The Recession Ruger Assembly Guide

Version 2.1 - 2022-10-14

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SECTION I: INTRODUCTION

The **Ruger P series** is a line of centerfire semi-automatic pistols made by Sturm, Ruger & Company produced from 1985 to 2013. The P-series pistols were designed for military, police, civilian and recreational use. The designs are largely based on the Browning action found in the M1911 pistol, but with minor variations, generally related to the safety mechanism and the barrel-camblock interface. Reviews have considered them rugged, reliable, and strong, though this strength comes at the price of bulk and a blocky appearance.[1]

This build carries forward the design principal of the 3011. It uses primarily a P89 9mm top end, and combines it with an AR fire control group, and supports Glock magazines.

Although the original beta was for the P89, this frame also supports the P85, P91, and P95 (with some adaptations). There is a dedicated P90 .45acp frame. It utilizes printed replaceable rails (**Replace a Rail – RaR**), but all of our testing indicates that if printed properly, the printed rails will hold up for hundreds of rounds and beyond.

This opens up thousands of cheap part kits that will enable a new, untapped resource, for a DIY PDW in the caliber of your choice.

- UberClay

SECTION II: TOOLS AND SHOPPING LIST

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

- Gunsmithing Punch Set
- 1/8" Drill Bit – *Make sure it's a hardened steel or carbide*
- Stick File
- Narrow, but not needle nose, pliers
- Allen Wrench set
- Cordless Drill

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

- Flathead screwdriver
- Sandpaper

You will need the following Hardware:

- 1) 1/8" roll pin 1.25" long
- (If using a P95 substitute 8-32 machine screw for 1/8" roll pin)
- 2) M3 10mm screws
- 1) or 2) M3 30mm screws (one is mandatory, two is optional)
- 4) M3 nuts
- 4) M3 washers

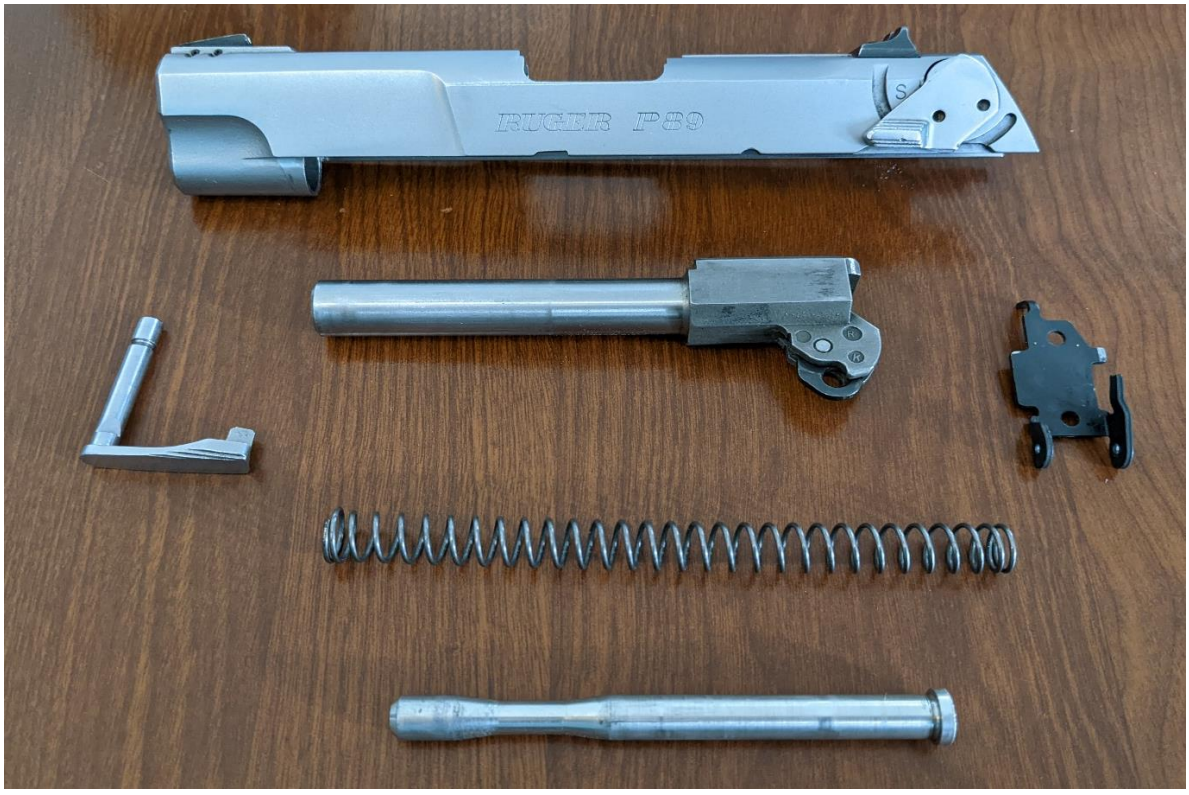
You can check out a recommended shopping list of tools Vinh keeps at his desk at www.vinhstoolbox.com.

SECTION III: PARTS KIT CHECKLIST

UPPER PARTS

A complete slide parts kit, or a complete slide assembly should compose of the following:

- Ruger P Series Slide
- Ruger P Series Barrel
- Ruger P Series Guide Rod and Recoil Spring
- Ruger P Series Ejector*
- Ruger P Series Slide Stop

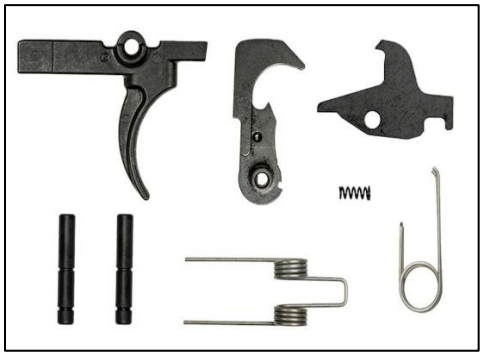


*Ejector can be same as kit except when using a P85. Buy a P89 ejector to use with this: https://www.gunpartscorp.com/products/1596430A

LOWER PARTS

A complete lower parts kit should compose of the following:

- AR Fire Control Group
- Safety Selector, Detent Spring and Detent Pin
- Glock Magazine Catch Spring
- AR-15 Grip, Grip Screw and Washer



RAILS

- Rails are printed - PRINT RAILS STANDING UP ON END

MAGAZINES AND ACCESSORIES

Don't forget you will also need:

- Any Glock 19 Magazine or Larger
  - *Note that magazine compatibility may vary. Testing has found some mags work better than others but most if not all will work with some troubleshooting and tweaking.*

PRINT SETTINGS

Some recommended settings

- 220C extruder temp
- 60C bed temp
- 6 (or more) walls
- 99%-100% infill

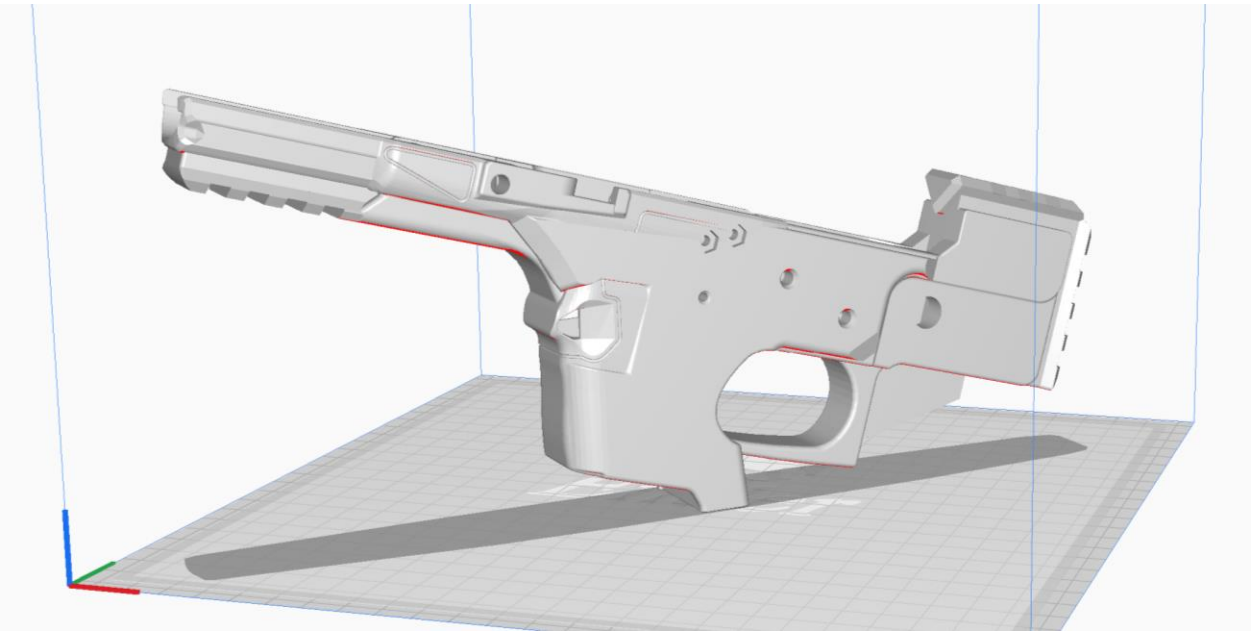
- Good baseline Cura profile: https://github.com/nguyenkvvn/vinhs-slicer-profiles-for-cura

SECTION IV: PRINTING THE RAR FRAME AND RAILS

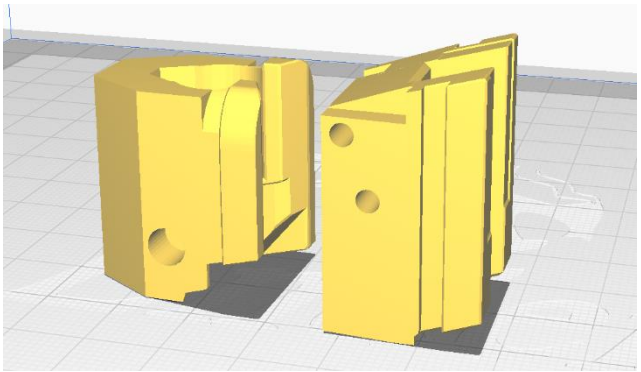
This frame is too long to be printed on an Ender 3 without some creativity. There are some things that will help you print this frame successfully.

This print will take up the entirety of the print bed on an Ender 3. Turn brim off completely. (Note: If you have an Ender 3, you will need to change your machine settings in Cura to reflect that of an Ender 3 Pro in order to make use of the whole print surface.)

Rotate the nose up at least 15 degrees or more (*28 degrees and up is confirmed to work on unmodified Ender 3 build volume*), and then rotate the body 45 degrees. Position the nose as close to the origin (the XYZ symbol on the corner of the bed) as possible.



Both rails should be printed in standing orientation for optimal strength and durability.



SECTION V: 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.**

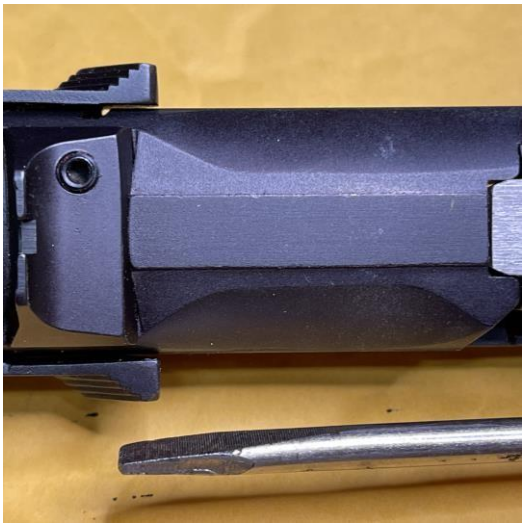
But specifically, for working on your firearm, you should remember the following too:

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.

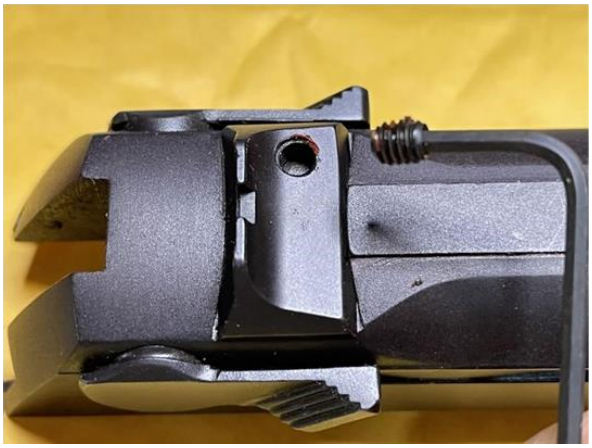
PREPERATION

Remove the internal firing pin block.

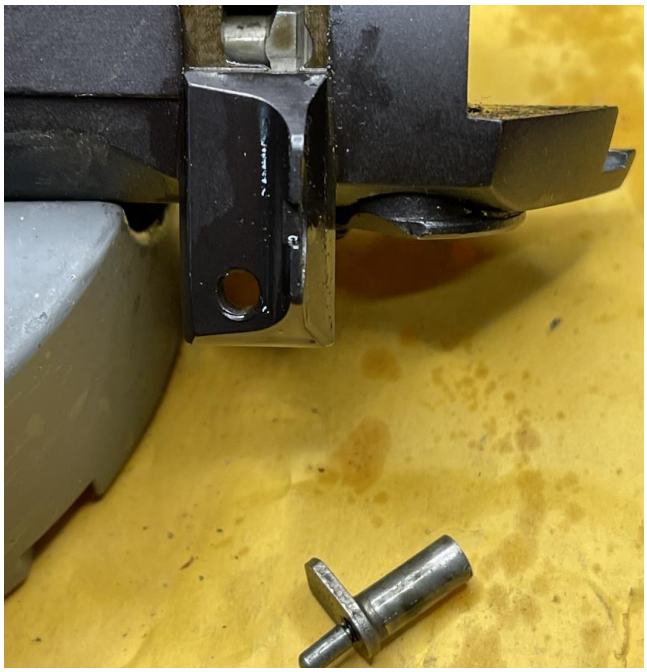
All P Series slides have a Firing Pin Block that must be removed first before building.



- Locate the set screw in the top of the rear sight
- Remove this screw and set it aside somewhere safe



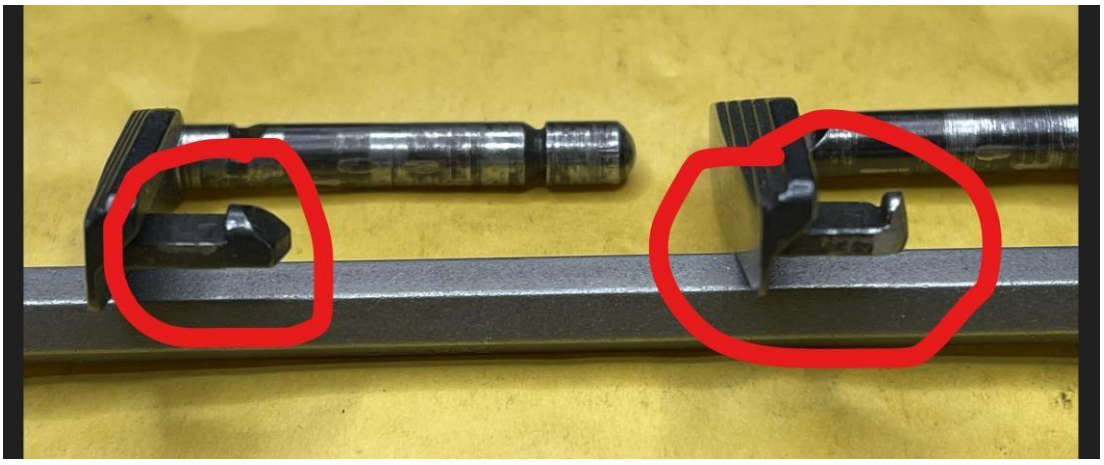
- Drive the rear sight partially out to expose the firing pin block
  - Flip the Slide Safety down
  - Gently pull the block straight up and out
  - Drive the rear sight back into place
  - Reinstall the set screw



Filing the Slide Catch down

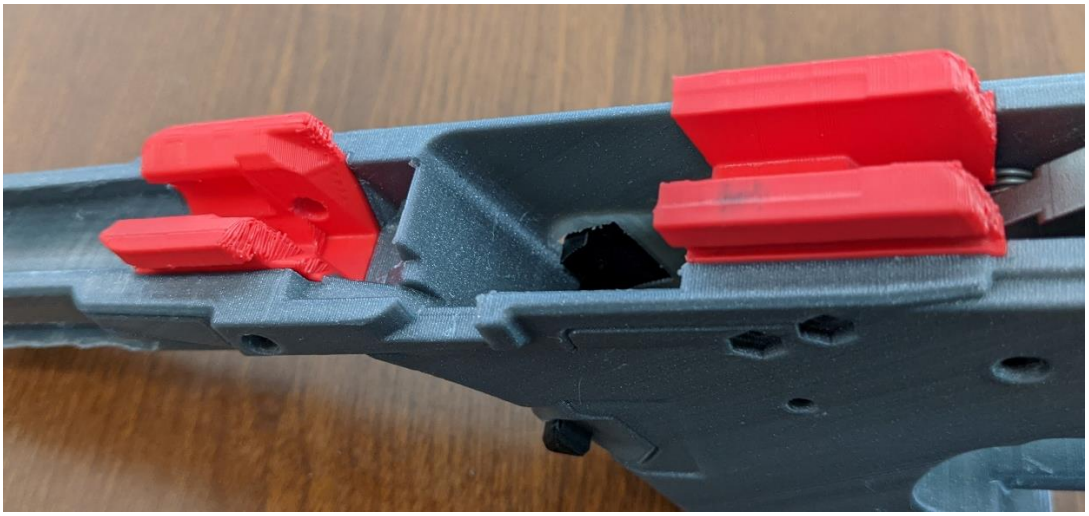
The Ruger OEM mags have a slot in them that the slide lock sits in. Glock mags do not have this, so you will need to file your slide lock down. The slide will not lock open after the last round. Take a file and remove approx. 1/8" of the end of the slide lock. If magazine interference still occurs, remove until clear.

(See troubleshooting section for picture of magazine and slide lock position)

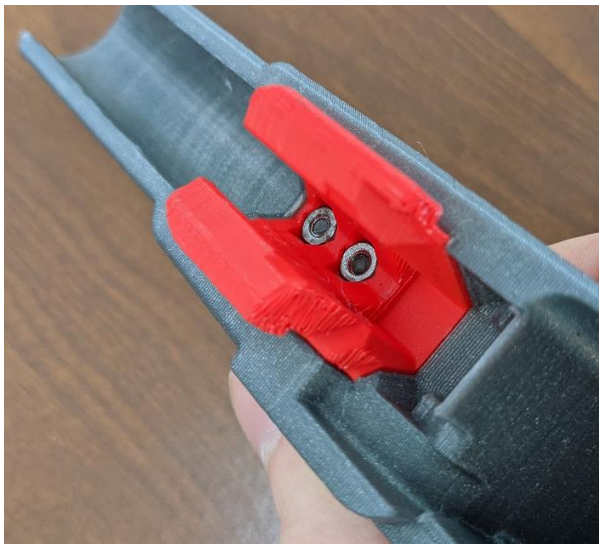


STEP BY STEP ASSEMBLY

- Print your frame and 1) front rail and 1) rear rail and 1) mag catch
  - Remove supports and clean
- Test fit rails into frame. Pay attention to the hole alignments. Sand or file if necessary to get a good fit into frame.
  - Rails should fit into frame snug but not too tight

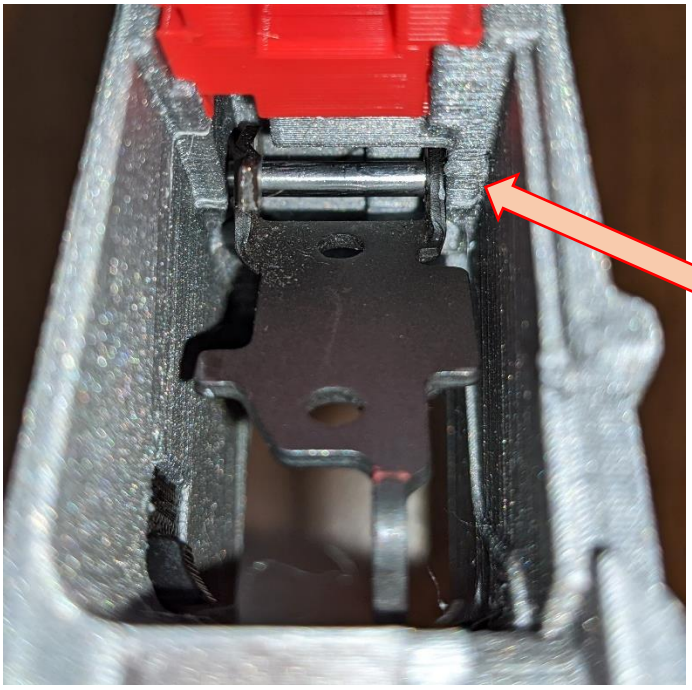


- Install front rail using 2) M3x10 screws with washers and nuts. (Screws can NOT extend past the nuts on this rail. Use more washers if your screws are too long)



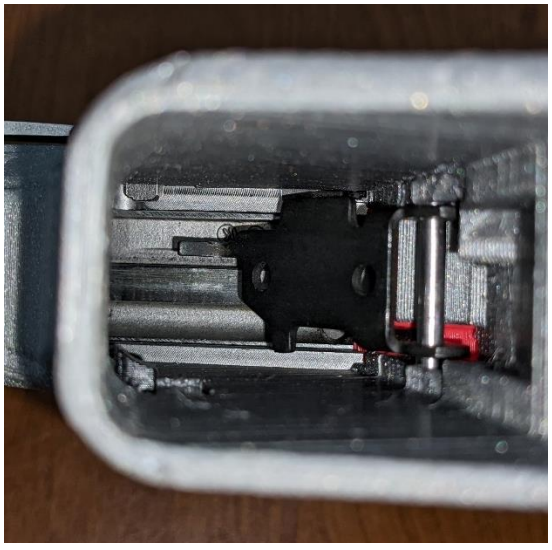
- Drill out the hole in the metal ejector to accommodate the 1\8” roll pin*(Unless P95)
  - *P95 only* print ejector spacers and install ejector using 8-32x1.25” screw
  - *All others* install ejector using .125 x 1.25 pin

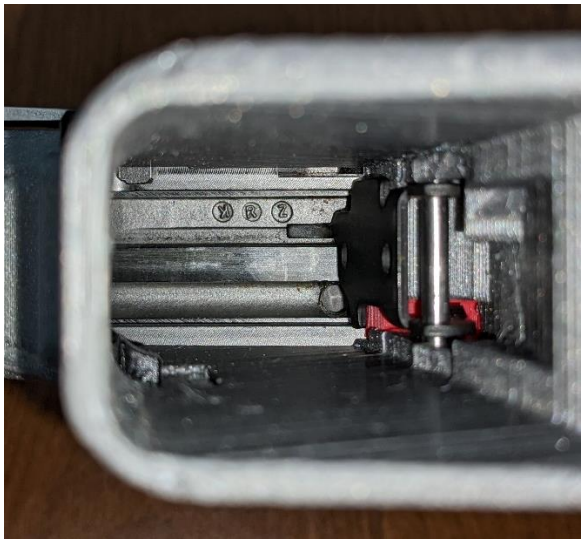
Before (Left) - After (Right)



- Install the rear rail and ONLY do one of the following:
  - **Option 1** - Screw the rail in using (1) M3x30 screw, washer and nut on only the rear most hole (closest to fcg)
    - It has shown to hold up just fine and allows us to easily field strip the slide from frame (Explained in option 2)

  - **Option 2** - If you decide to use (2) M3x30 screws, you must install the slide first and then install the front screw with the ejector in the "Up" position
    - The front screw must be removed each time before removing the slide as the ejector has a vertical tab that hits the front screw which prevents it from "falling down" when trying to remove the slide

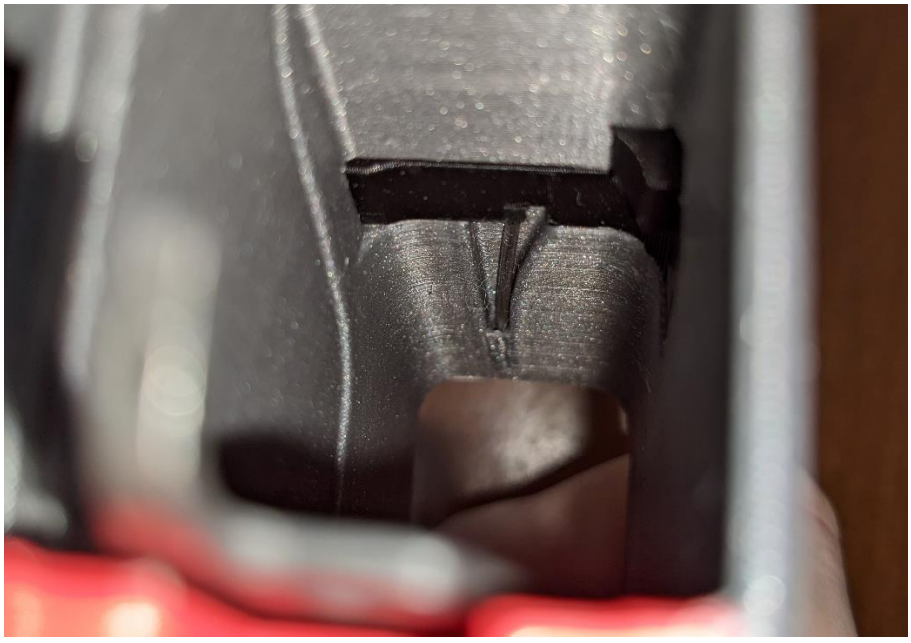




Ejector "Down" (Left) – Ejector "Up" (Right)

- **Option 3** – Is the best of both options 1 and 2 but needs extra modification to the ejector:
    - Cutting the vertical tab by about 4 - 5 mm allows the ejector to swing freely without hitting the front screw
    - Then install like Option 2 with both screws

- Install the mag catch and the mag catch spring
    - A bit tricky, this video has a decent visual https://www.youtube.com/watch?v=e-HJUeSRSmo



- Install the AR Fire Control Group and Safety Selector
  - Note the frame is quite a bit wider than the standard hammer and trigger pins so they do not sit flush with either face of the frame
  - Push the trigger pin into the frame until it's captured by the hammer spring and push the hammer pin until it is captured by the "J" spring inside the hammer
    - Making sure the pins are captured ensures they won't walk out on you during operation

- Usually, I test fit a magazine at this point. Mag catch will loosen slightly with use, so starting out tight isn't bad

HOW TO INSTALL AR-15 HAMMER AND TRIGGER

https://www.youtube.com/watch?v=blDByRL9-co

(This is generic, but you can use it as a guide if you have not done this before)

- Assemble the P Series slide, barrel, guide rod, and recoil spring (if it isn't already)
  - Note the recoil spring ends are 2 different diameters – Install the larger diameter end into the recoil spring channel of the slide (It will have a tight fit)

- Install P Series complete slide assembly and slide stop. Refrain from drilling out the slide catch hole if possible. This will loosen up with use and starting out a little tight is ideal.
  - The Slide stop needs to go through the barrel locking link, so you may need to pull the slide back slightly to align all holes

Aligned holes with the barrel link

- Manually cycle the slide several times with some WD40 until slide has smooth travel. These rails will 'break in' with the first 50 rounds, but the slide should travel smoothly and without much resistance.

Note: You can test to see if your slide stop works properly now. Mine does 😊

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.

- Trigger Break:
  - With the slide in battery, pull on the trigger.
  - The hammer should release.
- Trigger Reset:
  - With the slide in battery, and the trigger already fired, hold the trigger down, and rack the slide. Gently release the trigger.
  - The trigger should have a tactile or audible reset. *(This may vary with aftermarket or competition triggers.)*

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

- Can't insert rails
    - Be sure that the pockets are entirely free of debris. *You may need to sand the flat faces of the rails a bit for a good fit.*
- Magazine won't go far enough up to lock into place
    - Check that the slide lock lever is filed down enough to not contact the magazine. *With the slide off but the lever installed, you should be able to see if there is any contact between it and the magazine.(see image below)*
- Slide will not go onto rails or is very tight/binding
    - Make sure you install the rails straight and not at an angle. Make sure there is *no* support or raft debris on the rails. *Once you're sure the rails are clean, then consider lightly sanding the rails for a better fit.*
- Reset is inconsistent or unattainable
    - Some AR hammer springs are very strong and can absorb the recoil without resetting the hammer. This is rare but can happen. You have two choices:
        - Buy a 'Reduced Power' AR hammer spring https://ar15discounts.com/products/dirty-bird-industries-reduced-power-hammer-spring/
        - If you reverse the position of the hammer spring in the hammer, it will operate at a reduced power
    - *Also check that your hammer and trigger pins are properly installed. This frame is quite wide for normal FCG pins so ensure they are aligned in the frame and are properly captured.*

*Slide lock filed down and not touching the magazine (P90 pictured)