

## Walther PPQ

# Trigger Grit

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*Read and understand this before continuing: This article is for educational use only. All firearms modifications should be performed by a qualified gunsmith. Proceed at your own risk.*



The PPQ has a terrific single action trigger mechanism, but the trigger take-up may feel a little sticky or gritty on some. However, it can be made to feel perfectly smooth. There are several areas that could cause some gritty feedback, but it will most likely be the result of the safety plunger operation, that is, the action of the trigger bar ear as it passes over and depresses the safety plunger.

The trigger could be categorized into several stages. The first is a very short initial take-up before it reaches the safety plunger. The second is further take-up while the trigger bar depresses the spring loaded safety plunger (the felt grittiness). The third is when reaching the stop before the break, followed by any creep, the break itself, followed by over- travel. The 4th stage is the reset.

1st stage: This should be very smooth as there's only a couple of areas that touch or rub. This includes the trigger itself to the frame (poly on poly), the trigger bar contact points including the rearmost ear that rides along the slide, the half round trigger bar guide located near the rear of the magazine well, and the rear portion of the trigger bar. If there's any felt grittiness in the first stage, removal of the slide and working the trigger will reveal if the problem is with the trigger bar.

2nd stage: The safety plunger (this article).

3rd stage: The creep, the break, and the over-travel. After the take up stages, you're at the break and ready to fire. There's almost undetectable creep followed by the break at just over 5 lbs., and no detectable over-travel.

4th stage: The reset. It's claimed to be one-tenth of an inch and that appears to be correct.

What is the safety plunger and how does it work?

The "Safety Plunger" is Walther's official name for their firing pin blocking mechanism. When not depressed, or in the extended position, the firing pin is blocked from forward motion. The trigger bar has an 'ear' that, when the trigger is pulled, travels across a ramp on the Safety Plunger and depresses it downward exposing an opening for the firing pin (striker) to pass. It's a very simple and effective safety mechanism.

**Firing Pin (striker) assembly.**



**Safety Plunger and the striker.**



**This represents how the plunger prevents the striker from traveling forward.**



**This represents the plunger depressed, allowing the striker to pass and fully extend.**



The following is my example on how I repaired a gritty trigger...

The text callout points to the ramp that the trigger bar ear rides while it depresses the spring loaded Safety Plunger as you pull the trigger. It's not necessary to remove the firing pin assembly as shown in this photo.



Shown are the 'ears' on the machine stamped trigger bar. Not a pretty stamping job. In my case, I polished any surface to surface contact areas.



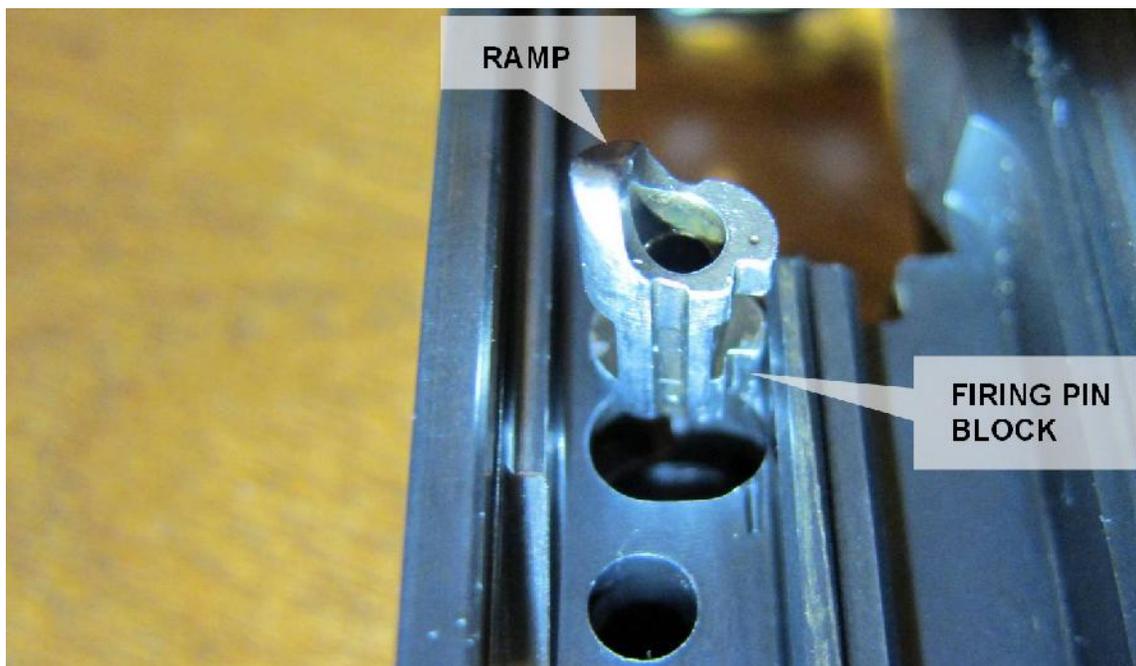
With the slide mounted, you can look down into the grip and see the action of the ear on the safety plunger. You can work the trigger and see the plunger in action. In my case, the ear was not aligned to the center of the safety plunger's ramp and was riding towards the outer edge. I could also feel the grittiness as well as get visual feedback while working the trigger, so it was pretty clear this was on the right track.



To test what occurs when the safety plunger is depressed at an angle, you can take these steps. First, using a punch, I depressed the plunger vertically, as shown. It was perfectly smooth.



Next, I gently depressed the plunger at various angles, and felt the same grittiness as when working the trigger. It was pretty obvious the plunger needed to be depressed as vertically as possible. The ramp was going to add enough side forces as is, so having the ear ride center to it, or even erring slightly to inboard, would be necessary.



The next step is to bend the ear for proper alignment, if needed. Take your time and adjust in very small steps between alignment checks, as it did not take much tweaking to get mine perfectly aligned. Keep the mechanism oiled and be sure to fully work the trigger several times until confident nothing had been overdone. You should feel

some improvement along the way, and it should feel very smooth when it's right. Be careful not to damage or scratch anything. Use whatever tools and method you're comfortable in working with.



#### Tips:

- To confirm the "gritty" feel is coming from the Safety Plunger assembly, simply remove the Safety Plunger and spring altogether, reassemble the pistol and see how it feels. If it's silky smooth, you'll know where your problem lies and where to focus your efforts.
- If you remove any existing surface coatings (which you most likely will), a Sharpie can be used to coat the exposed metal, which will assist in locating the contact points when working the trigger.
- For oil, I use M-Pro 7 LPX.

#### Further Steps:

If the above process did not work as well as desired, the problem may go deeper. You can remove the safety plunger, and using 1000 (one-thousand) grit paper, smooth around the bottom of the plunger so the lower leading edges are slightly rounded and very smooth. This minimizes resistance or 'snagging' on the front (opposite of the ramp's force) lower side as it travels downward into the machined bore if the bore has tooling or machine marks that may interfere with smooth plunger travel. Studying this area for additional cleanup or smoothing may be beneficial. I used an 8x magnifier during all processes.

### Safety Plunger Spring:

You'll by now have noticed that the trigger's increased take up resistance of the "second stage" is caused by the safety plunger/spring. The "resistance" can be increased or decreased by changing this spring. I use a lighter spring in mine, and now I can barely detect the 2nd stage of take-up (the trigger bar depressing the plunger). It just about feels like I've removed the safety plunger altogether. I ordered a variety pack of the tiniest springs from Wolff and it had what I needed, but it still needed a bit of fine tuning by clipping to desired length. Be aware that reducing the spring tension like this may reduce the overall safety while handling the weapon, as it will be easier to take up the trigger slack. This has nothing to do with the weight of the break, which will remain as is. Note: never use a safety plunger spring that's so light or too short it has difficulty in or 'just barely' resets (pushes up) the safety plunger. If it doesn't get that block pushed all the way up, you're not going to have a functioning firing pin block, and in this case may not fire.

Alternatively, if it's desired to have a heavier trigger take-up, yet still have a very smooth pull, adjust the plunger spring as described, then replace the trigger bar spring with one that's heavier (it's the visible spring on top rear of the trigger bar). This is a good alternative for those that believe the resulting trigger pull has become too light to carry the PPQ 'hot', yet still want a smooth trigger pull.

FYI, the weapon will function with no safety plunger installed. The trigger will be smooth as silk, however, that may be taking an awfully big gamble with the safety of the firearm.

Finally:

The recommendation(s) I've seen to just shoot your PPQ and the trigger will become "buttery smooth" is misguided Forum rhetoric by those lacking adequate or proper knowledge or information.