Slicking Up a Pietta 1873 Single Action Revolver

Disclaimer: This article is for entertainment only and is not to be used in lieu of a qualified gunsmith. Please defer all firearms work to a qualified gunsmith. The author assumes no responsibility or liability for the use or misuse of this article. Please note that I am not a professional gunsmith, just a shooting enthusiast and hobbyist, as well as a tinkerer. This article explains work that I performed without the assistance of a qualified gunsmith. Some of the procedures described in this article require special tools and cannot/should not be performed without them. Any loads mentioned in this article are my loads for my gun that I have carefully worked up using established guidelines and velocity and pressure measurement tools.

Warning: Disassembling and tinkering with your firearm may void the warranty. I assume no responsibility for use or misuse of this article. Again, this article is for entertainment purposes only!

Figure 1: Pietta 1873

Introduction

When I first got started in Cowboy Action Shooting 15 years ago I researched the guns I would need. The two most popular styles of single-action six-gun revolvers were, and still are, the Ruger Vaquero , and the Colt Single Action Army (SAA) and its European clones. The Schofield revolver wasn't popular or readily available at that time, and since the Vaquero was stronger and more robust than the SAA – which was prone to breakage when used regularly for competition – I decided to go with the Vaqueros. If you read my articles you know that I am a Ruger single-action man with Vaqueros, Blackhawks, and Single Sixes in my collection, and I have many articles on how to modify and improve the Ruger platform.

Recently I've had a number of questions from readers of the Kitchen Table Gunsmith regarding SAA's and their clones. Having never owned or worked on this style of revolver I decided I needed to learn more about them. At the time I was researching guns Cabela's was selling the Millennium revolver for $200. This was a Colt SAA clone manufactured by F.A.P. di Pietta Giuseppe & C. S.n.c. of Italy imported by Century Arms International. Although somewhat improved, this same gun is still available today, now called the 1873 model. The price was very reasonable then, and 15-years later the price was still reasonable, so I purchased two of them in .45LC (my preferred caliber) from WholesaleHunter.com, an online sporting goods outlet. The price was so reasonable I could purchase two of these Italian Colt clones for about the same price as one Ruger Vaquero!

Personally I had no problem purchasing an Italian clone. I have heard and read stories of the earlier clones being of poor quality, but the Italians learned quickly that if they wanted to compete in the American firearms market, and especially with the SASS® crowd, they needed to up their game. So much so that these revolvers were named "Best Gun" by SASS® in 2002 and 2008.

Overall Assessment

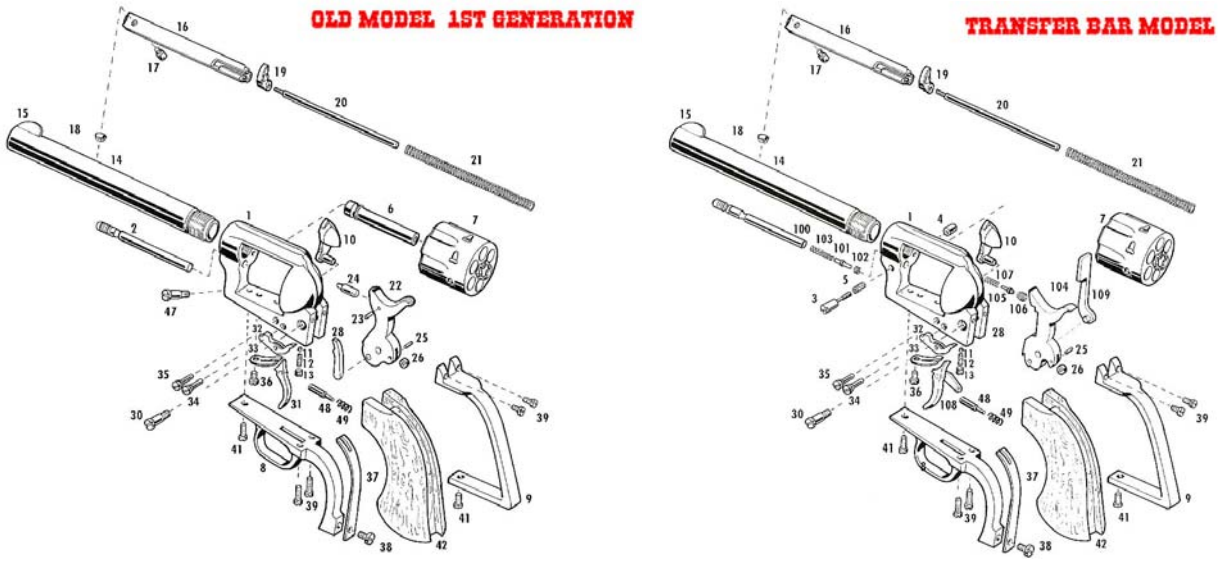

Figure 2: Pietta 1873 1st Generation and Transfer-Bar Models

(Diagrams courtesy F.LLI PIETTA Srl)

After the guns arrived I carefully examined them and gave them a thorough cleaning. These guns are within six serial numbers of each other so from now on I will refer to them as gun #85 and gun #91. I was a little disappointed that these were not faithful reproductions of the Colt 1873 SAA. They did not have the first safety notch click when cocking the hammer because they came with a transfer-bar safety similar to a Ruger. This meant I could safely load all six chambers and not worry about having a hammer-mounted firing pin rest on a live primer. The firing pin was mounted in the frame and not on the hammer. Also, instead of having a flat hand spring like an original Colt they had a coil spring and plunger again similar to a Ruger. I feel as though I purchased two "Col-gers" (a Colt/Ruger hybrid). Pietta made safety and reliability improvements to the old 1873 pattern by using a transfer bar and coil spring and plunger for the hand.

The finish was matte blue; they feel almost like they were Parkerized. The action of each revolver, being brand new, was stiff and the triggers broke at 2.8 pounds for each gun. However, the trigger pull was long with a lot of creep indicating that the sear ledge on the hammer was too deep.

I also discovered that the hammer spring was so stiff that while speed-cocking the revolvers like I would during a cowboy match I sometimes didn't get the hammer fully cocked so when my thumb slipped off of the hammer spur the hammer dropped into the half-cock notch. The half-cock notch helps to prevent the dreaded "skipped round" but does cost time on the clock. A reduced power hammer spring should fix this problem.

I found a couple of articles on the Internet (links below) on how to improve the action of a SAA clone, plus I have two books in my library on how to work on these revolvers, so these references were the starting point for my work.

http://www.hobbygunsmith.com/Archives/Oct04/Interview.htm
http://www.gunblast.com/JimTaylor_Uberti.htm

Tools and Parts

Figure 3: Screwdriver Bits, Bolt/Trigger Spring, and Hammer Spring

Most of the tools, parts and supplies I purchased from Brownells unless otherwise noted. After purchasing the guns I purchased a set of screwdriver bits made specifically for the Colt SAA and clones #080-000-086, a Wolff reduced power bolt and trigger spring #969-322-900, and a Wolff reduced power hammer spring #969-322-800. The screwdriver bits will help prevent me from buggering up the screw heads when disassembling and reassembling the guns, and the reduced power springs will lighten the action and trigger pull.

Many years ago I purchased the Gunsmith Action Set of polishing stones from Boride Engineered Abrasives. I have used these excellent stones for many years on many guns; these are some of the best tools I own for stoning gun parts.

By the way, I never replace springs until AFTER I perform polishing and function checks. I had a Ruger Vaquero that would no longer function with a reduced power trigger return spring because the trigger was rubbing against the frame. I had to open up the cutout in the frame so the trigger would function properly with the reduced power spring.

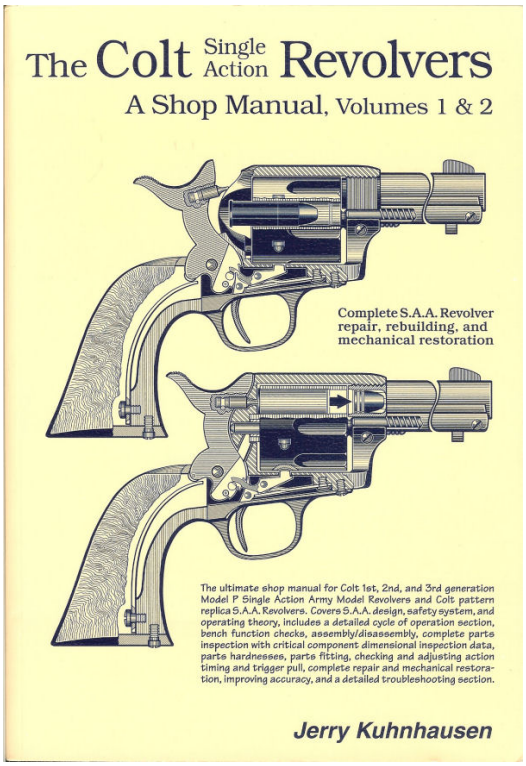

Figure 4: *The Colt Single-Action Revolvers, A Shop Manual Volumes 1 & 2* by Jerry Kuhnhausen

I also purchased *The Colt Single-Action Revolvers, A Shop Manual Volumes 1 & 2* by Jerry Kuhnhausen from MidwayUSA #133799. I have a number of Jerry's excellent books in my library and have found them to be a very important source of information when working on guns.

Barrel and Chamber Throat Measurements

I slugged the barrel and measured the chamber throats in each gun. The bores measured 0.452 which is what I expected, and the chamber throats measured between 0.452 - 0.4535. Since some of the throats were right at 0.452 I decided to open them up just a bit.

Figure 5: .45 LC Chamber Throat Reamer

I purchased a chamber throat reamer #513-000-001 that opens the chamber throats to 0.4525. It came with a pilot bushing so the reamer stayed centered in the chamber. I have used this reamer to open the chamber throats in all my .45 LC revolvers.

Figure 6: Reaming Chamber Throat

I attached a T-handle to the reamer, lubricated it with cutting oil, and ran the reamer through all the chambers in both cylinders. I inserted the pilot bushing into the cartridge end of the chamber until it met with the throat, then I turned the reamer by hand until the teeth came through the end of the cylinder. I flushed the chamber with brake parts cleaner to remove any oil and leftover chips, then lubricated each chamber with gun oil. For most of the chambers the reamer fell through and performed no cutting. The reamer shaved metal from only two chamber throats, the ones that measured 0.452.

I am a big fan of Ruger revolvers, but every big-bore Ruger I have ever worked on had the same two problems; the chamber throats were undersized, and there was a constriction inside the barrel under the barrel threads. These two conditions are detrimental to accuracy and require some work to correct (refer to my article *Accurizing the Ruger Single-Action Revolver*.) It seems more care was given by the Italians during their manufacturing process than one of the largest American firearms companies! My two Pietta 1873's had no barrel constriction, and chamber throats were the proper size.

Disassembly

Disassembling the Colt single-action revolver is pretty easy. Always use hollow-ground screwdriver tips of the proper size to prevent from buggering the screw heads. These photos and write up are for gun #91, but I performed the same work to both revolvers.

	Make sure the revolver is unloaded!
	Place the hammer in the half-cock position and open the loading gate.

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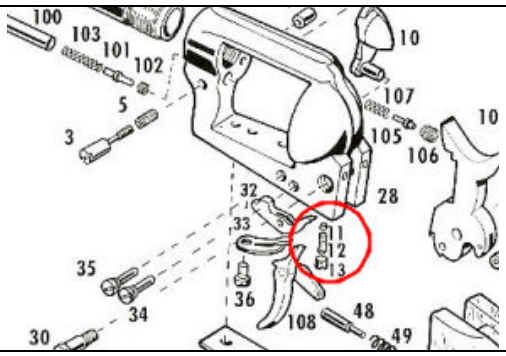
	Press in the base pin latch and pull out the cylinder base pin. Remove the cylinder from the right of the frame. Close the loading gate. Hold the hammer back so the trigger is out of the loading notch, press the trigger, and allow the hammer to move to the fully forward position and rest against the frame.
N/A for one-piece grips	Remove the grip panel screw and remove the two grip panels. My guns had one-piece grips so I did not have to perform this step.
	Remove the three screws from the back strap; two from the top and one from the bottom. The bottom screw is a different size from the two top screws; do not get them confused. Set them aside in a small container so you don't lose them. Notice the hand spring that is exposed when the back strap separates from the frame.
	With one-piece grips; rotate the back strap and grip back and down to remove it from the trigger guard. With two-piece grips; remove the back strap.
	Remove the hand spring and plunger from the rear of the frame. Your revolver may not have this feature.

	Remove the hammer spring retaining screw and remove the hammer spring. This screw was installed with Loctite by the factory so it was very tight on my two revolvers. I was sure to use the proper size screwdriver blade/bit.
	Remove the three screws from the trigger guard and remove the trigger guard. The front screw is smaller than the two rear screws so don't get them confused. This exposes the bolt and trigger return spring and retaining screw inside the bottom of the frame.
	Remove the bolt/trigger return spring retaining screw and remove the spring. This screw was installed with Loctite at the factory so it was very tight on my two revolvers. I was sure to use the proper size screwdriver blade/bit.
	Remove the three screws from the side of the frame. The trigger and transfer bar, hammer and hand, and bolt can now be removed from the bottom of the frame. If you have the old-style hand with a flat spring attached you will have to lower the hammer through the bottom of the frame to remove the hand and spring.

	Remove the loading gate detent plug screw from the bottom of the frame, then remove the detent spring and plunger. Remove the loading gate from the frame by pulling forward.

Polishing the Bolt

Figure 7: Modified Bolt

To my surprise I found the right leg of the bolt had been cut off to accommodate the transfer bar. There were some burrs left when the leg was cut which I polished off using a 400-grit stone.

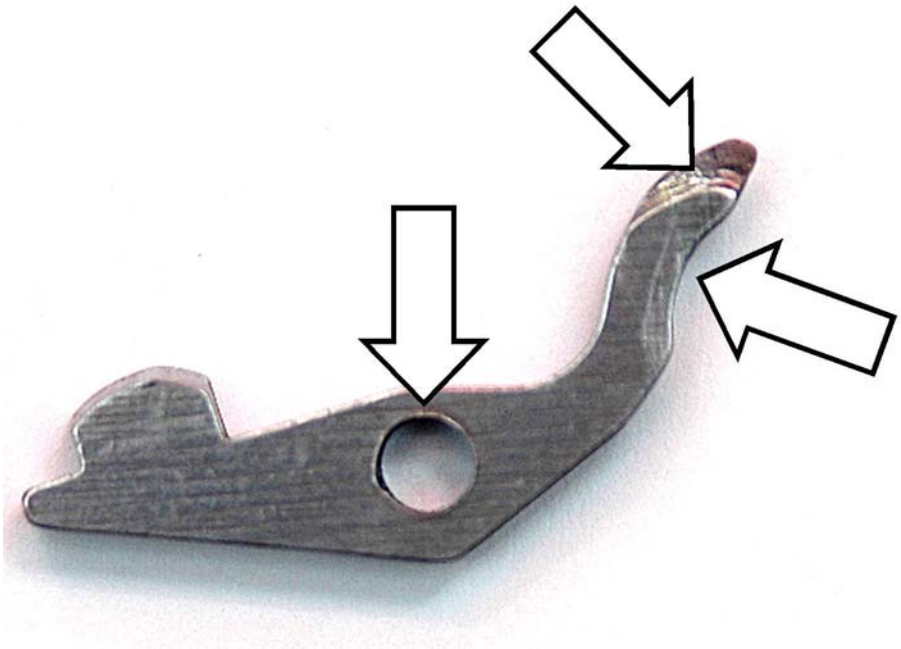


Figure 8: Areas of Bolt I Polished

The sides of the bolt had tooling marks and burrs around the pivot hole. I polished the sides of the bolt with 600-grit wet/dry paper. The goal here was not to alter the dimensions of the bolt, just polish off the

burrs. I used a Cratex bit and my high-speed rotary tool to polish the curve and tapered end that ride on the bolt cam.

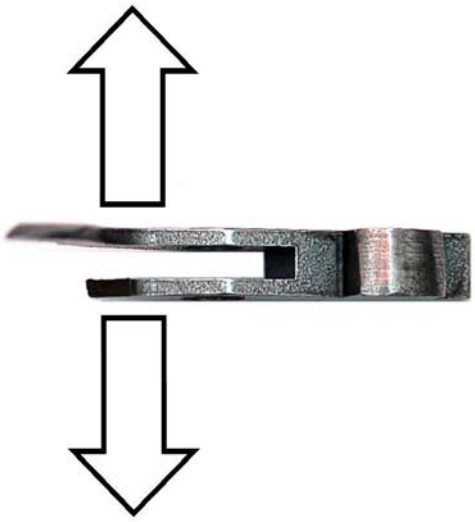


Figure 9: Spreading Bolt Legs

After I reassembled the gun I discovered the bolt would not stay down when the hammer was in the half-cock, loading position. The curved leg of the bolt was slipping off of the cam on the hammer causing the bolt to fall too early. Upon inspection I found the long leg was a few thousands of an inch away from the cam. I carefully pressed a large, flat-blade screwdriver between the two legs to spread them apart just enough so the long leg was laying flat against the edge of the hammer so the cam was making positive engagement. Now the bolt worked the way it should.

Just so I only have to write this once, after I polished areas that were blued, I re-blued with cold-blue to protect the exposed metal. I first cleaned the part with brake parts cleaner, degreased with acetone, then dipped the part in Van's Instant Gun Blue or Birchwood Casey Perma Blue. I then coated the part with gun oil to preserve and lubricate it.

Polishing the Hammer

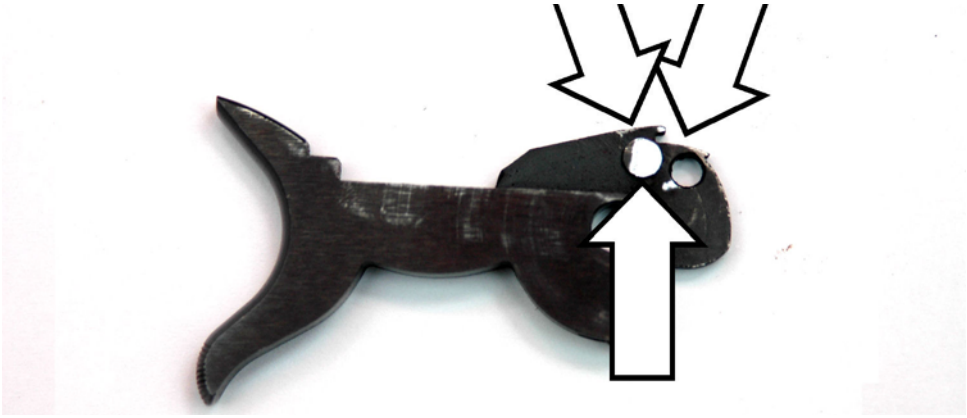


Figure 10: Areas of Hammer I Polished

As you can see from the above photo the hammer has no safety notch because the gun has a transfer bar. I used a Cratex bit to polish the cam that the bolt rides over and the front edges of the hammer where the trigger rides.

The pin that holds the hammer spring roller protruded from each side of the hammer. I used a 400-grit stone to polish the ends of the pin so they were flush with the sides of the hammer. The hammer on gun #91 did not have any other burrs or imperfections so other than dressing the sides of the hammer where it rode in the frame, I performed no other polishing.

Caution: The following procedure requires special tools and jigs to maintain the proper angles of the trigger and sear and should not be performed without them.

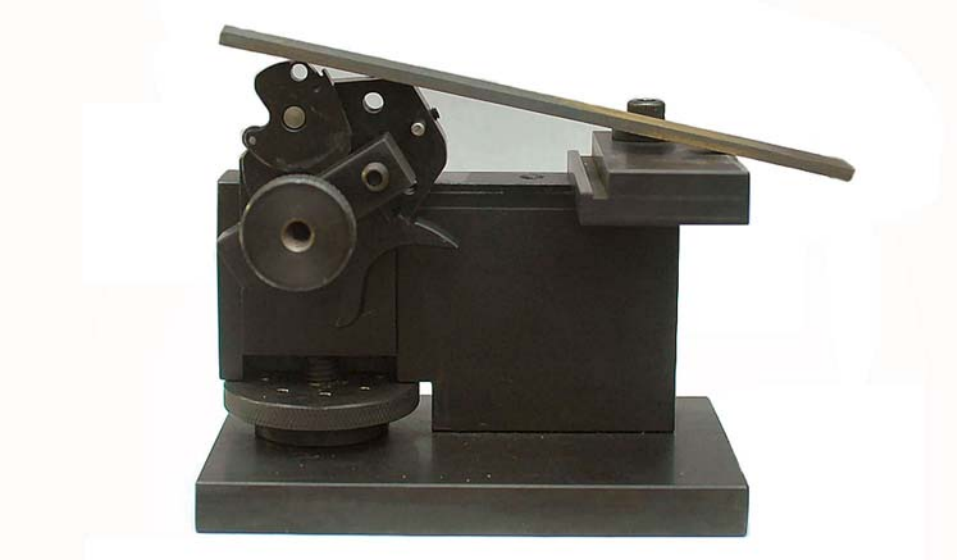


Figure 11: Reducing Depth of Sear

The sear ledge on the hammer for #91 measured 0.034-inch which created a long trigger pull with a lot of creep. I placed the hammer in my Power Custom Series 2 stoning fixture that I purchased from MidwayUSA.com #411263 using the universal adapter and used a 400-grit stone to reduce the depth of the sear notch. I reduced it to 0.020-inch and tested it for creep and let off. There was still just a bit of creep left in the trigger but I decided to leave it alone.

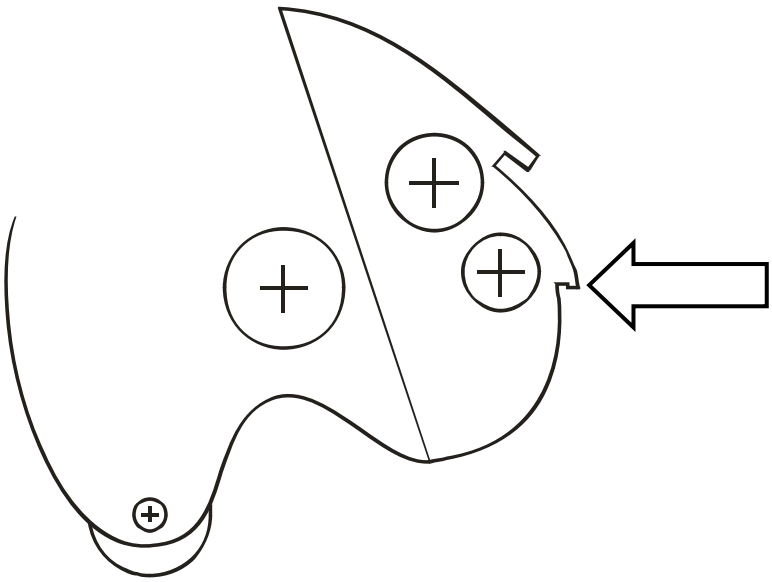


Figure 12: Sear Shelf

Once the depth of the sear was set I polished the face of the sear. I discovered that the Pietta hammer had a shelf that the trigger rode on. When I reduced the depth of the sear I removed that shelf.

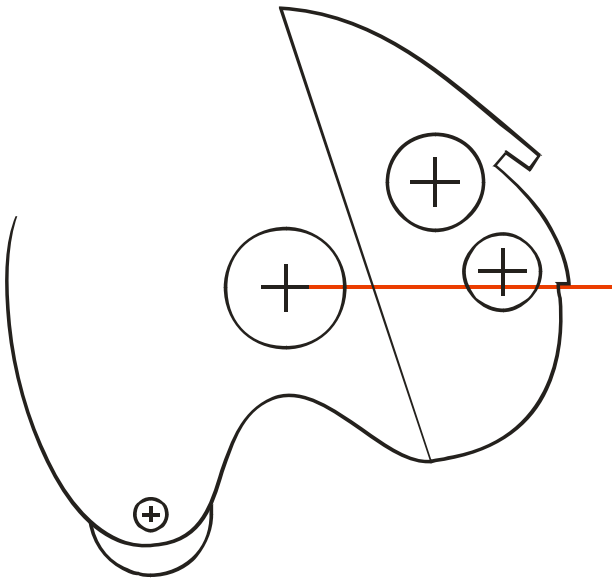


Figure 13: Maintaining Proper Sear Angle

I rotated the universal adapter and adjusted the fixture so I was polishing the sear flat and at the proper angle. The angle of the sear should be in line with the center of the hammer pivot hole as shown in the above diagram.

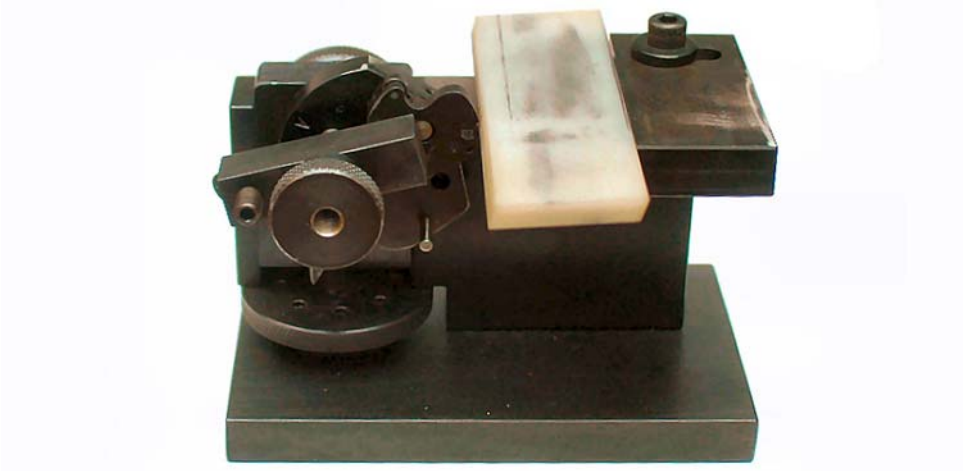


Figure 14: Polishing the Sear

I first polished with the Power Series II India stone #080-815-000 until the sear was smooth and shiny. I then finished polishing with the Power Series II Hard Arkansas stone #080-815-001.

Polishing the Trigger

Figure 15: Polished Transfer Bar Holes

The hole in the trigger where the transfer bar rotated had some burrs so I used a 400-grit stone to remove those burrs. I also polished the back side that rubs against the hammer. There was a burr around the trigger pivot hole so I stoned that down as well.

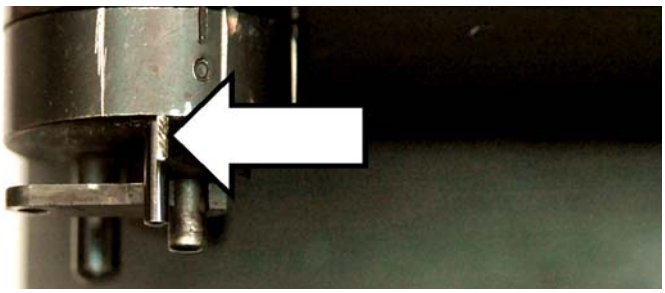


Figure 16: Rough Trigger Surface

The surface of the trigger that mated with the sear on the hammer was very rough and had visible tooling marks as you can see from the above photo. I mounted the trigger in the MKII adapter for my Power Custom Series 1 stoning fixture I purchased from MidwayUSA #743549. I didn't have the Colt Single Action adapter, but the trigger fit in the MKII adapter perfectly.

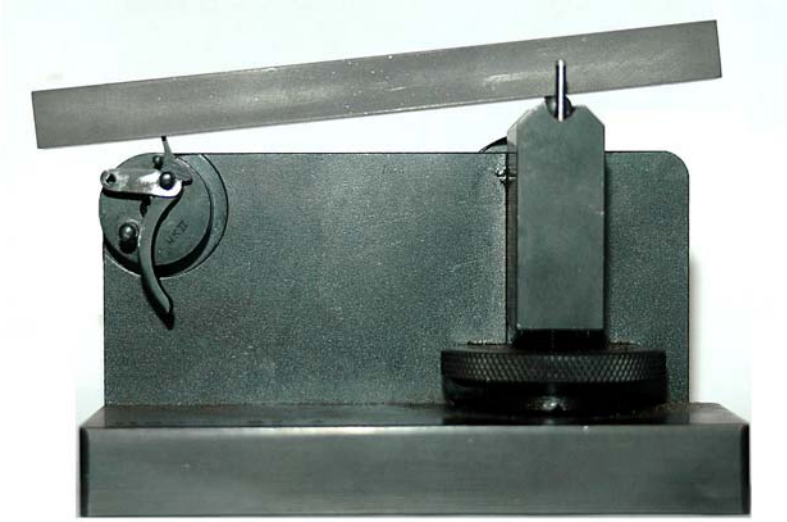


Figure 17: Polishing Trigger Engagement Surface

I coated the trigger engagement surface with a blue marker and adjusted the jig until my fine ceramic stone #080-721-604 was polishing the surface flat. I polished until all the tooling marks were removed. I finished with the extra-fine ceramic stone #080-721-601 to get a very smooth surface.

After reducing the depth of the sear, and polishing the trigger and sear the trigger broke cleanly at 2.1 pounds with just a hint of creep.

Polishing Pivot Pins

Figure 18: Pivot Screws

The bolt and trigger pivot screws were very rough so I chucked the screw heads in my cordless drill and used 600-grit wet/dry paper to polish them. I didn't remove all of the tooling marks because this would alter the diameter of the pins, but I polished just until they were smooth and there were no rough edges. You can see the bottom screw is much rougher and more pitted than the top screw.

Figure 19: Polishing the Cylinder Pin

I chucked the cylinder base pin in my cordless drill and polished it with 600-grit wet/dry paper. The pin had tooling marks left over from the manufacturing process and I wanted to smooth them down just a bit.

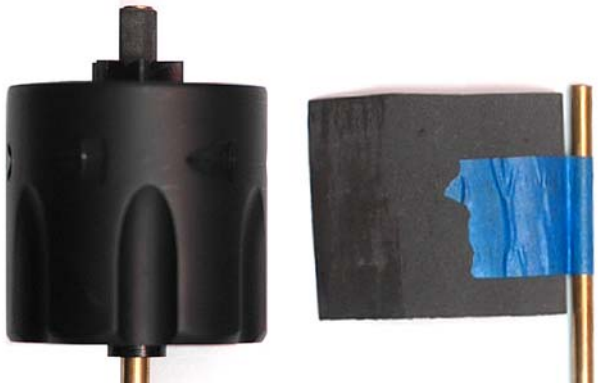


Figure 20: Polishing Cylinder Base Pin Hole

I taped a piece of 600-grit wet/dry paper around a 3/16 piece of brass rod and ran this in and out of the cylinder base pin hole. This polished out any burrs which allowed the cylinder to rotate much more smoothly.

Figure 21: Cylinder Gas Ring and Ratchet

I carefully polished off any burrs from the cylinder ratchet on the rear of the cylinder, and the gas ring on the front of the cylinder with a 400-grit stone. I only polished these areas; I didn't want to remove any metal otherwise I would increase end shake which would also affect headspace.

Replacing the Hand Plunger Spring

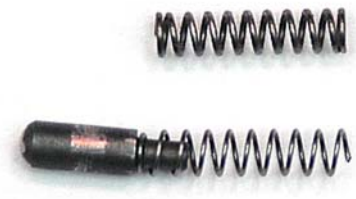


Figure 22: Replacement Hand Plunger Spring

I felt the hand plunger spring was way too strong so I replaced it with a piece of 0.012 spring from Brownells spring Kit #69 #025-069-000. I cut the spring to the same length as the original and pinched one end so it would fit over the end of the plunger. The spring still provides tension to keep the hand in contact with the ratchet on the cylinder, but the cylinder now rotates much easier.

Reassembly

Throughout the polishing process I reassembled and disassembled the gun many times to test for fit and function. Now that everything was polished and fitted, exposed metal was cold-blued, and the gun functioned correctly it was time to reassemble the gun for the last time.

As I reassembled the gun I lubricated all parts that rubbed together with Brownells Action Lube Plus #083-050-002. This is a synthetic grease that I use for the internal moving parts on all my firearms. I applied small amounts of the grease using a toothpick to pivot points and the trigger and sear. I also applied a touch to the end of the hammer spring where the roller rides, and the ends of the trigger and bolt return spring where they ride against the trigger and bolt.

The leaf of the bolt/trigger spring that rests on the trigger and acts as the trigger return spring I bent up until it was just touching the trigger. I tested it to make sure the trigger would still function correctly. This lightened the trigger pull to 2.1 pounds.

Figure 23: Loctite Blue 242

I discovered while dry-firing both revolvers that the frame screws became loose. This would not be good, especially during a cowboy match. As I reassembled the gun I cleaned each threaded hole and corresponding screw with acetone, then applied a drop of Loctite Blue 242 to the screw threads. A little goes a long way so if it looked like I applied too much; I touched the end of a cotton swab to the drop to soak up the excess.

Primer Test

My final test was to prime six .45 LC cases with CCI #300 large pistol primers, but no powder or bullet. CCI primers are harder than other brands of primers, so if the gun will pop CCI primers I should have no misfires. I loaded the primed cases into the cylinder and they all fired with no problems.

Summary

I performed all the same procedures to gun #85 so now both guns are competition ready. I now know more about the Colt action than I did before, and I have two more cowboy guns that I can use, or loan out to friends who come along to a match with me. Both of these guns were almost ready to go right out of the box, even though all the screws needed some Loctite, but a little tweaking and polishing never hurts to improve performance.