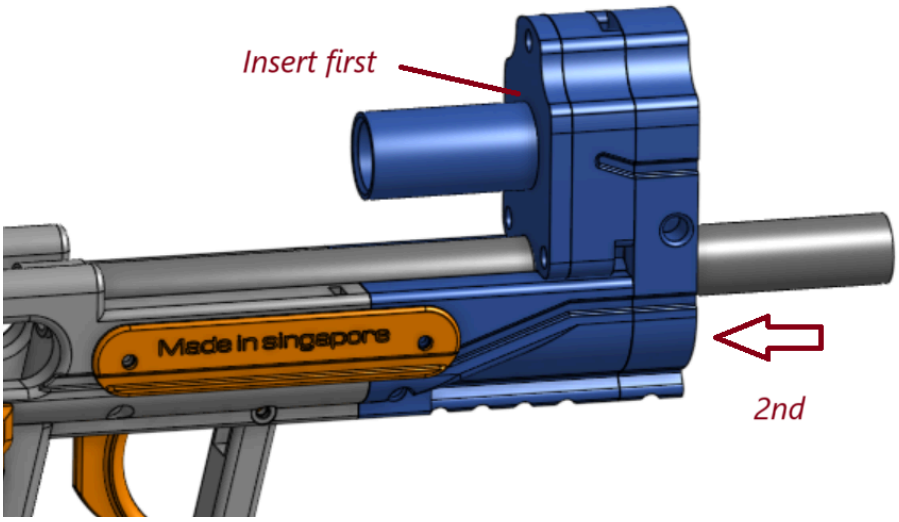

M3 5mm

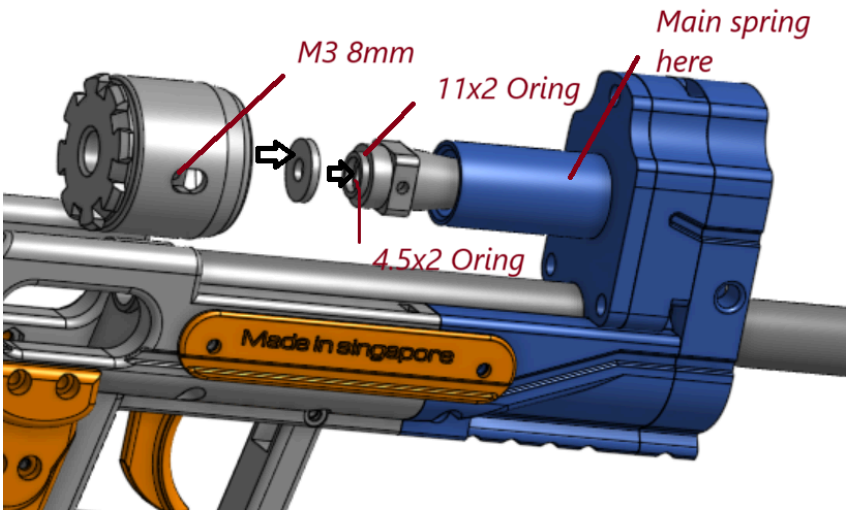

M3 16mm

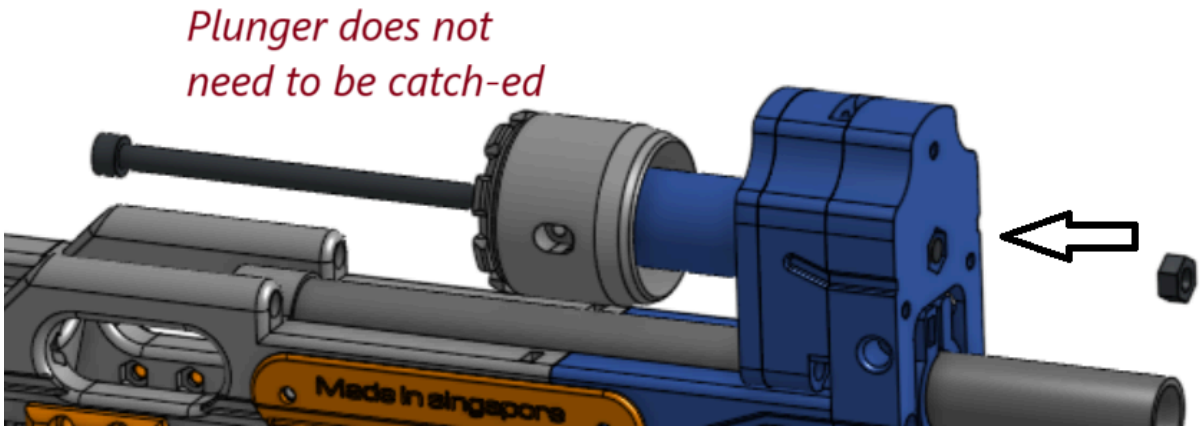

M3 Nut
M3 90mm


M3 12mm
M3 Nut
16ID 2TH Oring

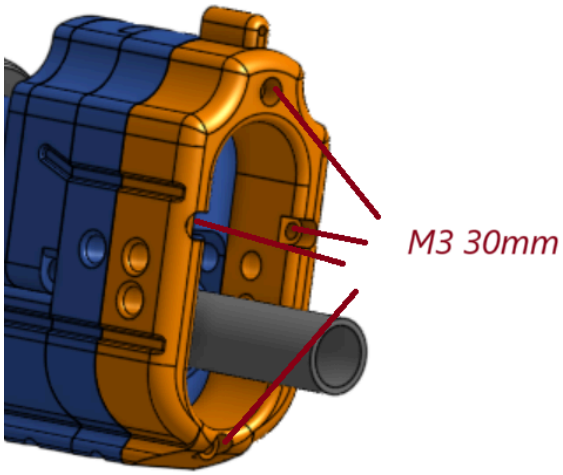

Catch spring
M16 washer

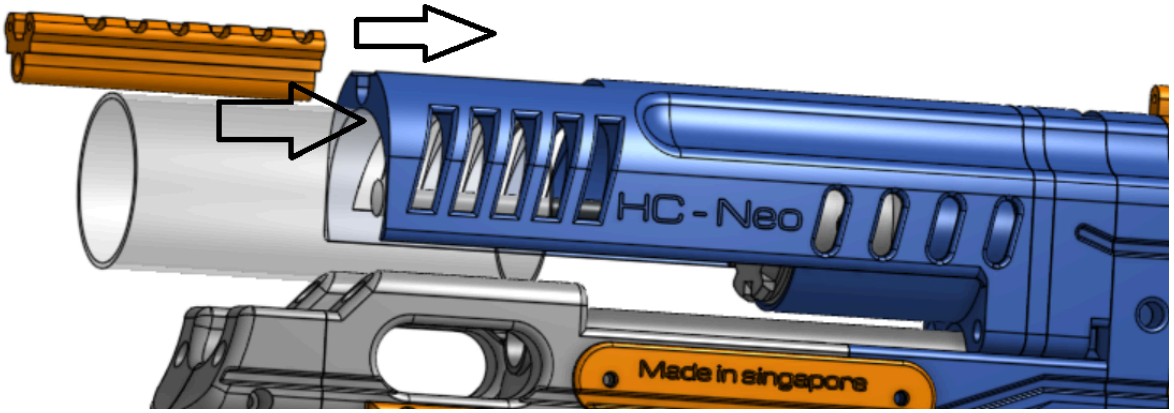

Insert first
Made in singapore
2nd

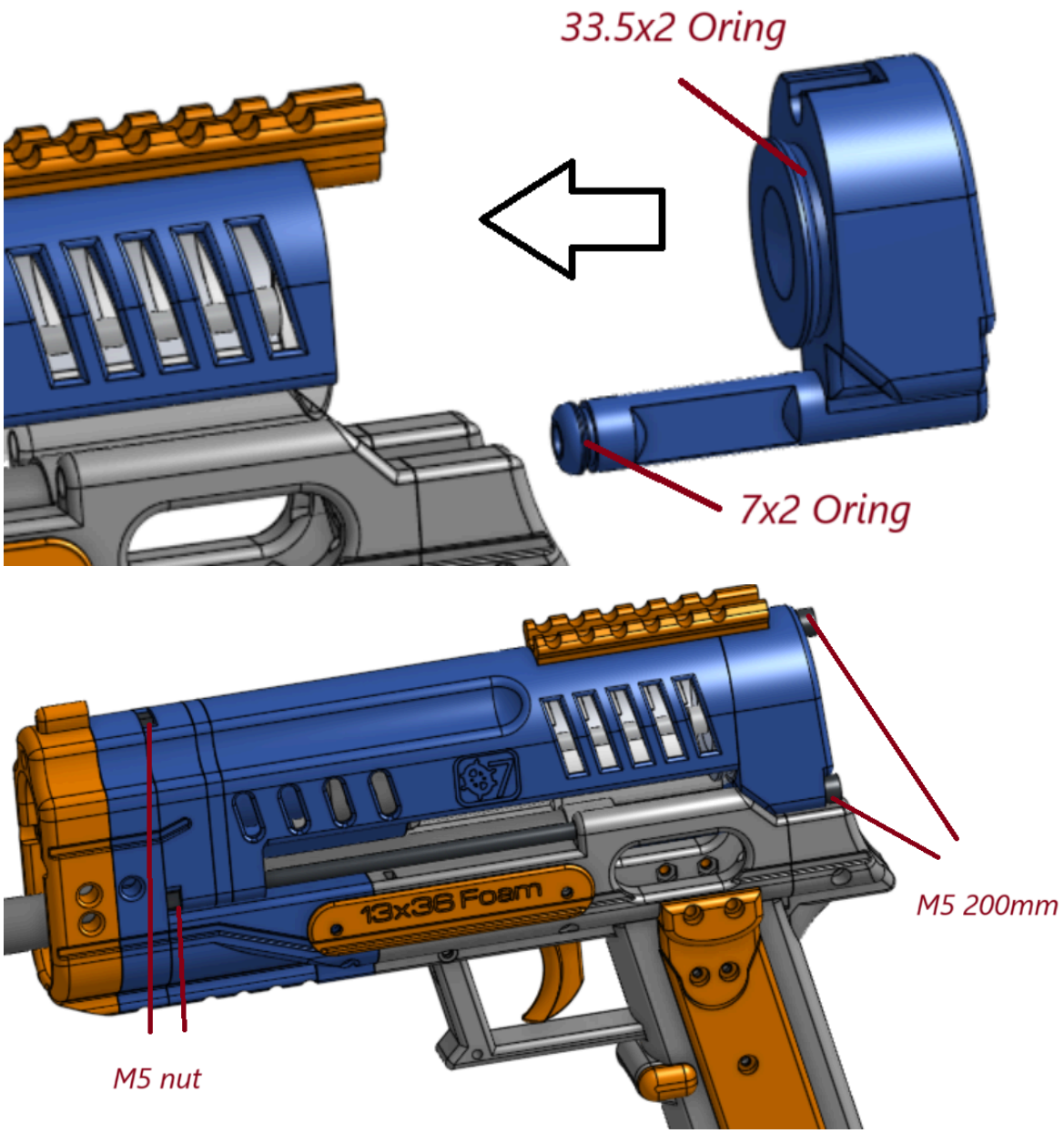

M3 8mm
11x2 Oring
Main spring here
4.5x2 Oring
Made in singapore



^ Lubricate the centre bolt






33.5x2 Oring
7x2 Oring
13x36 Foam
M5 200mm
M5 nut

FPS Combos [SG]

(For people living in/near Singapore where high humidity will affect blaster velocities; FPS combos are under the presumption you have full or close to full air seal)

Barrel	Spring	SCAR/BCAR	Compression spacer	FPS
20cm	Stock SBL	Worker SCAR	Nil	160

FPS Combos [International]

(FPS combos are under the presumption you have full or close to full air seal)

Barrel	Spring	SCAR/BCAR	Compression spacer	FPS
~	~	~	~	~

Special Thanks

(In no order of importance)

My wonderful parents for being super supportive of my hobby both physically and monetarily despite my mother’s reservations about weapon-like-toys

My aunts and uncles for getting me my 3d printer in the first place

Harrods HVG2K for suggesting great design changes to the plunger to improve its durability and ergonomics

Alex Zaruko for the Nightingale slim angled talon mag step files

Francis IdealFoamBlaster for teaching me the importance of how a screw port should be designed for 3d prints

Joseph Lyza for the skinny-pusher suggestion

Sillybutts for allowing the concept of the offset Picatinny on a pump grip to be reused on the HC-Neo

118 Designs for the original zinc design that inspired this blaster

My Beta testers for I have no idea how I would test the blaster and the clarity of this document without y’all

Ms Lu Yueh Ju who pushed me to apply for Polytechnic EAE; this project wouldn’t have existed if that had not happened

NerfSG community for teaching me there is no talk without action