

Tuning the Uberti Open Top Revolvers

By

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Part 1

In the June and July, 2008, issues of the Chronicle we tuned up a Pietta cap and ball revolver for CAS competition. The next few months, we'll tune an Uberti open top. In addition to its line of cap and ball revolvers, Uberti also makes reproductions of Colt cartridge conversions and the 1872 Open Top. Photo 1 shows an 1851 Navy on the top, a conversion of an 1860 Army in the middle, and an 1872 on the bottom.



Photo 1

The tuning techniques for all three are essentially the same, so this article will cover all three. From left to right, photo 2 shows the frames for the 51 Navy, the conversion, and the 72.



Photo 2

Photo 3 shows a top view of the three frames.



Photo 3

The back of the frames are all lined up, but the plate on the conversion frame extends much further forward than the recoil shields on the 51 and 72. (This is one difference that we will address when we are doing our tune-up.) Photo 4 shows the cylinders from out 51, the conversion, and the 72.



Photo 4

And, Photo 5 shows the cylinder ratchets (same order).



Photo 5

It is apparent from a side-by-side comparison that the ratchet of the cap and ball cylinder (the 51) is much different than the ratchets on the conversion and the 72.

The cap and ball revolvers use a single-tooth hand. The conversion and 72 use a two-tooth hand, as does the Colt Single Action Army and its clones. (The SAA was the next evolutionary step from the 72.) Photo 6.



Photo 6

This has some impact on tuning since hand pressure on the ratchet helps control cylinder over-rotation. The big single-tooth hand stays constantly engaged in the ratchet throughout the cylinder's entire rotation and acts as a brake on the cylinder. This combined with the large surface area and increased friction of the cylinder arbor (which is much larger in diameter than the cylinder pin on a SAA) and the fact that the arbor is usually covered with grease, which further increases friction, makes it unusual for a Colt cap and ball to over-rotate. On a two-tooth hand there is a slight overlap between when one tooth stops rotating the cylinder and the next tooth takes over. If the handspring is too weak or the bolt timing a little off, a conversion or 72 is

more apt to over-rotate than a cap and ball revolver. Handsprings are the weak link in all open tops and we will permanently fix that problem.

The next noticeable difference is in the wedges used on the three guns. The cap and ball uses a wedge with a spring in it. The tip of the spring, where it sticks through the barrel slot, has a hook on the end. The conversion and 72 use a flat steel wedge with a small recess milled in it. Photo 7.



Photo 7

The most common problem area on Uberti open tops involves these wedges. Most discussions around the campfire go something like – “the proper way to adjust the wedge on a cap and ball is to push it in so that the hook on the end of the spring catches on the opposite side of the barrel. The hook is there to keep the wedge adjusted.” On the conversions and 72’s the conventional advice is normally – “push the wedge in until the milled recess is slightly inside the barrel, then install the wedge screw and push the wedge back out until it seats against the screw. That is how the wedge is adjusted.” The hook on the wedge on a cap and ball and the wedge screw on a conversion and 72 are not intended to be adjustment mechanisms. Their primary function is simply to keep the wedge from falling out and getting lost. The reason open top shooters go through these machinations is to keep the barrel from moving too far to the rear, thereby eliminating the cylinder gap and causing the cylinder to drag or bind-up entirely. As part of our tune-up we are going to fix that problem once and for all as well.

The first things we have to do before starting our tune-up is to fully inspect and function test the gun. Rather than cover the same ground, now is a good time to re-read the inspection portion of the Pietta articles. You did save the June and July 2008, issues of the Chronicle didn’t you? If not, they can be found at

<http://www.theopenrange.net/forum/index.php?topic=5659>

As part of our inspection one of the things we are looking for, and to clean up or polish, are burrs and rough surfaces. One of our tune-up guns had the granddaddy of burrs in it. Photo 8 shows a burr that is roughly one-quarter inch wide and one-half inch long that was curled up inside the frame like a party whistle.



Photo 8

Definitely had to deburr that burr. Another problem that seems to affect Ubertis more than Piettas is that the lever latches are often loose from the factory or fall out after a few matches. Photo 9 shows a latch that was only finger tight in a brand new Uberti 51 Navy.



Photo 9

In this case, the machining on the dovetail and the latch is very precise; there is no gap or up and down movement. It just slides from side-to-side with light finger pressure. Rather than peen, dimple, stake, or any of the other things that could be done to secure the latch, a drop of red loctite in the dovetail is a permanent fix and there is no chance of marring the finish on our gun. Identify and make a list of all the little things you find that will need addressing before the gun is reassembled. Since we have dealt with examples of common fit and finish issues in the

Pietta articles, we won't spend more time on those issues here. Instead, we will focus on some specific problem areas and how fix them.

In the Pietta articles we also discussed some tools that would be needed to work on our guns. Since most people don't have milling machines or lathes in their garages, in this article we are going to use tools that many people do own or can borrow from a pard. Photo 10 shows a basic Home Depot type drill press.



Photo 10

Nothing fancy, just a tabletop model. Photo 11 shows a typical drill press vise.



Photo 11

We will need a vise to hold our work while we are drilling some holes needed to tune our guns. Photo 12 shows a couple of center punches.



Photo 12

On the right is a standard old semi-dull center punch. We are going to be center punching some pretty precise locations. So, we are going to use a new (or freshly sharpened) prick punch like

the one on the left. The prick punch has a tip with more taper than a standard punch and will allow us to more precisely locate the punch tip on our work. We are also going to scribe some fairly precise lines. When scribing, remember that if the tip of the scribe is held vertical our lines are not going to be where we want them. Photo 13 shows a scribe held up vertically against a work piece.

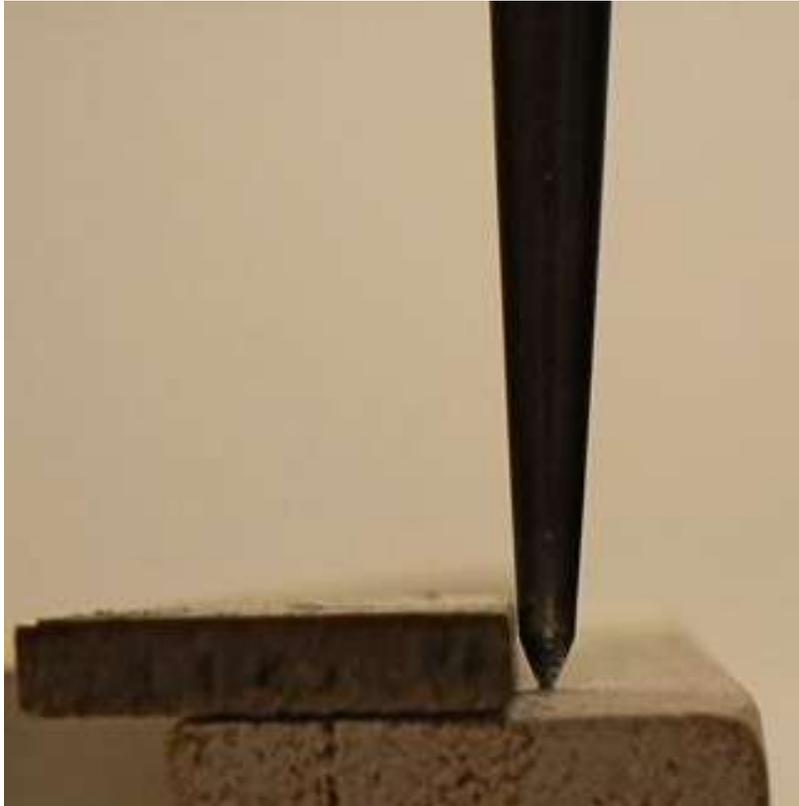


Photo 13

Notice that the tip of the scribe is not scribing along the edge of the work piece, it is scribing to the right several thousandths of an inch. Hold the scribe at an angle so it marks a true and correct line on our work. Photo 14.

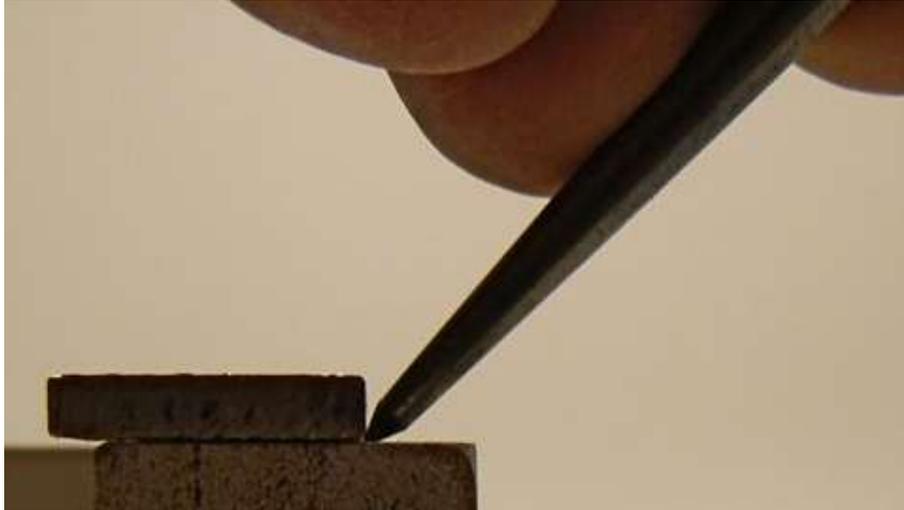


Photo 14

With these basic tools on hand and procedures in mind, let's begin our tune-up.

In the Pietta article we spent a lot of time refitting the cylinder bolt. Uberti bolts are generally "sort of fit." They are not set up ideally, but they do usually work as they come from the factory. Photo 15 shows a typical Uberti open top bolt.



Photo 15

The workers at Uberti typically grind a taper on one side so that the bolt head does “sort of” fit into the cylinder notches. Fitting the bolt so both sides of the bolt are parallel with each other would be better, but Uberti’s method of fitting bolts does make the bolt serviceable. Photo 16 shows a bolt out of a brand new Uberti that was ground on the wrong side.



Photo 16

If this happens in one of your guns, it's time to order a new bolt as this one is a problem waiting to happen. Here's why. Photo 17 shows a head-on view of the bolt depicted in Photo 15.

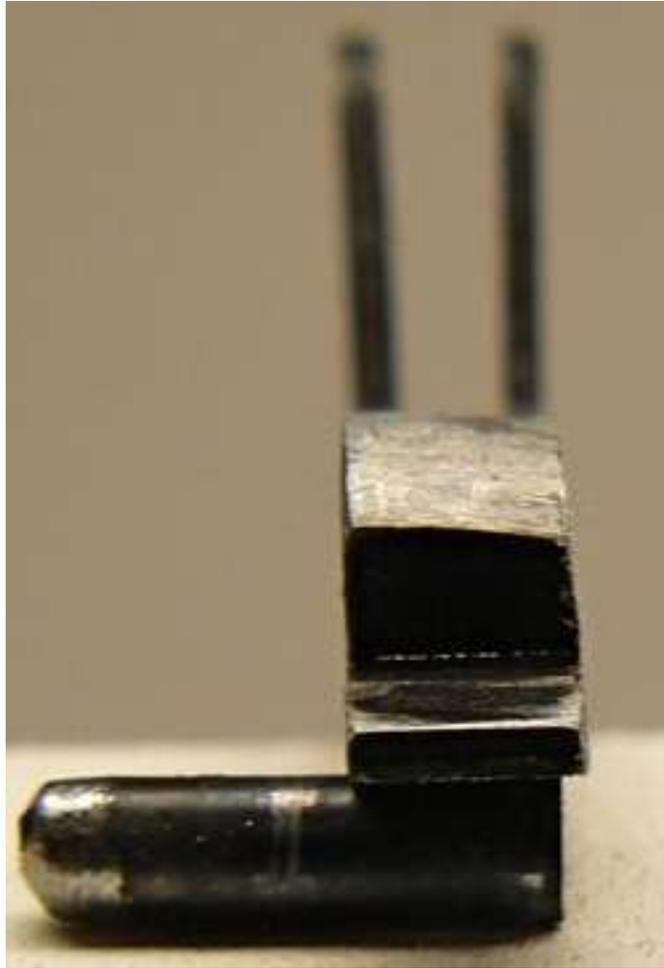


Photo 17

The side of the bolt head at “A” is vertical and higher than side “B”. The top of side “B” is also tapered slightly towards side “A.” Side “A” is taller because the cylinder notches are machined off-center from the centerline of the chambers and the chamber walls are, therefore, thicker where “A” engages the cylinder notch. Photo 18 shows the BOTTOM of the cylinder.



Photo 18

The cylinder rotates clockwise, but because we are looking up from underneath it is rotating in the direction of the green arrow. Notice that the cylinder notch is to the right of the nipple. The nipple is on the centerline of the chamber; this shows how much the cylinder notch is offset. As our cylinder rotates, the bolt drops into the lead at “B” and slides into the notch. Side “A” of the bolt in Photo 17 slams into the cylinder notch wall at “A” in Photo 18. That’s why side A needs to be square with the cylinder notch walls and why its extra height also helps. The extra height gives the bolt head on the thrust side of the cylinder’s rotation more engagement material to stop cylinder rotation and firmly lock up the cylinder. If side A is tapered or worn (or the cylinder notches are worn) the bolt can bounce out and cause cylinder over-rotation. Photo 19 shows the bolt fully engaged in the cylinder notch.

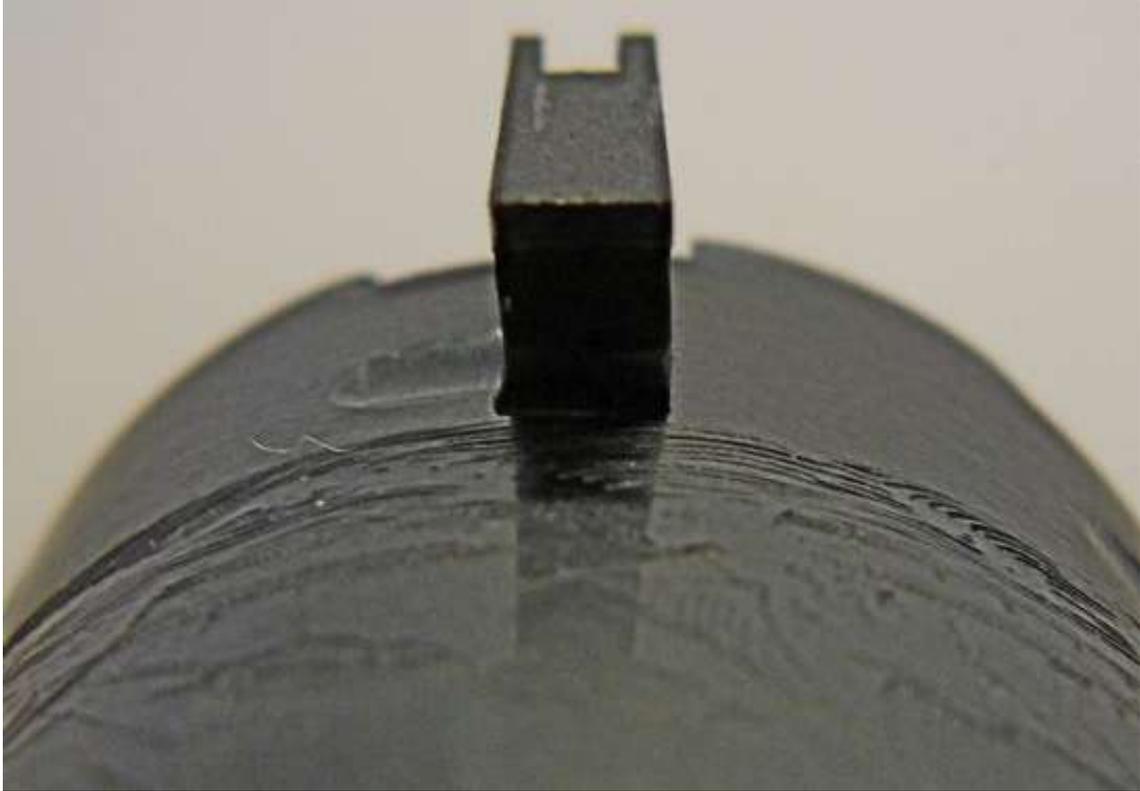


Photo 19

If your bolt fits the notches, we are ready to proceed. If it doesn't, or the taper is on the wrong side, follow the instructions in the Pietta article and refit a new bolt. Just remember any material that needs to be removed should always be removed from side "B" of the bolt. In part 2 we will alter the hand and frame to use a coil spring and plunger.