

Saturn Suppressor System Assembly Guide (iPrintgunz)



Preface

The Saturn Suppressor System is an extremely simple DIY silencer that is 100% 3D printed with an optional washer for reinforcement. During this assembly guide, it will be referred to as “the Saturn” to save time. This silencer is unofficially rated for moderate .22LR volleys without the washer reinforcement, and .22LR rapid-fire with the washer reinforcement, however the most important variable is your print material. This silencer design was created to help provide more options to people who want to legally own low-cost silencers.

There is no assembly video for this silencer due to there being minimal assembly involved. This design is meant for real operation, however it is also meant to serve as a basis for modification. Things like annealing and special coatings can improve this design; this is just the baseline. The Saturn includes two different designs: a one-piece, print-in-place version with an area to embed a fender washer in the first chamber, and a two-piece version with an area to place a washer after printing (the washer is not permanent in this version, unlike the one-piece version).

I do not request any monetary compensation or support for this design, I only request that you try to get video of you using the silencer and send it to me through email, Keybase, or Twitter so that I can keep track of feedback and try to improve the design.

Please read this carefully: the Saturn **is a silencer**. If you want to make this legally (in the USA), you need to have an approved ATF Form 1 for it. I can't control whether or not you make it legally, but you're opening yourself up to significant legal repercussions if you don't file your paperwork. That being said, every gun law is an infringement, the NFA is unconstitutional, civil disobedience should be the standard, and every free person on this planet has the God-given right to self-preservation (no matter what the government says). Can't stop the signal.

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MODEL 1 FEATURES

Pros

- Extremely simple to print/assemble
- Never have to worry about endcaps or assembling it ever again

Cons

- Non-serviceable
- Fender washer is permanent
- All one piece; ruined if one part breaks

MODEL 2 FEATURES

Pros

- Separate endcap/blast chamber allows for specific material choice and internal coatings
- Blast chamber serviceability
- Removable washer
- Larger blast chamber

Cons

- More work to assemble
- More components = more possible random issues

Shopping/Material List

This page will outline the things you will need to make the Saturn. If you already have a 3D printer and have experience printing firearms, there isn't really anything new except the fender washer.

3D Printer (Creality Ender 3 recommended for price)

Any 3D printer that can at least reliably print PLA or PETG should be fine.

PETG, eSun PLA+, Nylon, or other high-temp filament

Filaments meant for higher temperatures will perform better, so print with the best that you have. PLA+ is tolerable if that's all you have, but PETG is recommended.

¼" x 1¼" Fender Washer

Just a good ol' fender washer from your local hardware store. Double check the inner diameter with calipers if you can, it should be about .28".

Model 1 Build Tutorial

The Saturn 1 (S3-1) is a print-in-place design, so to insert the washer reinforcement you must pause the print (or do a “scheduled filament swap”) right **before** the “lip” near the base of the blast chamber to snap in the washer. The “lip” is what holds the washer in place, so you need to insert the washer **before** the lip prints. This should be about 119.6mm high in the print. There are no endcaps, no individual baffles, just the singular tube you print.

Step 1: Printing (refer to ReadMe for more info)

What you need to print:

-(1x) S3-1 (either one, but the unfinished version does not have an exit hole, in case you still need to wait for your tax stamp)

Step 2: Completion

Once your S3-1 tube has printed, you’re done!

*****Tip:** Try to minimize the time your printer is paused for the washer insert. Letting your printer sit cold for too long will create weak layer adhesion when it continues and could even lead to a print failure.

Model 2 Build Tutorial

The Saturn 2 (S3-2) is the two-piece version of this silencer. It consists of the main tube body and one endcap that threads onto your barrel and serves as the blast chamber. This means you have greater flexibility of what materials you can use for different parts (like if you want to print only the endcap out of a premium material), as well as better serviceability since you can access the blast chamber and washer reinforcement.

Step 1: Printing (refer to ReadMe for more info)

What you need to print:

-(1x) S3-2 (either one, but the unfinished version does not have an exit hole)

-(1x) Endcap

Step 2: Endcap Fitment

Once the print is complete you can push the optional washer in. Next, try to screw the endcap in; it probably won't go very far. You will need to repeatedly screw the endcap in and out, twisting it just a little further each time to properly fit the threads. A spritz of gun oil/lube might help with this process. Keep doing this until the endcap is twisted all the way on. This is an arduous process, but it will provide you with an incredibly tight hold on your endcap.

Step 3: Optional Modification

Since the endcap is a separate piece and includes the blast chamber, this gives you easy access to modify it. Try experimenting with high-heat coatings, annealing, and printing the endcap with different materials!

Step 4: Completion

Once your endcap is on, your S3-2 is assembled!

FAQ

Q: What can I shoot through this?

A: You can shoot any kind of .22 round (and possibly .223 subsonic). Here's a little chart to help understand what this silencer can handle:

.22 short	Any rate of fire
.22LR subsonic	Any rate of fire
.22LR supersonic	Reasonable rapid fire
.22LR high-pressure rounds	Standard fire
.223 subsonic	Untested (theoretically okay for single shots)
.223 supersonic	DO NOT ATTEMPT (take video if you do 😊)

Q: Wow, I can really just print this in PLA+ and have a commercial-grade silencer?

A: NO. If you plan on printing this in PLA+, be careful of how you treat it. It can handle shots just fine, but it'll overheat quicker than other materials. There's less risk if you use filaments like PETG or ABS, PLA+ is just the bare minimum.

Q: What kind of abuse can this thing take?

A: It's pretty rugged, but I'm not sure; do you want to find out? It's an all-plastic suppressor so don't be stupid, but it should be able to (and has) withstand significant .22LR fire and rapid bursts depending on what material you use.

Q: Why is this thing so bulky?

A: This can has a large outer diameter to allow room for "backflow tunnels" that reroute gases from the end of the tube through the outside walls in order to further cool them down before exiting and provide more internal volume.