

## Tuning the Uberti Open Top Revolvers

By

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### Part 3

Parts 1 and 2 of this series dealt with more or less standard action tuning procedures and between them and the information in the Pietta articles, the actions on your guns should be a little smoother. However, a smooth action is useless if the cylinder binds and the gun is difficult or impossible to cock. This difficulty comes primarily from the cylinder gap closing because the wedge is going too far into the barrel, or powder fouling building up on the face of the cylinder (especially with black powder). The reason this occurs with Ubertis is because almost every Uberti open top has a poorly fitted arbor. In almost every case, the arbor is too short. Since the arbor is too short, as the wedge is pushed into the barrel it tilts the barrel backwards and it binds on the cylinder or reduces the cylinder gap to the point that powder fouling makes the cylinder hard to turn.

To test for this condition, remove the cylinder and make sure all gunk and dirt is out of the arbor hole in the barrel. Put the barrel on the arbor at a 90-degree angle to the frame and make sure it is fully seated on the arbor. Photo 43.



Photo 43

(Make sure the arbor is in the arbor hole and not the bore!) Now twist the barrel down until it comes to rest on the barrel alignment pins or the frame. Photo 44.

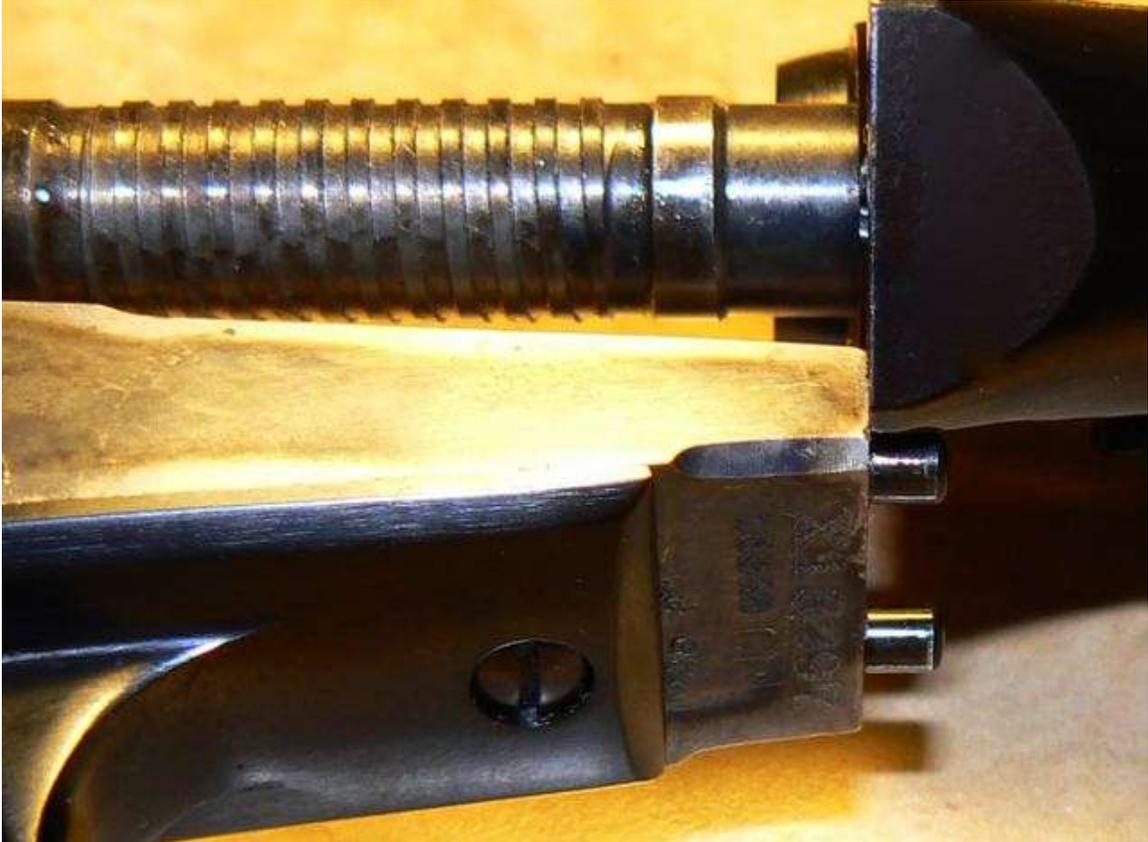


Photo 44

If the arbor is properly fitted, the barrel will either mate perfectly with the frame or be only a FEW thousands of an inch behind the frame. Perfect alignment is shown in Photo 44. On virtually every Uberti, the barrel will wind up a good distance behind the front of the frame. Photo 45.

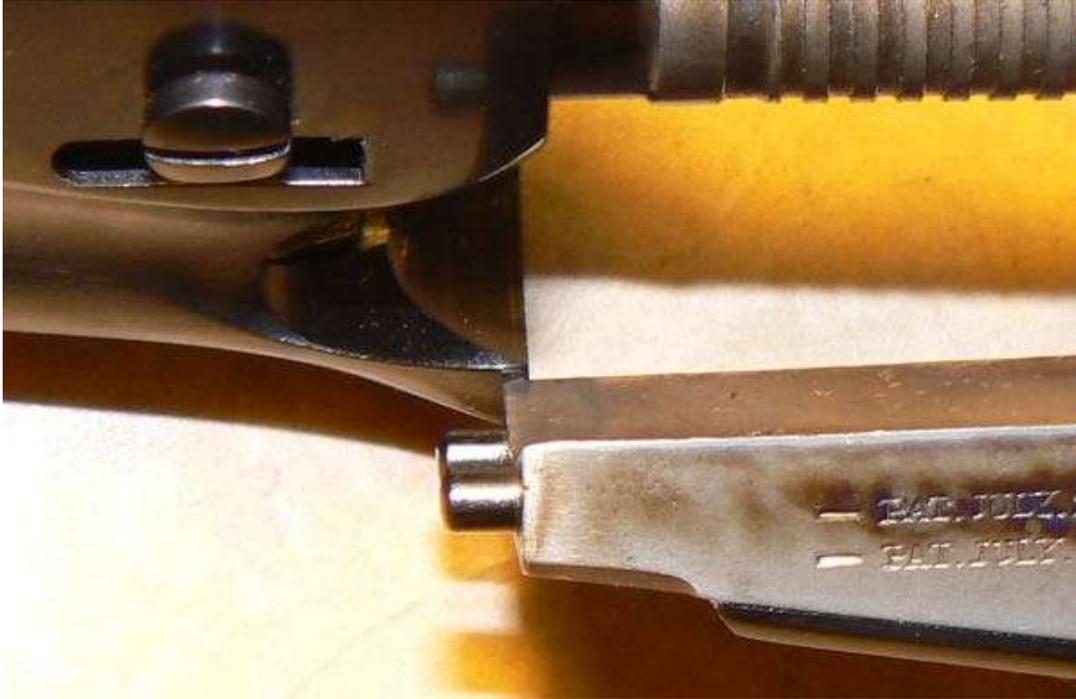


Photo 45

As long as this misalignment between the barrel and frame exists, the cylinder gap will never remain perfectly set. Once the arbor is properly fitted, it will remain that way for virtually a lifetime. Photo 46 shows an original Colt.

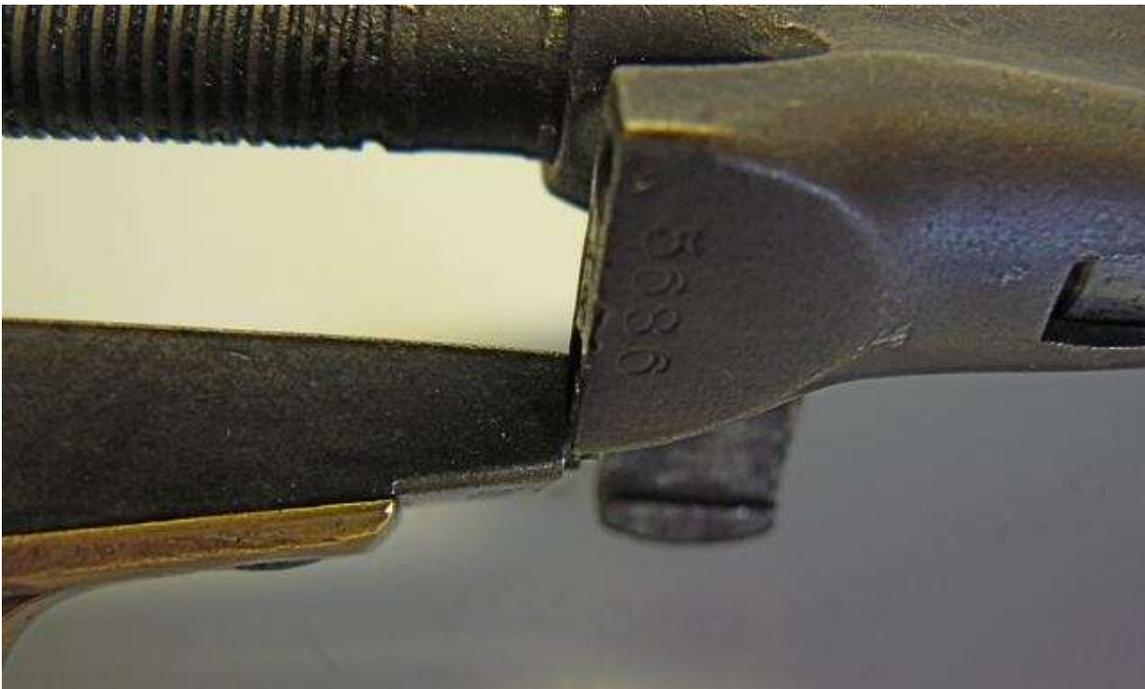


Photo 46

It is over 140 years old; there is a lot of wear on the arbor and in the arbor hole in the barrel, yet it still mates perfectly with the frame. So, how do we fix this problem? More importantly, is there a way the home gun tinker can repair the arbor?

One way to repair the arbor is to remove it and either try and find one that is longer or to weld up the existing arbor and machine it to fit. This is not practical for the home smith. There are a few other things that can be done. A precisely located hole can be drilled in the end of the arbor and a spacer installed. Photo 47.



Photo 47

Another method is to drill a hole in the arbor recess in the barrel and install a setscrew. Photo 48.



Photo 48

The barrel/frame fit can then be adjusted by simply turning the setscrew. Photo 49.



Photo 49

A setscrew can also be fitted to the end of the arbor. Photo 50.



Photo 50

All of these methods present some potential problems. For example, the hole for the setscrew or spacer has to be centered well and the hole tapped perfectly straight or the setscrew or spacer

won't seat squarely on the top of the arbor or in the center of the arbor hole. Also, the bottom of the arbor hole on Ubertis is typically not flat. It is concave in the center. That is why the setscrew or spacer must be well centered. If it is not, the screw will hit the concave area of the arbor hole and give poor contact with the barrel. Sometimes the arbors are hardened fairly deeply and are difficult to tap. Besides these mechanical problems, there is also a practical problem on many Ubertis.

The cutout in the barrel under the loading lever is sloped. On many of the open tops, cap and ball and cartridge, the bottom portion of the arbor hole is paper-thin or has been perforated during the machining process. For those guns with thin metal in the arbor hole or for those that are perforated, this makes installing a setscrew an unsatisfactory fix. (It is also somewhat difficult to measure exactly how thick the metal in the arbor hole is because of the sloping surfaces.) Photo 51 shows a "C" series second generation Colt 51 Navy barrel looking from the cylinder end.



Photo 51

The center hole is the arbor hole and it can be seen that the lower half of the hole is perforated. Photo 52 shows the arbor hole looking down into the loading lever cutout.



Photo 52

Again, the perforation is apparent. So, does this mean if the metal in the arbor hole is thin or perforated that we can't fix the arbor fit? No! The cutout in the barrel is sloped. So, even though the bottom half of the hole may be paper thin or perforated, the upper half is quite thick and will serve as a solid bulkhead for our arbor to bear against. It turns out the solution to our problem is something a lot of us already have lying around in our gunrooms. A Dillon #3 locator button! Photo 53.



Photo 53

(Dillon part number 14060.) That's right, one of those little brass buttons that locates the casings in all of the Dillon loading machines. The button is cheap, big enough to make solid contact with the bottom of the arbor hole, yet small enough that if we make a small centering error it will still fit in the arbor hole, and, being brass, it is easy to machine.

The first thing we need to do is look at the end of the arbor. It's either flat, or it isn't flat! The arbor in Photo 54 has a small nub left in the center from when the arbor was turned during manufacture.



Photo 54

That little nub is right where our locator hole has to be drilled, so it has to be removed so we can get an accurate center punch location. Take a stone and stone the nub down until the stone makes uniform contact with the tip of the arbor. Photo 55.



Photo 55

On our arbor, the end of the arbor is shaped like a donut. The center is flat as are the edges of the arbor, but the area in between is slightly lower. Photo 56.



Photo 56

As long as the nub is flat and there is even contact from the stone around it, we don't need to stone any further. At this point, we can use the bright spot left by the nub to center our punch. Remember to use a new, sharp, prick punch so you can see where the punch tip is contacting your work. Angle the punch, put the tip in the center of the spot left by the nub, photo 57,



Photo 57

straighten the punch and when you are certain it is centered, give it a tap with a hammer. Photo 58.



Photo 58

If there is no nub, or if the end of the arbor is all bright and shiny after you have stoned off the nub, or you don't trust your eyeball centering on the nub, then we have a little more work to do to make sure our center punch is accurately located. Take a black magic marker or sharpie and blacken the end of the arbor. Photo 59.



Photo 59

Now we need to scribe lines in the black surface to locate the center of the arbor. A machinist's centering square would be the simplest thing to use. Photo 60.



Photo 60

It is designed so that when it is placed on a round object the leg of the square runs through the center of the round object. Photo 61.



Photo 61

Not everyone has one of these things and they usually can't be purchased at local hardware or tool stores. An alternative is a combination square that can be purchased at many local stores. Photo 62.



Photo 62

This is a cheap one that was picked up from Harbor Freight for \$7.00. Remove everything but the center finder and you wind up with a giant, but serviceable, version of the little machinist's square. Photo 63.

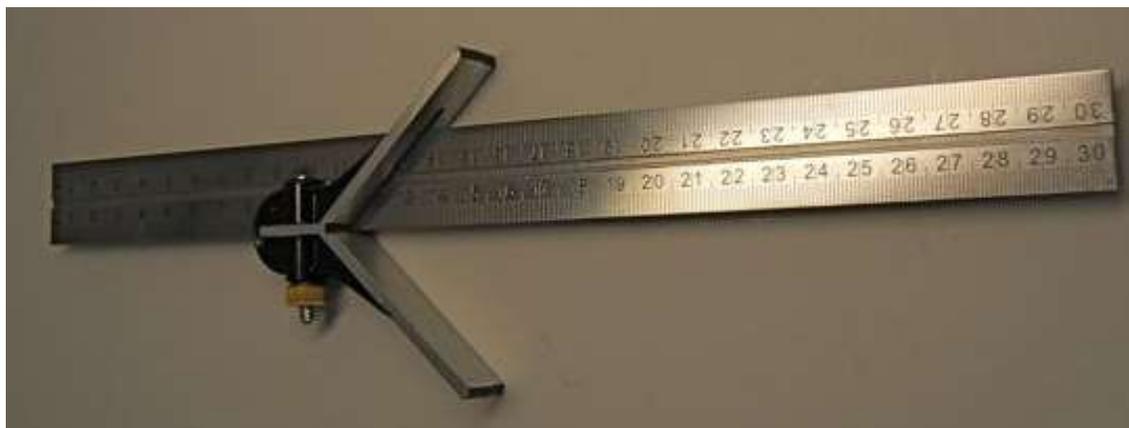


Photo 63

Put the arbor in a vise with the tip sticking up far enough so that your square can fit down tightly against the end of the arbor. Photo 64.

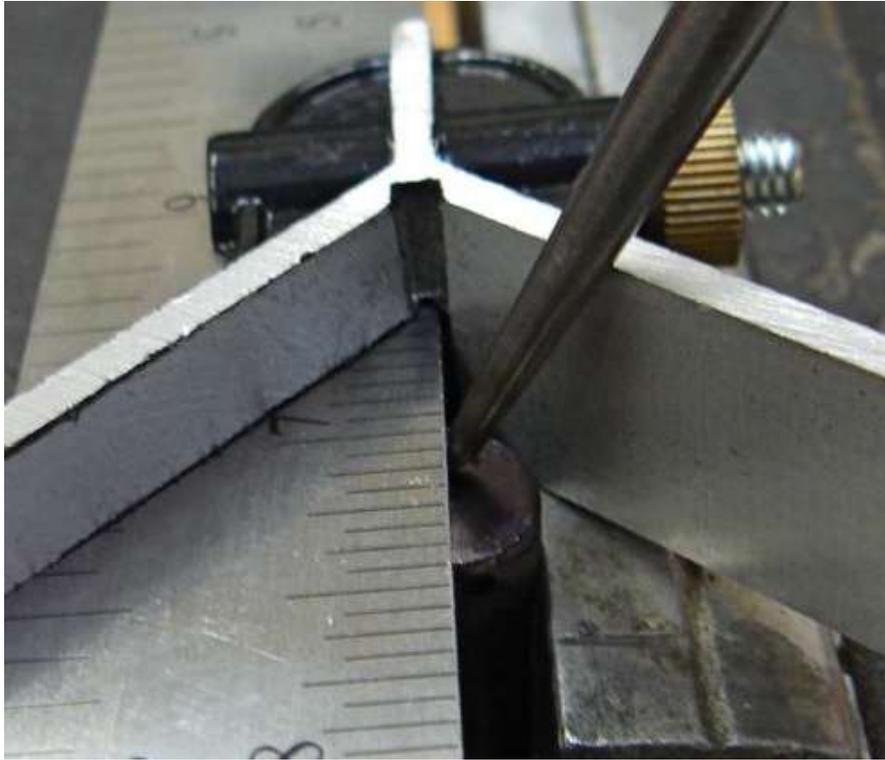


Photo 64

(Make sure to use some shims or padding so you don't damage the sides of the arbor.) Scribe a line down the center of the arbor. Remember to tilt your scribe so that it makes an accurate line. Photos 13, 14, and 64. Turn the square 90 degrees and make a second line. "X" now marks the spot. Photo 65.



Photo 65

Tilt your punch to accurately locate it at the center of the X, photo 66,



Photo 66

tip it up, photo 67,



Photo 67

and when you are sure it is centered give it a tap with a hammer. You should now have a nice, centered, punch mark. Photo 68.



Photo 68

In the next installment you will get to do some home machining and use that Dremel you have been dying to use!