

Ruger Precision Rifle: Moving over from the stock trigger to the Timney Two Stage Trigger

-Greg Piet (Sin City Precision member)

Long before the RPR entered the scene I already had a precision rifle that was a Remington 700 at the core with a good stock, a proven trigger, and some solid glass. Even though I already had a good precision rifle when the RPR came out I was understandably curious. A rifle having the modularity of an AR-15, and with it having the ability for a garage gunsmith to swap match grade barrels with a few tools and headspace gauges I was intrigued and thought it would make a great secondary precision rifle for local competitions, a spare/practice rifle, or just something to tinker with.

Initially there were no aftermarket triggers available so I had to make the stock trigger as good as it could be. Out of the box the stock trigger was not comparable to my other rifle, and therefore not acceptable by my standards. Sure it is a decent trigger with a normal break for a factory trigger, but it was way too heavy, had some creep, and the pull weight was not as consistent as I wanted it to be. If this was the rifle I was starting with I would not have had any issue with that trigger at the time. Since the trigger assembly is a sealed unit there is not a lot that can be done without major surgery. The RPR stock trigger in its OEM configuration is quite

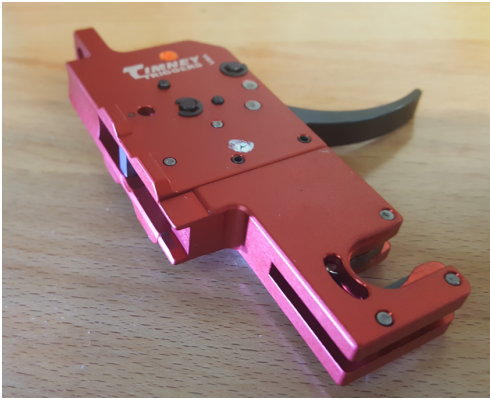
heavy compared to most precision rifle triggers I am currently accustomed to and that pull weight had to be lowered for the rifle to be of benefit to me.

The stock RPR trigger as it comes from the factory in my opinion is actually pretty good all things considered. The trigger itself is like a Savage accumulator. That design allows the center blade to be treated similar to the first stage of a two stage trigger. There was some creep and the break was not exactly crisp in the stock configuration so there were a few things I needed to look at in order to try to tune up the stock trigger.

A trigger fluff and buff was pretty easy to do and made some good improvements. For starters, I completely removed the adjustment screw and spring to set trigger pull weight. This got the trigger pull below 2 pounds. After the pull weight was lightened up a dremel, buffing wheels, and polishing compound came out. Reminiscent to the Glock 25 cent trigger job, I began polishing parts of the bolt, firing pin assembly, and the trigger mating surfaces that were readily available after disassembly. The polishing removed some of the creep, and the trigger was breaking crisper than before. Finally, I wound up using my secret weapon (which is now no longer a secret) called gun butter. I use this stuff and the needle tip dispenser so I can give certain areas just a dab of oil to help things along. The trigger actually felt pretty good once it was all done. I didn't have to tweak the trigger or re-oil it for at least 500 rounds and I didn't go over the trigger assembly again until I had over 900 rounds down the tube. Honestly once I did the work on it I figured I didn't need to buy an aftermarket trigger for a practice rifle. Later in this article is a table of trigger pull weights measured for various trigger settings. I did my best to estimate the pull weight for the blade (call it stage 1) and then the pull weight to break the shot (stage 2). For a stock trigger with a little work done to it the numbers are decent, and the trigger creep is tolerable and mostly predictable.

After few months of shooting the RPR a trigger came out by a third party, but it was not adjustable unless you swapped out springs and the price point was pretty high making it not desirable for me and this "value precision rifle." Months after that rumors of a Timney for the RPR came out and I was quite intrigued. There were some Timney prototypes being sent out to select people for testing however I was not one of those people selected. So with not having the "street cred" to get a prototype I had to wait until the production version became available. Leave it to the folks at TRGRiQ who managed to get me on the short list for a production Timney two stage RPR trigger.

So without any more delay here it is in all its glory a brandy new RPR Timney trigger. Factory set at 8oz/16oz we will see how it behaves compared to an “optimized” stock RPR gen1 trigger.



The trigger assembly itself is the same build quality as every other Timney trigger, solid and clean. Timney did not do any magical engineering to remove the safety rattle inherent in the design, however it does engage/disengage a little cleaner than the stock trigger assembly. Documentation for this trigger is a little bit more detailed than the typical Timney trigger, however that still will not help those that do not read the manual. Fortunately for me I used to press buttons and turn knobs for a living in a past life so it was pretty straightforward what I needed to do to adjust trigger pull for the second stage. Unfortunately for me I ran out of talent quickly as I did not figure out how to adjust the first stage trigger pull without seeking help from Timney. I didn't see anywhere to adjust the first stage pull weight as the only other screw I saw was by the sear and I wasn't brave enough to muck with that before even squeezing the trigger. After sending out my cry for help Timney told me it was just behind the sear and sent me a photo within 30 minutes of my inquiry. So if Timney happens to read this they should put a feather in their cap for a really fast response time.



Installing the trigger is quite easy. The trigger removal itself is well described in the instructions and requires three bolts to remove the lower side plates, I then removed two bolts to remove the buttstock to ensure clearance, and then one bolt for the trigger itself. To remove the original trigger you need to slide a locking detent, and then slide out the assembly. Installation is then the reverse.

I measured trigger pull weight as it came from the factory, and I then made some adjustments to get the trigger pull weight “just right.” It was a bit of a challenge to consistently measure the first stage pull weight, however looking at the data it indicates that my techniques were fairly repeatable. The Timney trigger itself is a marked improvement over the stock unit. The creep is gone, the pull weight is much more consistent, and the break is much cleaner than the optimized stock trigger.

So lets look at the actual data comparing the factory buffed and fluffed trigger to the Timney RPR trigger.

| Pull weights for trigger comparison | | | | | | | | | | | | |
|-------------------------------------|----------------------------|-------------|------|---------------------------------|---------------|------|---------------------------|---------------|------|-------------------------|---------------|-------|
| | RPR Stock trigger modified | | | Timney 8oz/1lb Factory settings | | | Timney 7/8 revolution out | | | Timney 1 revolution out | | |
| | Blade (oz) | Break (lbs) | (oz) | Stage 1 (oz) | Stage 2 (lbs) | (oz) | Stage 1 (oz) | Stage 2 (lbs) | (oz) | Stage 1 (oz) | Stage 2 (lbs) | (oz) |
| | 8.5 | 1 | 9.9 | 8.5 | 1 | 8.1 | 8.1 | 1 | 1.6 | 8.5 | 0 | 14.9 |
| | 8.0 | 1 | 3.3 | 8.2 | 1 | 7.1 | 8.2 | 1 | 1.5 | 8 | 0 | 12.7 |
| | 8.5 | 1 | 12.4 | 8.1 | 1 | 8 | 7.7 | 1 | 1.3 | 8.2 | 0 | 13.4 |
| | 8.6 | 1 | 6.8 | 8.5 | 1 | 8.6 | 8.1 | 1 | 1.2 | 8.2 | 0 | 11.1 |
| | 8.7 | 1 | 9.4 | 8.2 | 1 | 7.8 | 8.3 | 1 | 0.8 | 8.2 | 0 | 13 |
| | 7.6 | 1 | 7.4 | 8.2 | 1 | 7.4 | 8 | 1 | 1.7 | 7.9 | 0 | 13 |
| | 8.3 | 1 | 7.3 | 8.2 | 1 | 7.9 | 8.2 | 1 | 0.2 | 8 | 0 | 10.8 |
| | 8.7 | 1 | 11.1 | 8.1 | 1 | 7.7 | 8.1 | 1 | 1.4 | 8 | 0 | 12.6 |
| | 7.6 | 1 | 2.7 | 7.7 | 1 | 5.5 | 7.9 | 1 | 1.4 | 7.9 | 0 | 11.8 |
| | 7.8 | 1 | 6.9 | 8.5 | 1 | 6.9 | 8 | 1 | 1.4 | 8.3 | 0 | 15.6 |
| | 7.1 | 1 | 8.2 | 8.3 | 1 | 7 | | | | | | |
| | 8.1 | 1 | 12.7 | 8.3 | 1 | 8.1 | | | | | | |
| | 7.1 | 1 | 6 | 8.3 | 1 | 8.5 | | | | | | |
| | 7.6 | 1 | 10.4 | 8.5 | 1 | 7.5 | | | | | | |
| | 8.7 | 1 | 10 | 8.5 | 1 | 8.7 | | | | | | |
| | 7.5 | 1 | 7.9 | 7.9 | 1 | 6.4 | | | | | | |
| Average | 8.23 | 1.00 | 7.72 | 8.22 | 1.00 | 7.50 | 8.04 | 1.00 | 1.25 | 8.12 | 0.00 | 12.89 |
| SD | 0.57 | 0.00 | 2.86 | 0.23 | 0.00 | 0.85 | 0.18 | 0.00 | 0.44 | 0.19 | 0.00 | 1.51 |
| ES | 1.6 | 0.0 | 10.0 | 0.8 | 0.0 | 3.2 | 0.6 | 0.0 | 1.5 | 0.6 | 0.0 | 4.8 |
| Varaince From Setpoint | | | | 0.22 | | -0.5 | | | | | | |

Ruger Stock Optimized Trigger:

As shown in the data removing the spring completely, polishing parts, and using some good oil the best I could get the Stock trigger down to was 8.23 oz for the blade(call it the first stage), and then 1pound 7.72 oz on average. As shown in the statistics there was 10 oz of spread in trigger pull weight in the samples. It is rather apparent by the spread in trigger pull weight the break is not the same shot for shot. This variance in final trigger pull weight is not exactly conducive to repeatable shots on target in a precision rifle.

Timney RPR trigger out of the box:

With the unit supposed to be 8oz/1.0lb I learned quickly that the second number according to Timney is additional weight above the first stage to break the trigger. My method for measuring the first stage seems in line with Timney as I got 8.22oz average for the first stage, and then 1 pound 7.50 oz for an average second stage total trigger pull. Those numbers match up rather well to the values Timney set at the factory. In addition with about 3 oz of spread in the trigger pulls it seems rather repeatable.

Timney one revolution out:

In the front of the housing is a set screw to adjust the second stage trigger pull weight. As a wild guess I turned the screw out one revolution, and I was able to get second stage weights below one pound total (that would be below 8 oz as Timney describes the trigger pull weights). These values are below what Timney even claims and I was able to get this to function even

with aggressive bolt slam on an empty chamber. With 4.8 oz of variance in trigger pull weight I also believe the system has this spread because it was being used beyond its designed parameters. Once I went above one revolution the trigger would not reset and the firing pin would not stay locked back reliably.

Timney 7/8th of a revolution out:

Going back towards the factory setting I settled on this configuration as a nice final trigger pull weight. With a 1 lb 1.25 oz average trigger pull weight it is just above what is marketed as the available range, and it had a respectable spread of 1.5 oz in trigger pulls. For clarity this would be a 8.04 oz first stage and a 9.21 oz second stage setting using Timney's descriptions. The break was reliable, no creep, and functioned flawlessly.



Overall Timney findings:

I am very happy with the 8oz first stage, and it seemed to be consistent in the range of trigger adjustments I made. The press release states that the stage 1 weight is adjustable by the end user between 8oz to 16oz, however to be honest because I liked the factory 8oz I had zero desire to turn the screw to make the first stage higher. The trigger break is very predictable, and is a marked improvement over the factory trigger. Comparing the break on this RPR trigger to my Timney 510 they are comparable, however I would give the edge to the 510 as far as how “cleanly” the trigger breaks which is entirely subjective and based on feel of the break. As it stands this RPR trigger pull weight makes my Timney 510 set at a staggering 2 pounds feel insanely high.

Timney RPR in the field:

Once I got the trigger installed and I got it set up the way I wanted I took this rifle out to the next available local Practical Precision Rifle match to put it through its paces. At the match it performed perfectly, and even better than the shooter(nothing new there). Every trigger press behaved the same, there were no strange lock ups, under hard/fast cycling of the bolt everything worked as designed, and at every press I was not thinking to myself “ok... there is the ledge just a little creep and the shot will break” like I did with the stock trigger.

My ONE issue was entirely shooter related. I have become accustomed to my just under 2lb trigger pull. We had a stage on a barricade and for my first shot I threw the rifle on the barricade and in the heat of the moment I put a touch too much pressure on the trigger and torched off my first round a touch earlier than I wanted to as I was in the middle of a breath and therefore missed the shot. Even with a botched trigger pull and pushing my limits on a know your limits (KYL) stage I managed to squeeze out a top five finish at the local shoot which is a rarity for me. I wouldn't say it is due entirely to the Trigger, but I will say that the Timney helped and especially so on the spinner stage as I had complete confidence the trigger was going to break the same each and every time.



Conclusion and recommendations:

For a brand new precision shooter the factory RPR trigger is a great place to start. I think before someone can fully appreciate a good light trigger one needs to shoot lesser, and heavier triggers first. I am the first to admit that I had no business attempting to use a 1.5lb trigger when I started shooting precision rifle, and at that time the only trigger I could actually feel trigger creep on was a factory Mosin Nagant trigger from 1948. Back in the day I was shooting a 3.5lbs single stage trigger and I thought it was light at the time. As I shot some of my first practical precision rifle events with the 3.5 pound trigger I experienced that “surprise break” taught by some schools when applying pressure on the trigger. Had I been running a 1.5 pound trigger I very well may have had an AD/ND due to being in awkward positions, and not being skilled enough to use such a delicate instrument. Today I would think my trigger is broken or the safety is on if someone secretly set it back to 3.5 pounds.

Although the buffed and fluffed (and lightened) stock trigger was moderately repeatable, the creep was predictable, and I was rather content in using it for months, I would not bother tweaking it given the Timney alternative available now. Once a shooter is ready to level up on triggers, the Timney is what you need in a precision rifle trigger for the Ruger.

Going from a stock trigger with stock pull weights to the Timney it will be a significant upgrade to your RPR once you are ready. As the newer precision shooter develops skills they will be able to adjust trigger pull weight as they develop. The light break available on the Timney will assist in letting precision shooters experience how reducing input is beneficial when trying to connect out past 1000 yards.

I have yet to put this trigger through its full paces in the sand/silt/grime available to us in the Southwest United States, but I expect this system to be as stout as other Timney triggers. Judging by its build I do not see this trigger being extremely sensitive to debris like some other well known high dollar triggers. I am so impressed with the Timney RPR two stage trigger, and considering all the other tweaks I have made to the rifle I would not have any reservations using it in match currently. Until this trigger was installed the rifle has been a “good backup” and now I would consider it worthy of a primary rifle considering my performance abilities in the Tactical Precision Rifle competition scene. I need to seriously consider whether I should change out my primary competition rifle’s trigger and try out a Calvin Elite two stage trigger before the Arizona Tactical Precision Rifle Challenge in December 2016 as I feel like the RPR has the better trigger now.

Pro’s: A great improvement over stock trigger, easy adjustment, easy install

Con’s: Trigger pull cannot be adjusted on the fly like the stock assembly

Overall: A great addition to the RPR, and likely the last trigger you will ever need.

Form: 8.5 I like a more pronounced curved trigger.

Function: 10 It works perfectly, and exactly as expected

Durability: 9.5 I cant see anything where it would be failing and it is a good sealed unit

Value: 8.5 For what you get and compared to the other products out on the market it is a great value, but at a \$220 price tag it is a bit steep for a value precision rifle.

ASSEMBLY INSTRUCTIONS(written from memory):

Before proceeding ensure the firearm is unloaded and remove the bolt.

- 1) Remove the lower halves of the receiver by removing the two cap head screws on the side of the receiver and the one hidden inside the folding stock assembly.
- 2) Remove the buttstock assembly by removing the two screws that clamp the buttstock assembly to the receiver.
- 3) Remove the cap head screw on the bottom of the assembly that holds the original trigger in place.
- 4) Move the pin that is in the lower portion of the “J” guide to release the pressure in the trigger.
- 5) Pull on the dark gray rectangular detent just behind the sear away from the receiver and gently tap the assembly towards the rear of the rifle.
- 6) The trigger assembly should slide backwards to a notched port and then lift out.
- 7) With the trigger out of the rifle adjust the allen screw head by the sear to adjust the first stage pull weight.
- 8) Slide the new trigger assembly into the detents of the receiver and slide the unit forward.
- 9) Install the cap head screw to secure the trigger.
- 10) With the rifle unloaded insert the bolt to reset the trigger and adjust the second stage trigger as needed using the allen head screw inside the front of the trigger assembly close to the cap head screw. Once the second stage weight is set remove the bolt.
- 11) Attach the butt stock assembly opposite of the installation and secure the two cap head screws
- 12) Position safety selector switch in the receiver half, and then secure the two receiver halves using the two cap head screws on the sides and the one cap head screw inside the folding stock assembly.
- 13) Insert bolt with an unloaded rifle and test function of safety and trigger.