The Gatalog Presents:

PPQ

Compatible with:
Walther's Patent
P99, PPQ, PDP

By: Matt Larosiere

Contents

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I. Introduction

I've been a huge devotee of the P99-based weapons system for years. For the majority of that time, magazines were a major issue. While available, they were annoyingly expensive and difficult to get. Additionally, there are minor differences between each generation's magazines, and sometimes sub-generations required different magazines.

After the discontinuation of the P99, the original manufacturer moved towards the PPQ and PDP, without guaranteed magazine support looking backwards. Luckily, though, the lockwork is neigh-on identical between pistols of this series. One can (in most cases) swap slides and other parts between models without issue.

With this in mind, and with service pistols hitting the parts kit market, I set out to design a frame that had critical dimensions compatible with P99, PPQ, and PDP, but also accepted a more commonly available Austrian-style overmolded gloccazine.

The downsides here were twofold: one, it would result in the abandonment of the highly superior trigger guard mag release, and two, would necessitate a different slide release. Still, though, the ability to resurrect these highly competent pistols and take the most commonly available magazines around, I feel are worth it.

In my testing, the pistol has proven to be accurate, dependable, handsome, and polite. It is my sincere hope and wish that it brings you comparable pleasure, joy, and splendor.

NB: Other Models – there are a bunch of licensed copies of the P99 series, including the SW99 (pictured in this guide), one generation of baby desert eagle, and more. You may have some fitting to do for minor variances.

NB: PPQ, PDP – These models use the slide release for a trigger pin. If using one of these kits, you will need either a P99 trigger pin, or a 4mm pin cut to size.

NB: Turkish TP9 pistols – these pistols are straight up knockoffs of the P99 series of self-loading pistols, but there are some external differences. A frame for the TP9 is forthcoming.

II. Tools & Shopping List

Tool requirements are fairly straightforward.

- **Absolutely mandatory:**
  - Sturdy pin punches suitable for pins from 2 to 4mm in diameter.
    - https://amzn.to/3FSngt3
  - Reliable hammer.
    - Flaky or unreliable hammers **NOT** permitted.
    - https://amzn.to/3lSqp48
  - A small chisel or other sharp scratchy-doo for cleaning out interior pockets.
    - https://amzn.to/3n4XyZD
  - Cutterator of some description if making your own pins.
    - Dremel, hacksaw, exceptional teeth, or similar should suffice.
    - https://amzn.to/30HQIlv
  - Some sort of CNC hot glue gun capable of squirting out rolls of plastic into arbitrary shapes. (Minimum Ender 3)
    - https://amzn.to/3vnJH4k
    - Filament: https://amzn.to/3FhZF52
- **Recommended:**
  - Cheap soldering iron.
    - This is for smoothing out the undersides of the print. A quality-of-life improvement.
    - https://amzn.to/3BPkjH8
  - Gunsmith puck.
    - It's got holes in it, and you'll fall in love with it.
    - https://amzn.to/3pfR9xh
  - 2, 3, and 4mm drill bits for hole reaming. Closest undersize inch drill will be fine.
    - https://amzn.to/3paKogt
- **Shopping list:**
  - PXX pistol kit
    - Must include: complete slide, barrel, locking block assembly, trigger mechanism.
  - Magazine catch & spring from G17-type common Austrian pistol.
  - Slide release from G17-type common Austrian pistol. (optional)
  - PXX series handrail inserts. (Available from the windchime company)
    - https://maf-arms.com/product/walters-p99-hand-rail/
  - 3x30mm coil pin, or 3mm pin stock; 2mm pin stock
    - (pins likely to be made available in hardware kit with rails)
    - 2mm: https://amzn.to/3DOWqQH

III. Necessary Parts

The first point of decision comes with which PXX pistol, and whether or not you need a slide catch. If you use any of the usual suspects, your parts should look something like this:

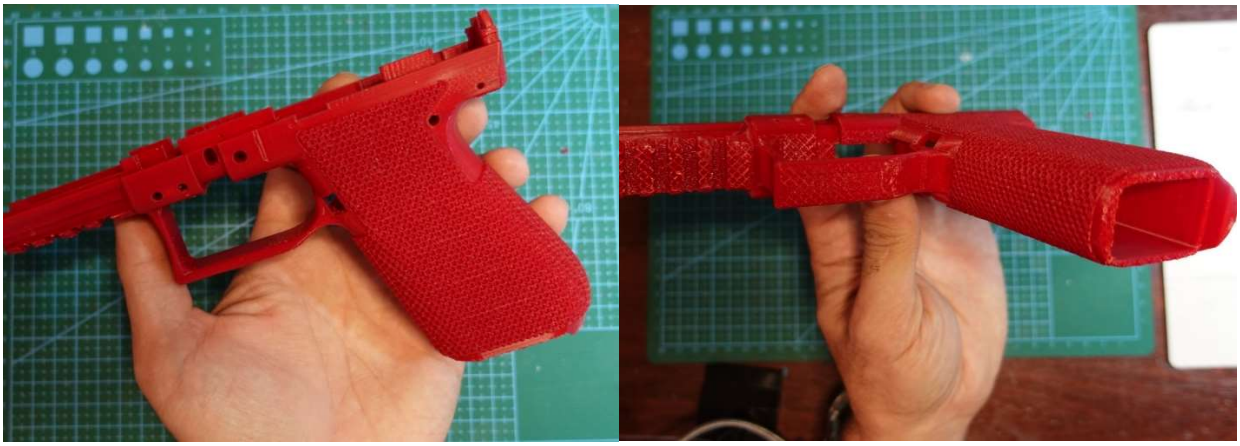
The parts in the bottom left corner of the above image are those from the original kit which will not be used. Those are the slide release and spring, magazine catch, magazine catch pin, and magazine catch spring.

The components in the lower middle are the rail set, plus pin stock. The parts on the bottom right are the Austrian components for magazine catch and slide release, to make the pistol compatible with traditional, grass-fed Austrian plasticzines.

That leaves the components at the top of the image. At the very top is the slide, barrel, and recoil spring assembly. Just below that, on the left, is the trigger pack (there is a small pin in the rear of the trigger pack, don't take that out!). Top right below the slide is the locking block, with its catch and spring below it. Centered below the slide is the trigger, takedown lever, and takedown pin.

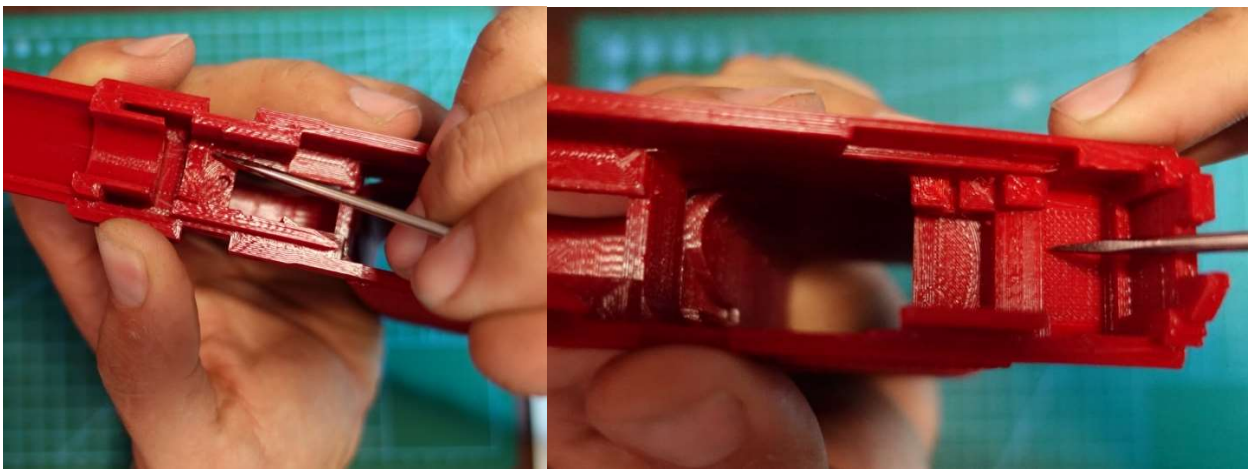
IV. Frame Prep

I recommend printing the frame in PLA+, hot (225), .16 layer height, 99% infill, 8 walls (all around), and with tree supports. **Print it with the BOTTOM of the magazine well touching the build platform**. Once it is printed, and you spend some time removing as many supports as possible by hand, we can proceed.

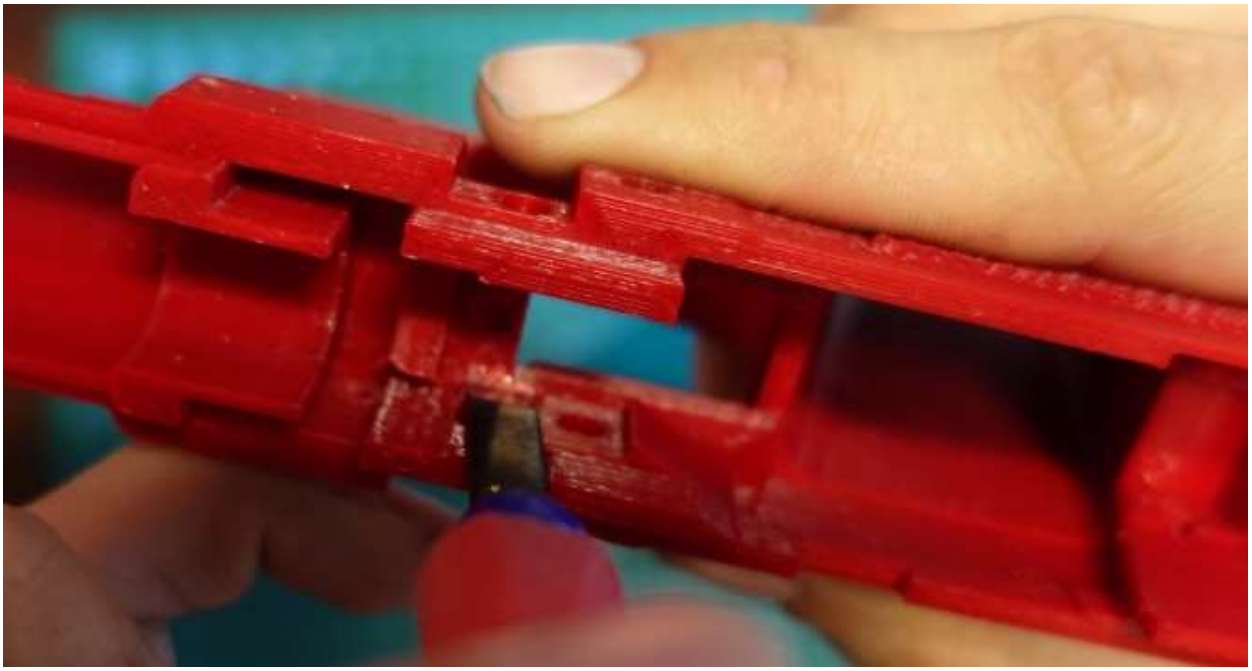


Observe the rough areas under the trigger guard, and on the area which protrudes beyond the rear of the grip. Where the supports attached here can be quite unpleasant on your precious, soft little paws. I recommend gently rubbing the shaft of the cheapest, most bogus soldering iron you can find on these areas. Pass over it quickly, as you don't want to deform the frame. Just smooth out the rough patches to protect your adorable little fingerlets from discomfort.

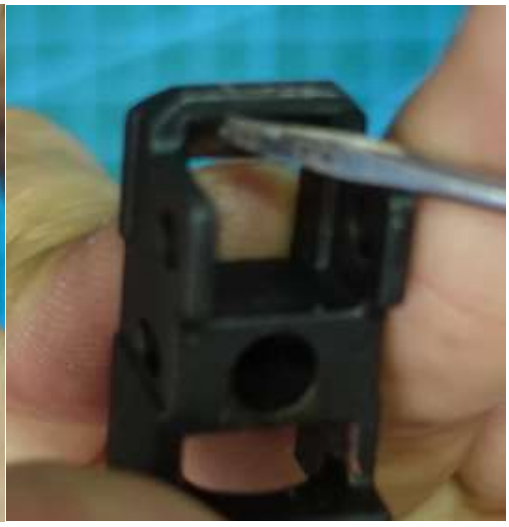
Next, ensure the areas where the locking block, trigger pack, and trigger travel are free from supports or other detritus.



These areas should have nice clean bottoms with neigh-on 90 degree angles at their bottoms. Use your scratcherator to eliminate any junk. The shape pointed out in the above-left image may need to have its sides shaven for some locking blocks.

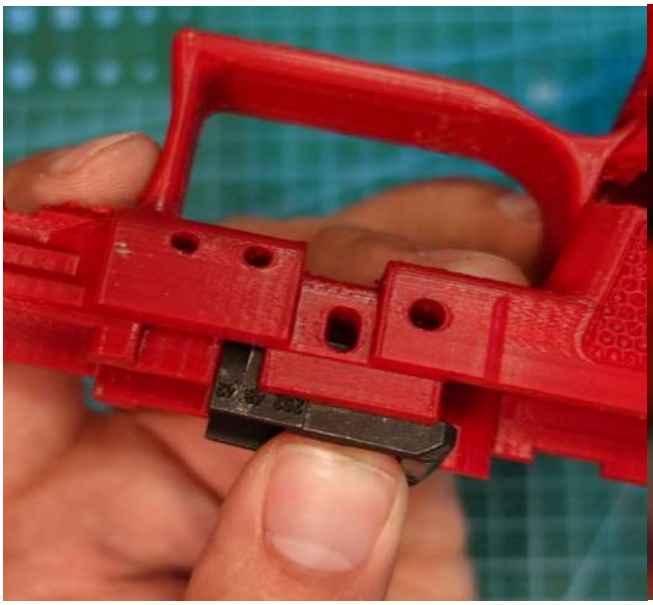


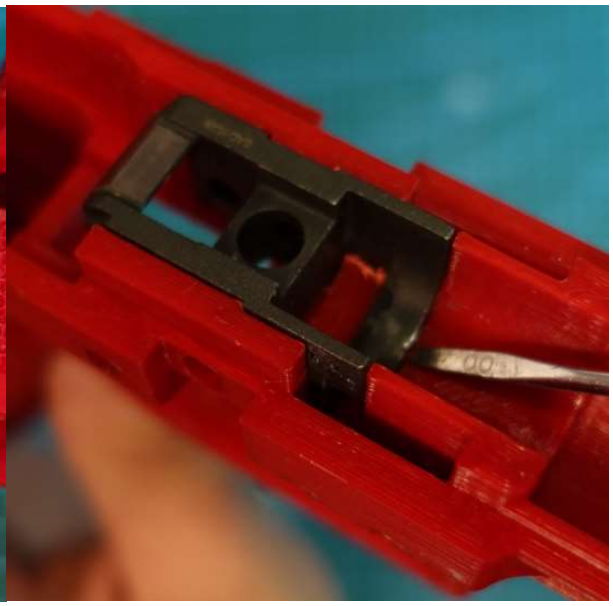
Once satisfied with the cleanliness of the frame's orifices, we will move on to preparing and test fitting the locking block. If you are electing to use a G17 type slide catch, perform the following modification. If not, skip the notching step.



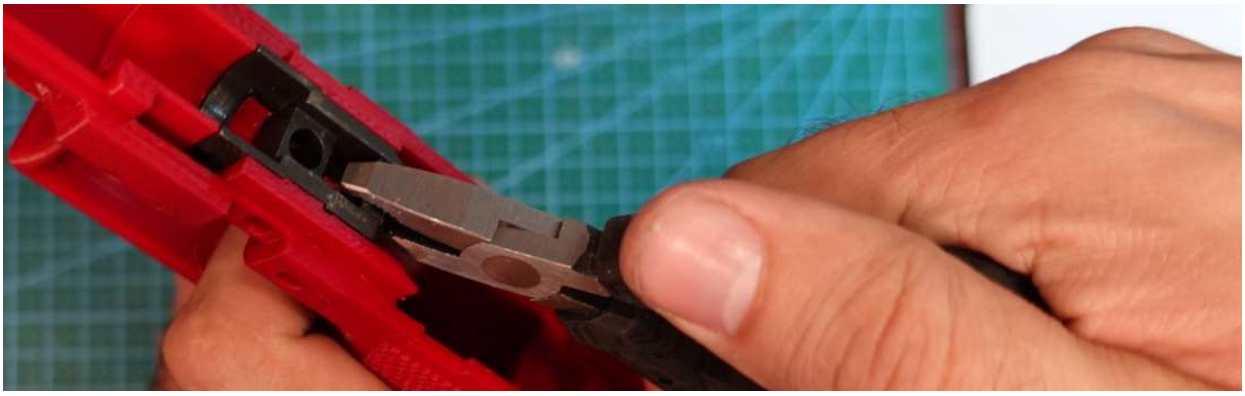
Observe how the G17 slide catch and spring interact with the locking block. (above, left) We need a notch to capture that spring, and we will put that notch in the spot indicated. (above, right)

Above, a certified gunsmith edition zippywheel is used to cut a small notch for the spring to live. This may also be accomplished by a quality file. Once satisfied, proceed to setting the locking block.

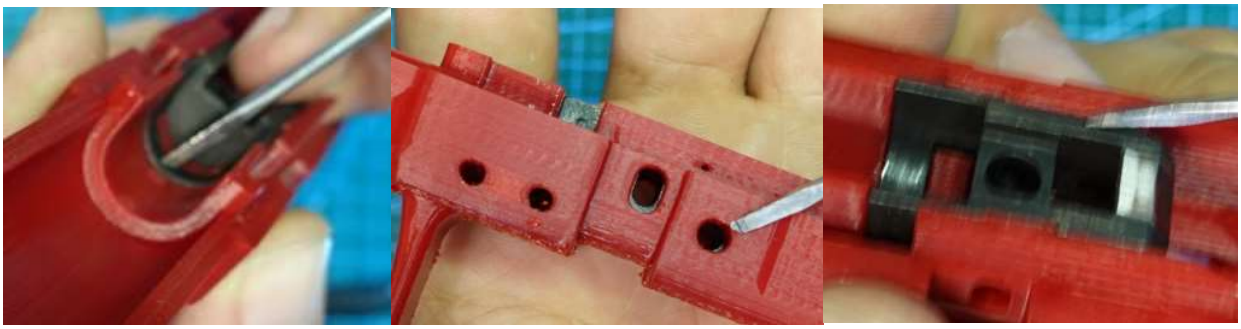




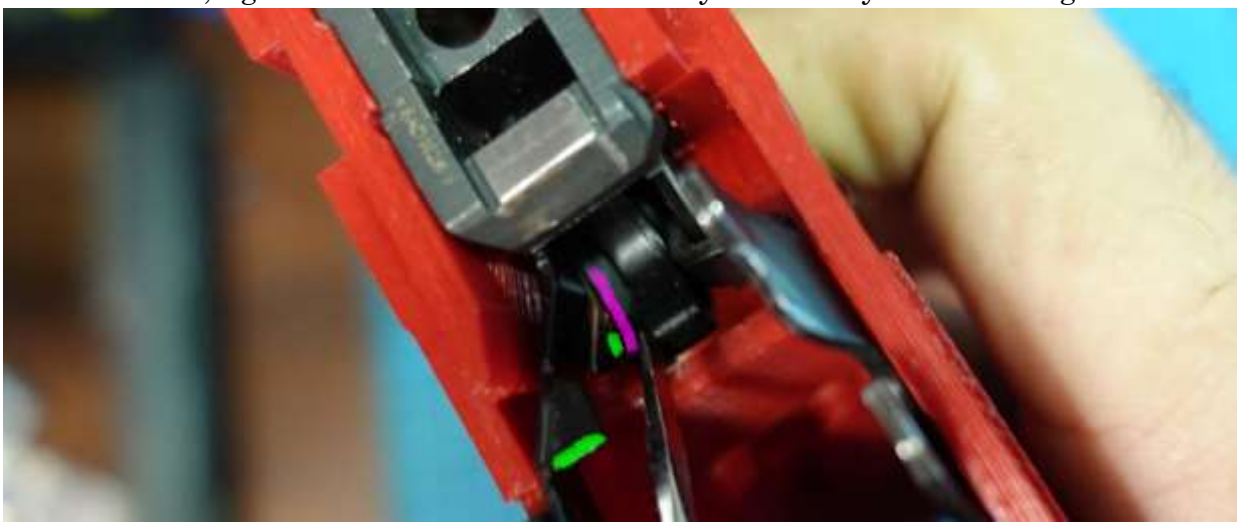
In the above image, the locking block did not go all the way in. The lip visible in the image, above right, should be flush with the channel in the printed frame. This particular build used a very old spec locking block, and thus the edges of the U-shape which protrudes into the locking block had to be trimmed. Newer locking blocks will not require this, but should your locking block not be going all the way down, check to see if the U-shaped protrusion is interfering.



If you need to remove the locking block for additional fitting, carefully wiggle it out as shown. Once it is fit, remove the locking block and set aside.

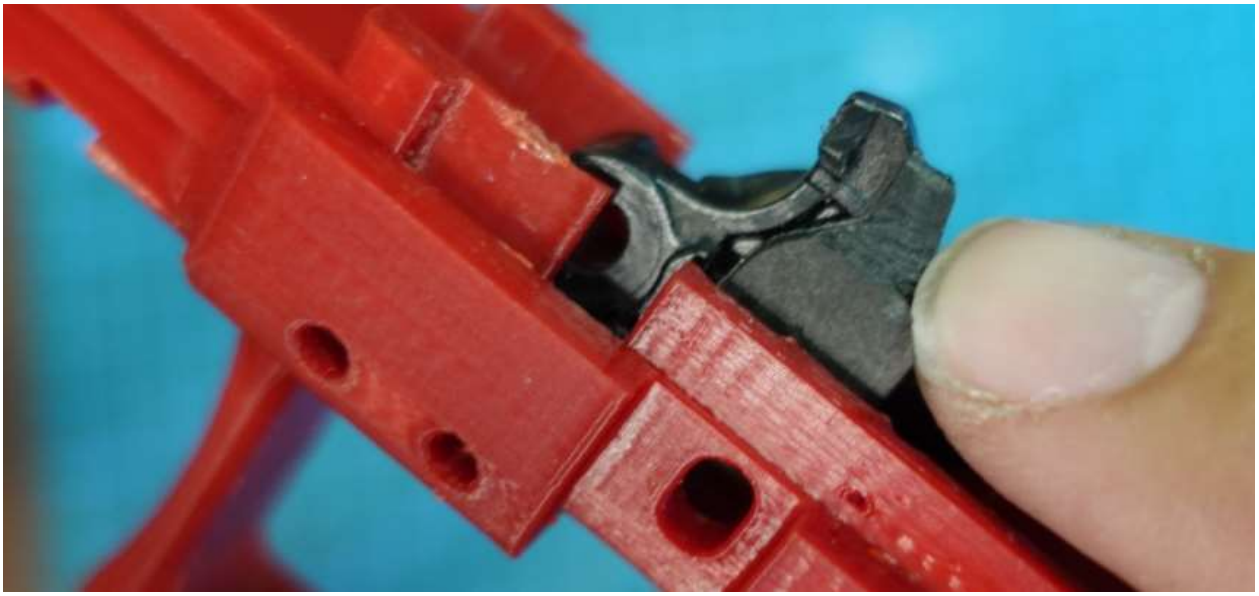


Above images show a nicely fitted locking block. Next, the trigger and slide catch need to be modified for all the components to work in harmony. This should be done before the parts are in the frame. Some of my photos were taken with the trigger in the frame, ignore this detail. This is only necessary if installing slide lock.

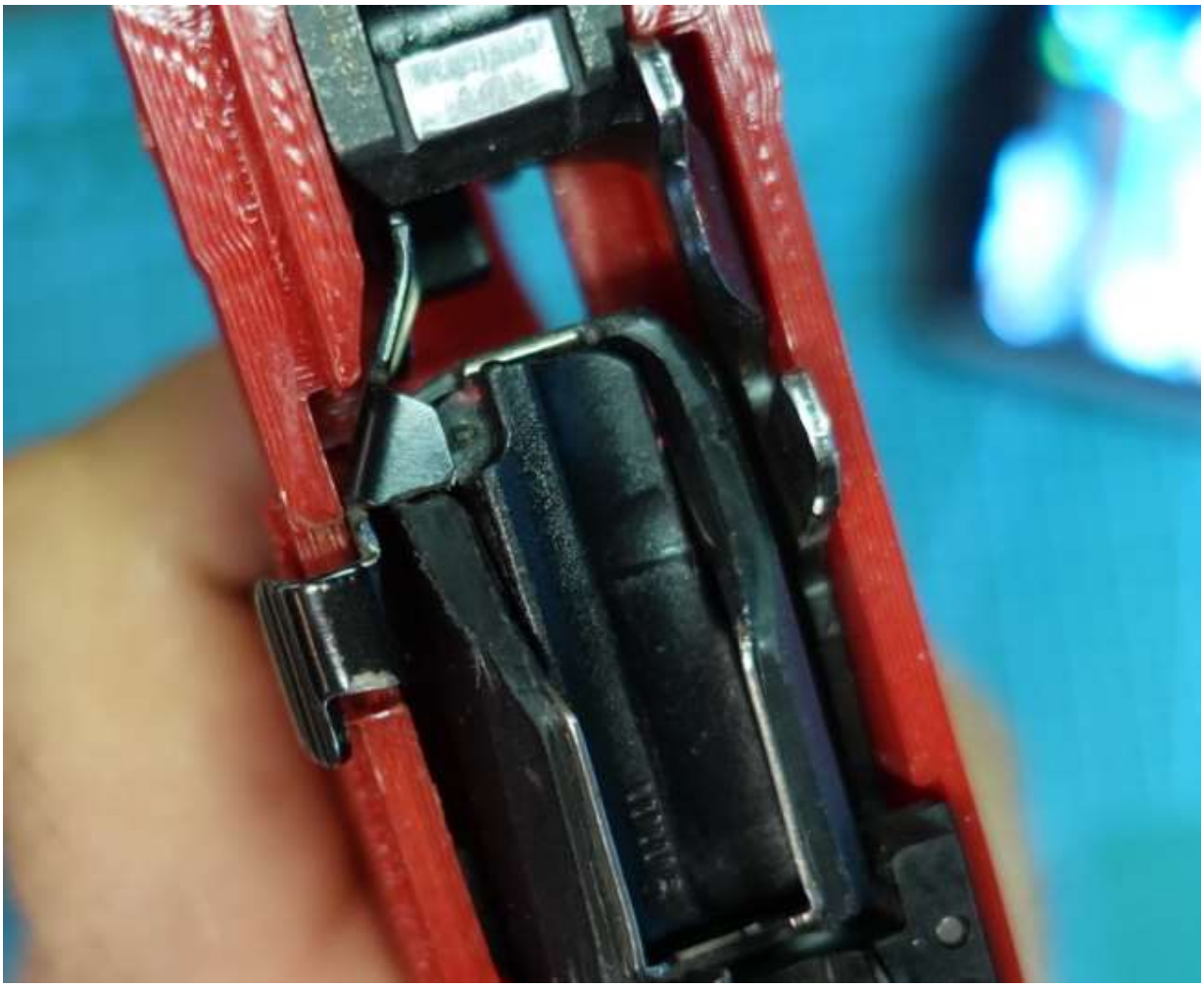


The image above shows why we must modify the trigger and slide catch. If left alone, the left side of the trigger will lift up the slide lock when the trigger is pulled, causing the gun to lock open on each shot. The areas above in green are to be removed from the slide catch, the area in purple is cleared from the trigger.

The above images show thinning the spring retainer of the slide catch. Again, these mods are only necessary if you want to use a G17 slide catch. Matching clearance in the left side of the trigger is shown below. You should only have to clear a small sliver from the left side of the trigger before the trigger can be pulled without lifting the slide catch. The best way to do this is by doing this bit by bit after the parts are installed, as it prevents you from removing more material than necessary. It is up to you. As long as you don't eliminate any pieces of key geometry from the left side of the trigger, it should not affect function. More material will have to be removed from the PPQ and PDP triggers compared to the P99 to allow the use of a G17 slide catch.



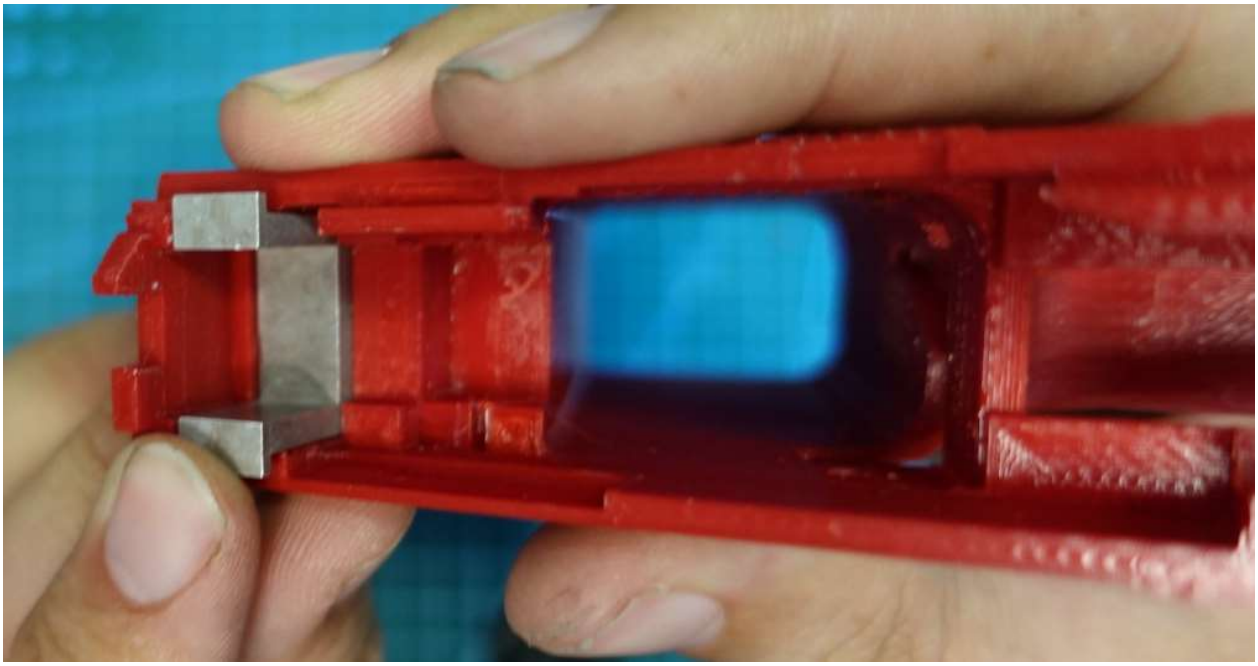
The above image shows a P99 trigger with sufficient material removed from its left side to clear the G17 slide catch.



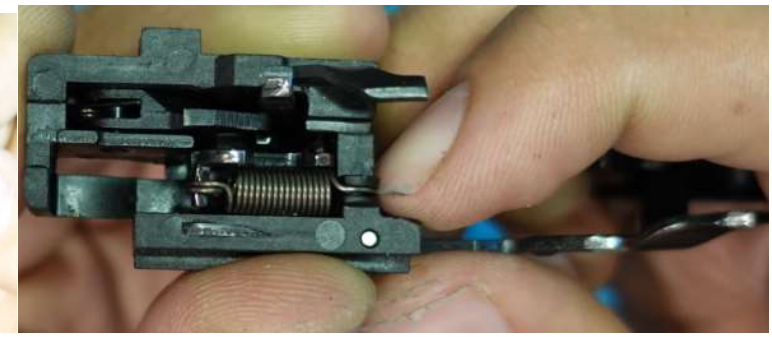
The above image shows a G17 slide catch modified to avoid collision with the P99 trigger, and with sufficient material removed from the rear of the triangular protrusion so that the slide release only raises when the magazine is empty. This concludes the modifications necessary to use a G17 slide catch. Again, modification of the P99 trigger and slide catch are only necessary if electing to use a slide catch. The slide catch is optional. This is also a good time to hit the inside of the magwell with a file to ensure mags are easily inserted.

With the locking block removed, gather the trigger and trigger pack, rail inserts, and the slide catch (if used).

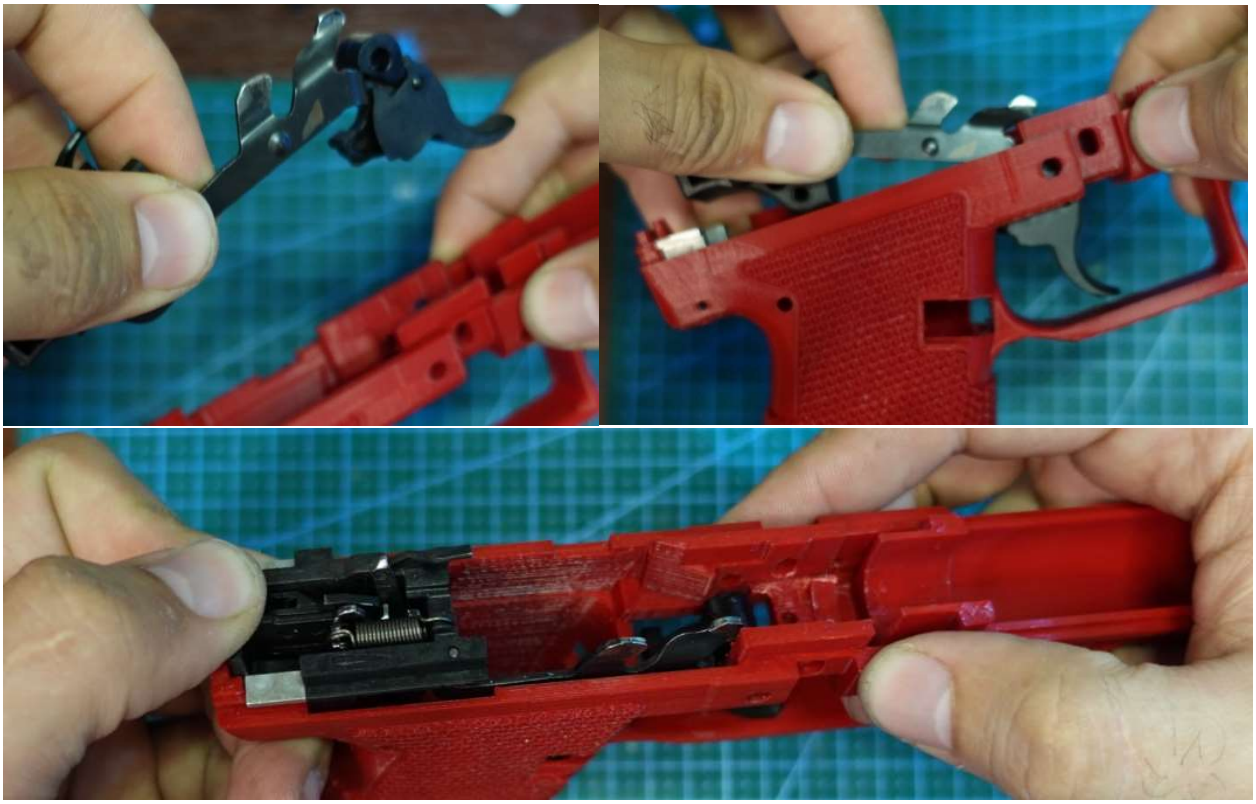
A note on rails: There were several different specs for the slide cuts on the PXX series, we chose to make the rails on the bigger side, so that one set of rails will function with any PXX. That said, you *may* need to file the rails slightly for smooth function. In my experience, earlier P99s need the rails filed, and later ones do not.



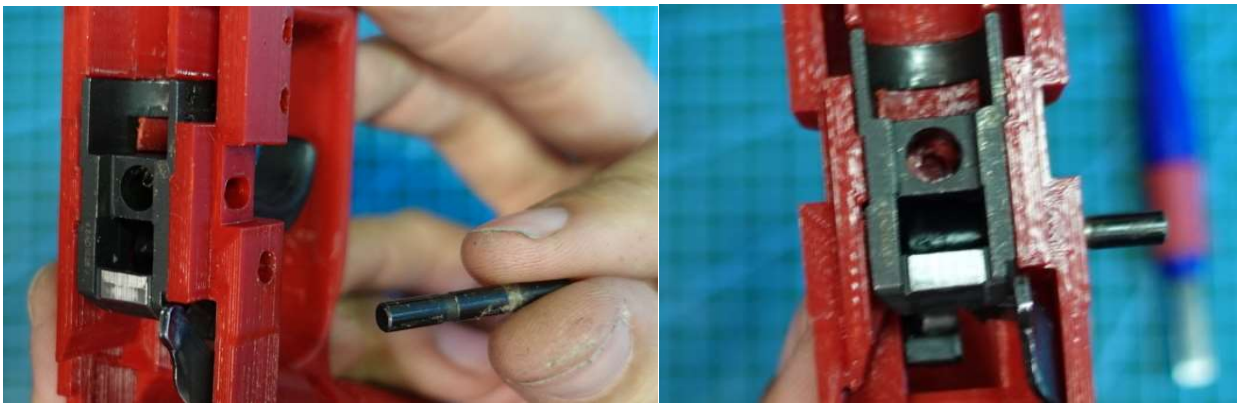
Insert the rear rail section as shown. Nothing terribly special here. Then gather the trigger and trigger pack.



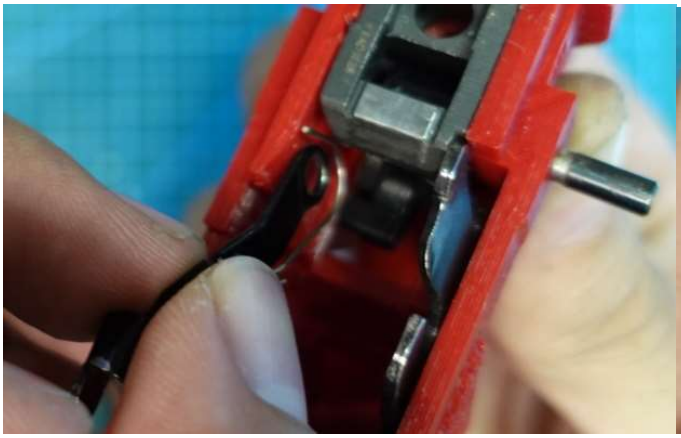
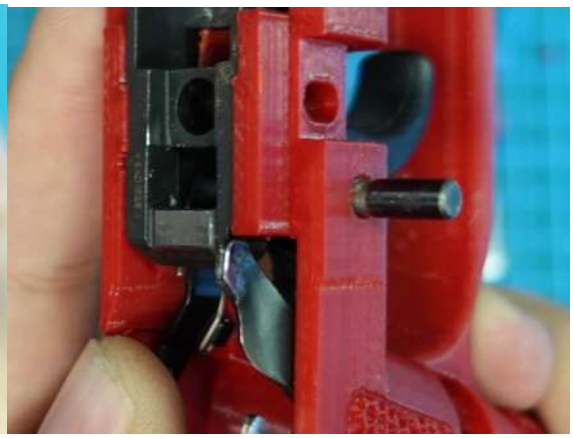
The above images show the relationship between the trigger bar and pack. On some models, there is an arm, inserted in the right side, which takes the place of the silver protrusion in this image. The purpose of both he silver protrusion above and the arm, is to provide a surface for the trigger's long steel bar to bear against. If your trigger pack uses the separate arm, install it on the right side of the trigger pack, in between the trigger bar and pack. These are adjustable on some models, which is neat. Again, its function should be identical to the silver protrusion shown below:

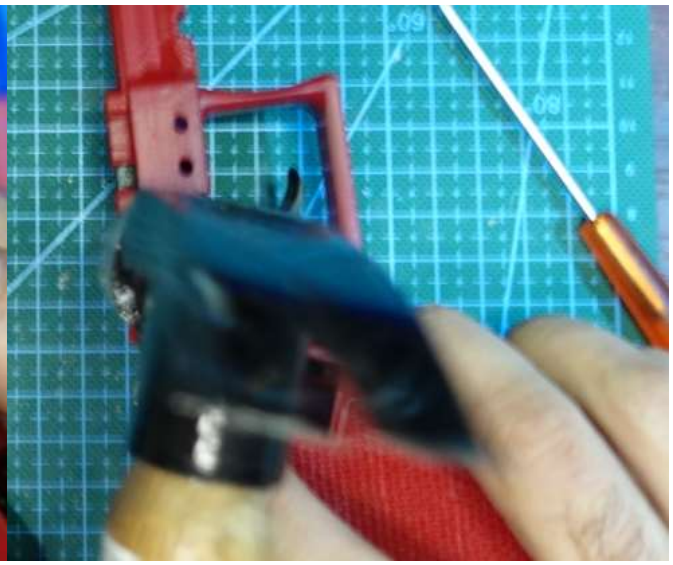


The above image shows the steps taken to insert the trigger mechanism as a unit. It's not that bad, just keep it all together as it goes in. Press it in firmly until the pin holes line up, then gather the locking block assembly, slide release, and pins. Install the locking block and make sure it is at full depth as discussed before, then begin inserting the trigger pin from right to left. Only insert it slightly.

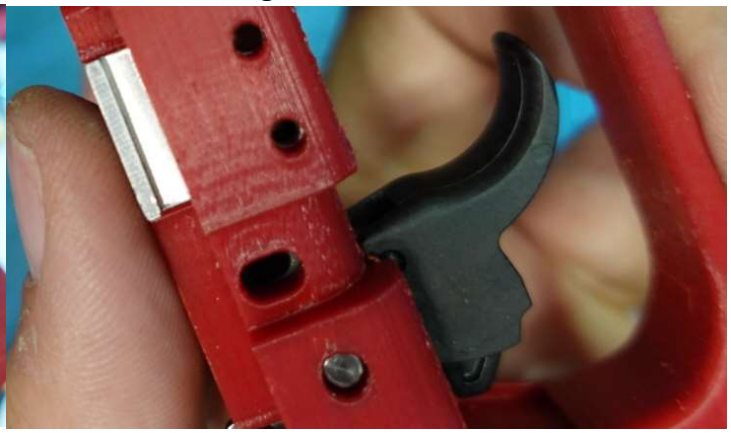


Wiggle the trigger as you tap the pin lightly with a hammer or use some rod to line up the trigger with the locking block hole. With the pin only just entering the trigger, you can insert the slide catch on the left side of the trigger, centering it in the left hole and holding it firmly so the pin can go through. Once you see the slide catch hole clearly through the left side, drive the pin through.

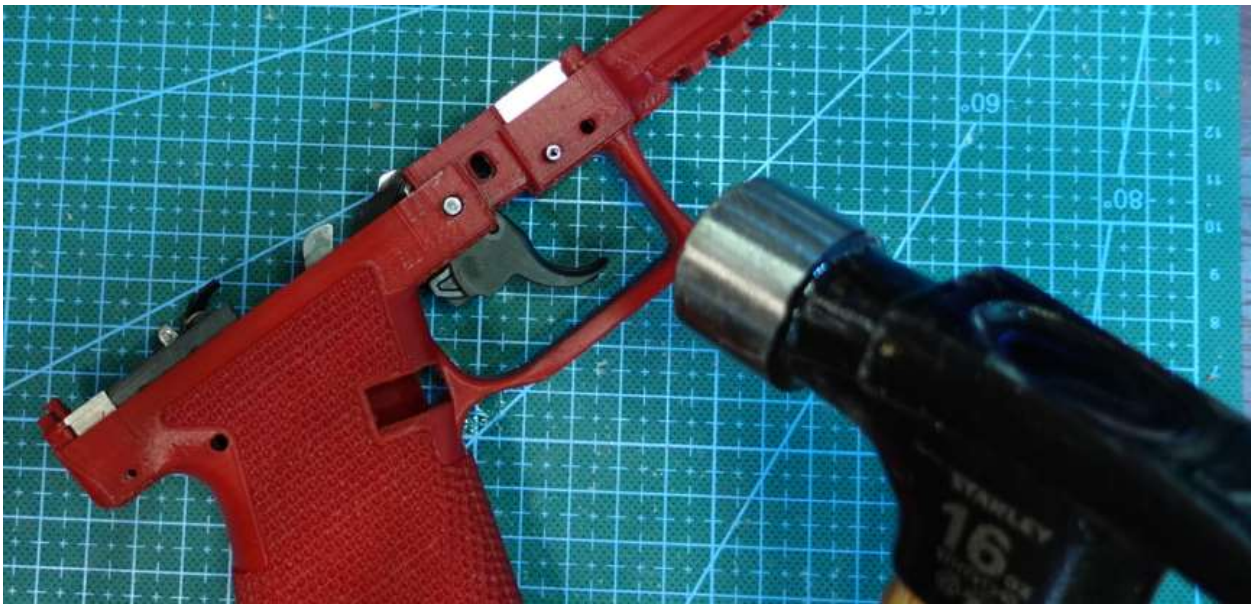





Whack! Neat. Now let's proceed to pinning everything together. Gather the remaining rails and pins. Insert the two front rails into the slots beside the locking block. Press them in until you can see clear through the twin 3mm frame holes.

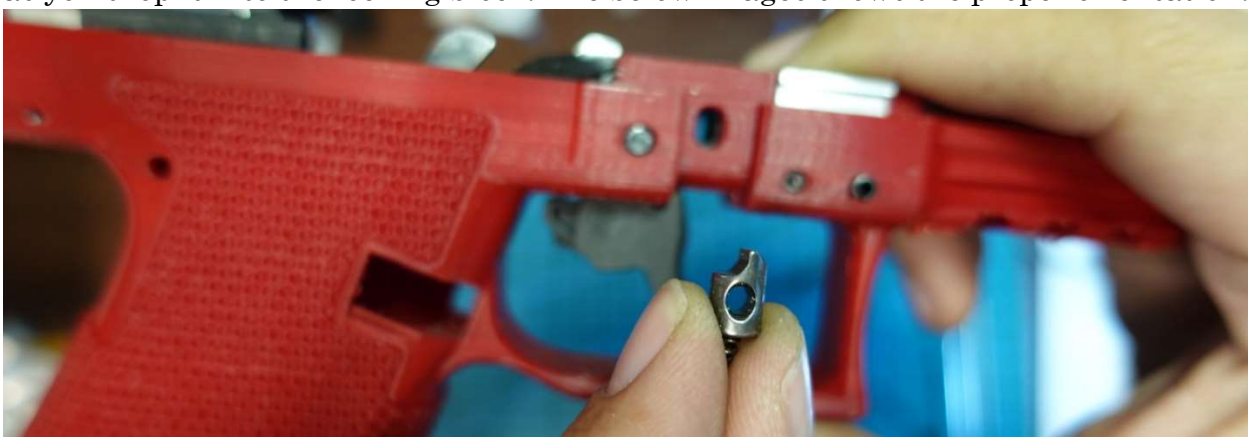



There is one 3mm coiled pin from your kit, which is about 28mm wide. That and another 3mm pin go in these two holes, which retain the front rails.

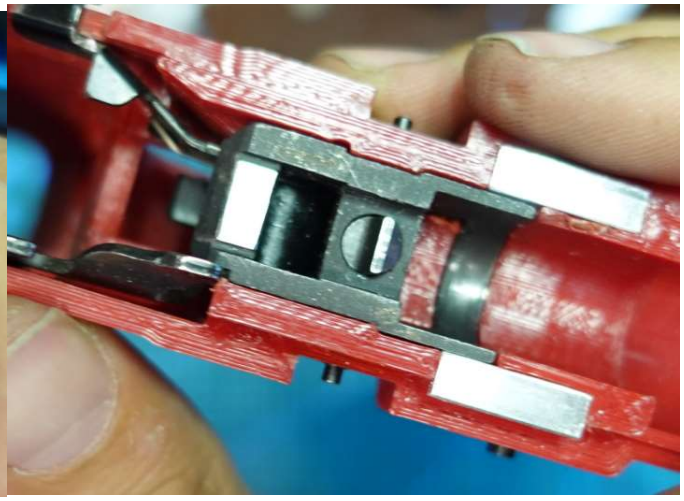


Use the precision tooth straightening tool to whack the 3mm pins into their respective orifices. Then, grab the locking element, its spring, and the small pin with a small nipple on each end.

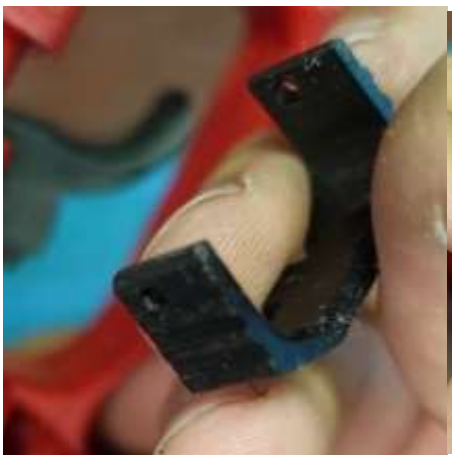
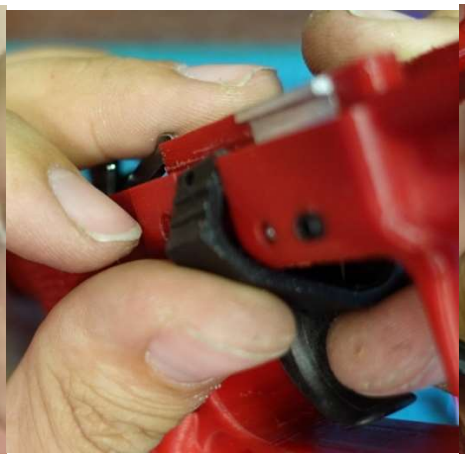
The springle goes into this little pingle. Keep them together with your findles as you drop it into the locking block. The below images shows the proper orientation.



Place the pingle, springle into the large hole on top of the frame, the hole through which the ovoid shape is cut on either side, and keep pressure on the shaped locking piece. This is the track your disassembly lever sits in. The small, nipply pin will secure the pingle, springle, and lever.

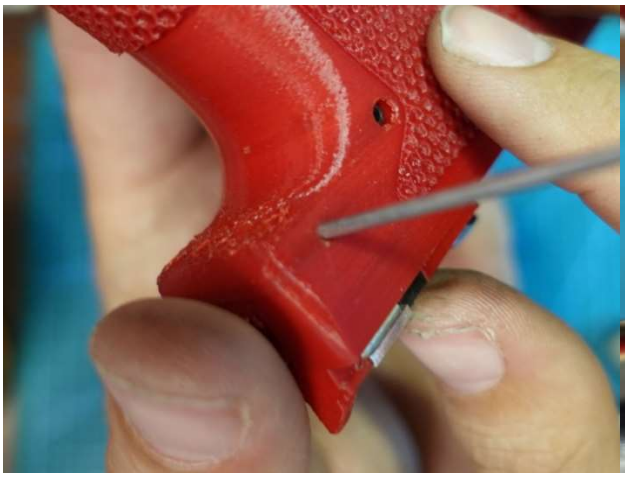


Now, grab the takedown lever, which has a small hole at its aft section. This hole will retain each nipple on the aforementioned nipple pin. Click the lever onto one side of the nipple pin, then pry it on the opposing side to complete its installation.

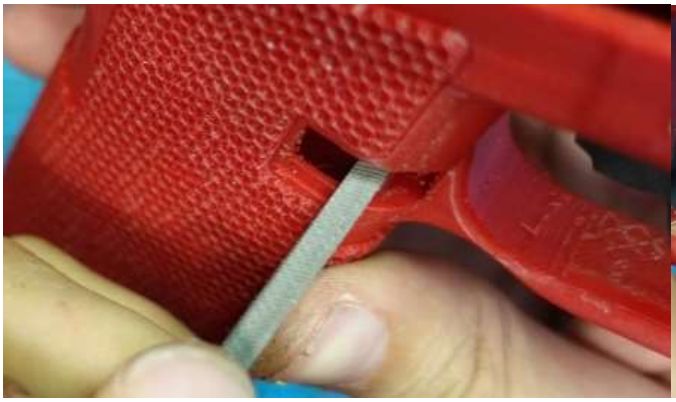

Sweet, the front section is all pinned together. That's awesome. I'm really happy for you. I'm really pleased with how far we've come together. I feel really close to you now. Thank you for this. Anyway, there's more pins and stuff.

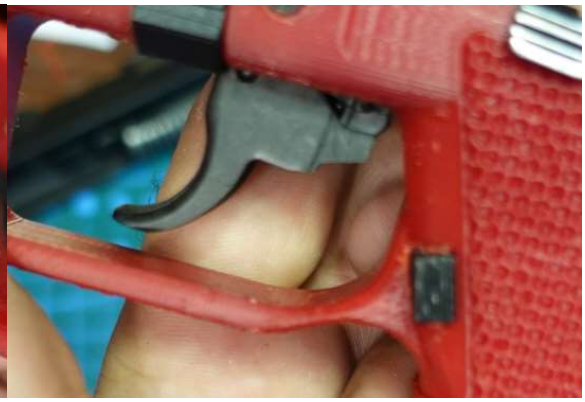
The shorter 3mm pin retains the trigger pack. Whack this sucker in and do your best to center it. Then, depending on what you're using for a rear pin, either grab the 2mm coil pin, or 2mm stock. I like using fairly soft rear stock to effectively rivet the rear rail in place.



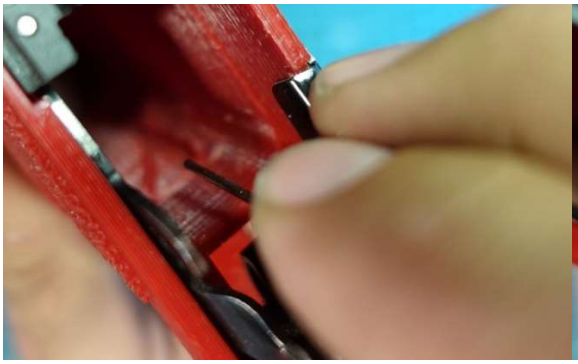

Insert the 2mm pin as shown above, cut it so that just about 1mm is exposed on both sides, then hammer ends to mushroom them and secure the rails in place. If using a coil spring pin, just insert it as normal. Take a moment now to appreciate the thing.

Now we prepare for the mag catch by cleaning out the mag catch area. Use a little file or whatever. Test the fit with just the mag catch. Make sure it's smooth.



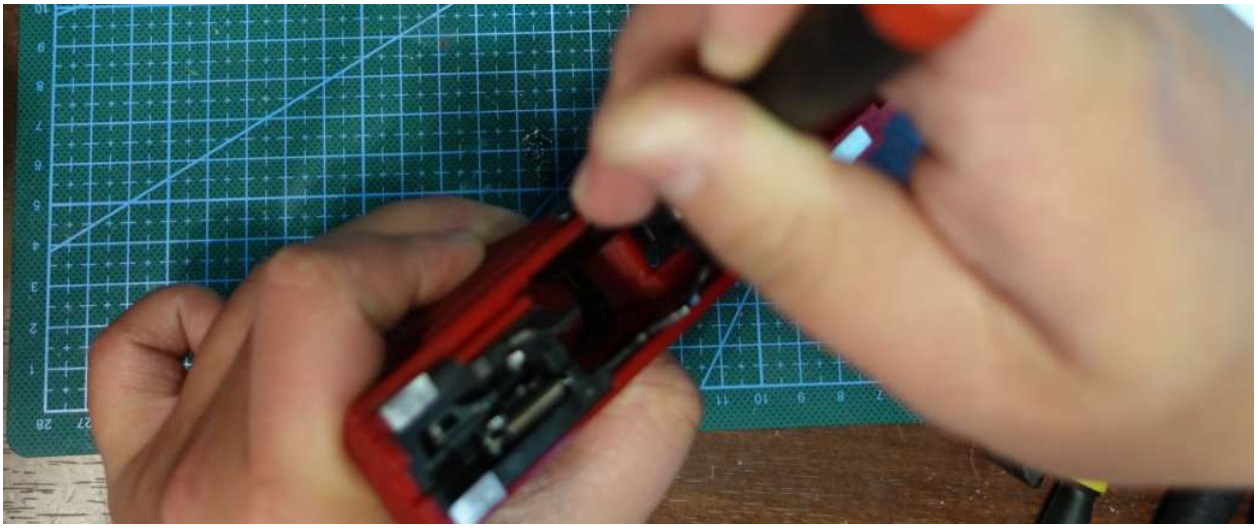


Next, install the magazine catch spring. Just drop it into the hole below the mag catch inside the grip.



I recommend doing a slight modification to the magazine catch to make installing the spring just that little bit easier. Cut a small angle into the area shown below.

Insert that mag catch, push it past the spring, then use a tool to push the spring over into the notch we just enlarged.



The frame is now assembled. You may need to do some final fitting on the rails, or you can just cycle the action repeatedly until the steel slide wears into the aluminum rails. I've done it both ways, and both frames have held up tremendously.

Ensure the mag is removed. Push the slide onto the rails, guiding it over the front and rear rail sections. Once you clear the rear rails, the takedown lever will engage with the slide assembly and the pistol will be ready for racking.

Wow! You did it. That's great.

V. Troubleshooting

- Rough cycling?
    - Ensure all pins are installed, check rail inserts. They may need filing to work with your slide.
- Pistol locks open on each shot?
    - Check interference between G17 slide catch and trigger. You may need to remove more material from the trigger or slide catch.
- Double action not working?
    - Try adjusting the Allen screw on the top of the trigger pack. If not this, your slide is riding too high. Adjust accordingly.
- General malaise.
    - Did you print it with the magazine well sticking upwards to minimize supports? If so, you did it wrong. Do it again, correctly this time.