R597
Assembly Guide

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Vinh Nguyen (nguyenkvvn)

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SECTION I: INTRODUCTION

The Remington 597 is a magazine-fed, semi-automatic rimfire rifle. It was made to directly compete with the Ruger 10/22, especially as a slightly less expensive offering. Though, it never got the same aftermarket attention and love that the 10/22 did.

I honestly don't recall when or where I got this kit from. I found it sitting in the back of my closet, with all the other gun parts I bought but never got around to working with. I bought it on a whim as "it looked simple enough to reverse-engineer a receiver from". (Fatal last words to befall the other part kits still left in the closet.)

This receiver was not as tricky or difficult compared to other part kits I've worked with. By carefully measuring each of the individual parts that I had, I was able to get a viable design within four receiver prints, making small tweaks each time.

Anyways, there's no special story to this design besides I found it in my house. Enjoy.

Vinh Nguyen

SECTION II: TOOLS AND SHOPPING LIST

To assemble this firearm, you will **need** the following tools:

- Gunsmithing Punch Set
- Metric Drill Bit Set
    - 3.5mm Drill Bit
- Narrow, but not needle nose, pliers

The following tools may help, but are **not required**:

- Flathead screwdriver

You can check out a recommended shopping list of tools Vinh keeps at his desk at www.vinhstoolbox.com.

SECTION III: PARTS KIT CHECKLIST

⚠ **WARNING**: This receiver has only been designed and tested with .22 LR part kits. It has **NOT** been tested with .22 WMR or .17 HMR kits.

☠ **DANGER**: Do **NOT** use a .17 HMR kit with this receiver. The .17 HMR has been entirely recalled by Remington halfway into the 597's lifespan for known defects and alleged out-of-battery detonations.

In order to successfully build your R597…

PARTS

A complete parts kit should compose of the following:

- Barrel *(not pictured)*
- Bolt Assembly
- 2x Bolt Guide Rails
- 2x Bolt Guide Rail Retaining Screws
- 2x Action Springs
- Assembly Pin
- Bolt Buffer
- Trigger Housing Assembly
- Stock
- Takedown Screw (Front)
- Takedown Screw (Rear)

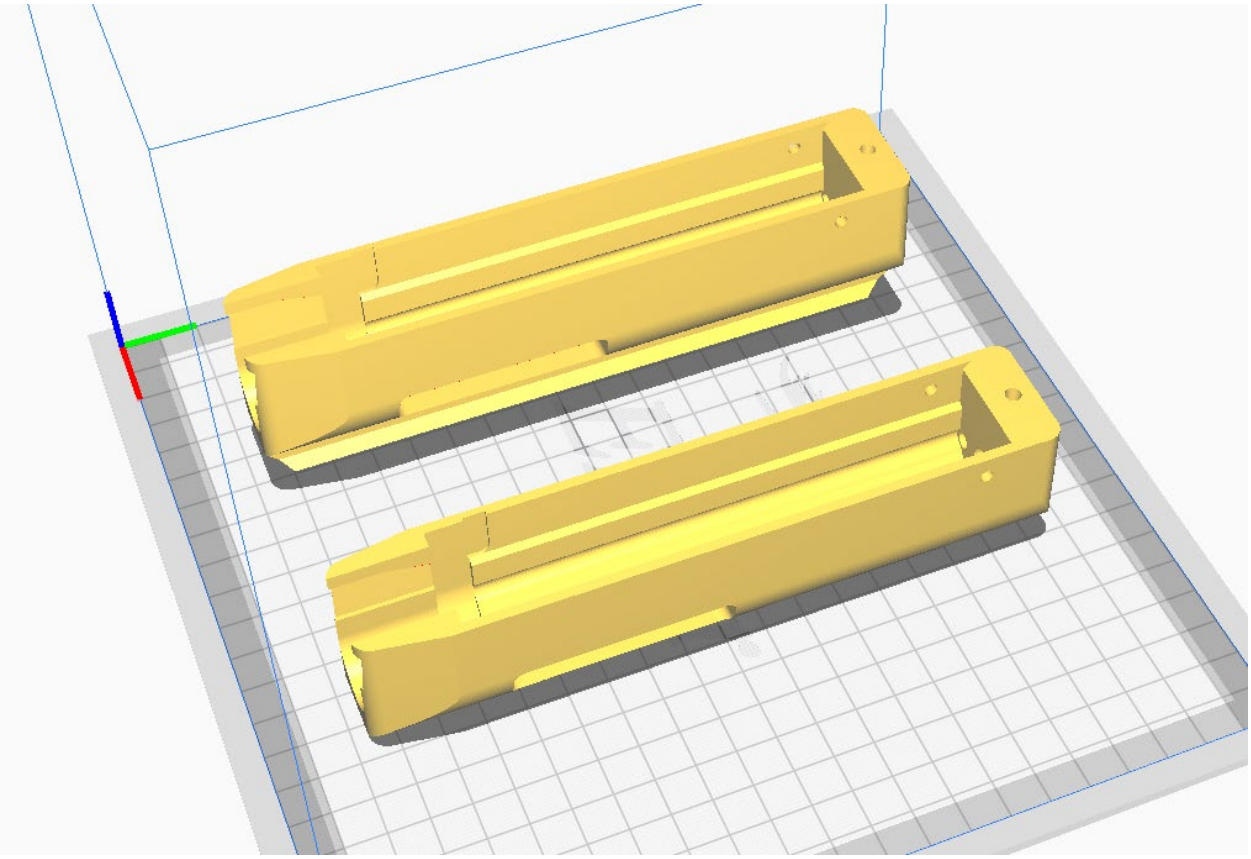
It is of note that you must check your bolt assembly and trigger housing assembly is complete and fully populated before proceeding. Assembling the bolt and trigger housing is out of the scope of this guide.

MAGAZINES AND ACCESSORIES

Don't forget you will also need:

- Magazine
- Stock

PRINT SETTINGS AND ORIENTATION



Print using the above orientation. Use Cura's "Align Face to Build Plate" tool under "Rotate" to orient the receiver's flat top (or picatinny rails) against the build plate.

These were the printing settings used:

- Nozzle Size: 0.4mm
- Layer Height
  - Height: 0.16mm
  - Initial Height: 0.16mm
- Walls: 8
- Infill Density: 100%
- Supports: Tree Supports with an aggressive interface (75%, 1mm interface height) is recommended
- Bed Adhesion: Brim

eSUN PLA+ or PolyMaker PolyMax PLA+ is recommended.

SECTION IV: ASSEMBLY

In this section, we will cover the settings you should print your frame and assembling it.

SAFETY FIRST

Putting a gun together is no joke. Firearms are dangerous tools that must be treated with care and respect. **You are responsible for your safety, and those surrounding you** when you work with or operate firearms. Fellow developers or engineers cannot be responsible or liable for what you do or don't do.

As a general reminder, here are some rules to keep in mind:

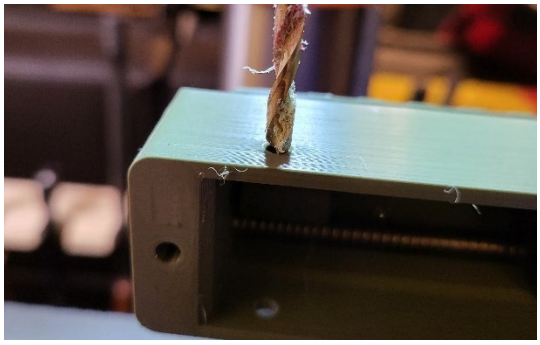
1. **Always treat a gun as if it is loaded**. Remove the magazine and check the chamber yourself to verify the gun is unloaded.
2. **Keep your firearm always pointed in a safe direction.** Never point your gun at anything you don't intend to destroy.
3. **Be aware of what is in front and behind of your target.**

But specifically, for working on your firearm, you should remember the following too:

1. **Keep live ammo away.** Use snap caps or dummy rounds to verify function of your firearm. Never keep live ammo around your workspace, and certainly never mix them with your dummy ammo.
2. **A clean gun is a safe gun.** Never leave your firearms uncared for to foul or dirty up. Debris can cause malfunctions, which can be dangerous.
3. **Always read and follow directions.** Don't ignore a warning or follow instructions out of order.
4. **Use prudent judgement.** If something doesn't add up- use common sense. Stop, inspect, and re-evaluate your previous actions and procedures.

ASSEMBLY

STOP! Remove all supports and artifacts before proceeding!



Using a 3.5mm drill bit, chase the assembly pin hole on the receiver through both sides.

Insert the barrel into the receiver.

Ensure the barrel slots in perfectly and is flush with the receiver.

Insert the barrel clamp into the receiver.

Note how the clamp has a wedge of sorts. The shorter side of the “clamp” should face the receiver.

Tighten the barrel clamp screw to completion.

Insert the bolt into the receiver, and the bolt handle into the bolt assembly.

Ensure that the bolt handle is secure into the bolt.

Check and make sure that the extractor interfaces with the barrel breach.

Beginning with the furthest in geometry, insert the bolt guide rail, and prime the action spring.

You may find that a spring compressor tool may help.

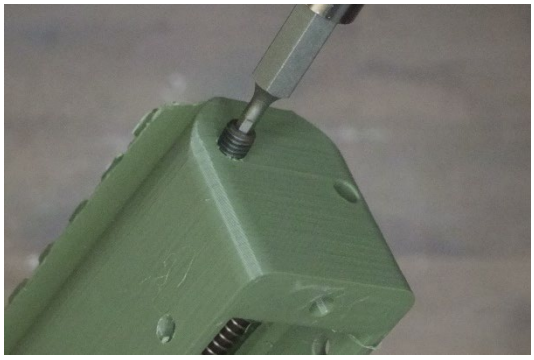
Slowly work in the rest of the action spring onto the bolt guide rail, while slowly inserting the bolt guide rail further into the receiver.

Be careful not to kink the spring.

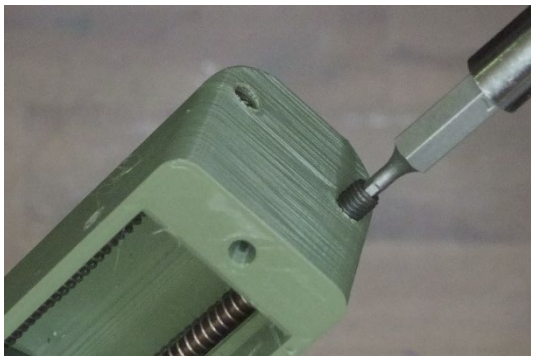
Push the bolt guide rail into the bolt, and let the action spring rest on the bolt.

Note how the clamp has a wedge of sorts. The shorter side of the "clamp" should face the receiver.

Repeat the previous three steps for the remaining action spring, and bolt guide rail.



Secure the bolt guide rail with the bolt guide rail screw.



Ditto.

Insert the bolt buffer completely into the rear of the receiver.

Insert the trigger housing into the receiver at a cant, mating with the barrel breech first.

There is a small "ledge" that you can pivot the housing into the receiver on the breech.

Use the assembly pin to pin the trigger housing in place.

Insert the assembled receiver onto the stock.

Use the shorter front takedown screw to secure the stock to the barrel breech.

Use the longer rear takedown screw to secure the stock to the receiver.

SECTION V: FUNCTION CHECK

Verify your firearm works by evaluating each of the following functions.

BE SURE YOUR GUN IS STILL UNLOADED.

Check that your chamber is empty, and that there are no rounds in the magazine.

- Magazine Release Function
  - Insert and remove the magazine.
  - Test the magazine release for fluid movement.
- Fire Control Function
  - **DO NOT LET THE HAMMER FALL ONTO THE BREECH.**
  - **HOLD THE BOLT SLIGHTLY OPEN WHEN TESTING TO PREVENT DAMAGE TO YOUR FIRING PIN AND BARREL.**
  - The hammer should fall when the trigger is pulled.
  - The hammer should be held back when it its reset (by charging the bolt) while the trigger is held down.
  - Release the trigger while the hammer is in the disconnected position should gently put the hammer back into the cocked state.
  - The safety should freely move between SAFE and FIRE.
  - When the safety is in SAFE, the hammer should not drop when the trigger is pulled.

When you have completed the function check, the assembly process is complete.

Be sure to remove your magazine and store your firearm in a secure and safe place.

SECTION VI: TROUBLESHOOTING

You may encounter certain problems with your firearm either during usage or assembly.

- Trigger not disconnecting when bolt is cycled
    - Check if your bolt buffer is inserted all the way. A protruding bolt buffer will prevent *hand charging* of the bolt completely, which will prevent the trigger from resetting.
    - Ensure your trigger housing is correctly and completely assembled.