

RIFLE BARREL FITTING

7X12 MINI LATHE

Les Brooks, retired gunsmith

I have owned several lathes over the years including South Bends, Atlas, Clausen 14, Sheldons, and Logans . The mini lathes are not perfect, but I have tried these to satisfy my own curiosity. If a person will take time to line up these little machines you can do barrel threading and chambering. I will be test firing my 204 Ruger with the Shilen replacement . A report will be written up so all can see what can be made without having several thousand dollars in machines.

A mini lathe can be used to fit a barrel with a couple of changes. The #2 sporter weight barrel will fit into the spindle hole. The 3 in. , 3 jaw chuck has a small hold through the body which you cannot place a barrel deep enough into the headstock to chamber. With my 4 screw chuck and a 4 screw spider shown in the picture you have space for a reamer and a floating reamer holder.



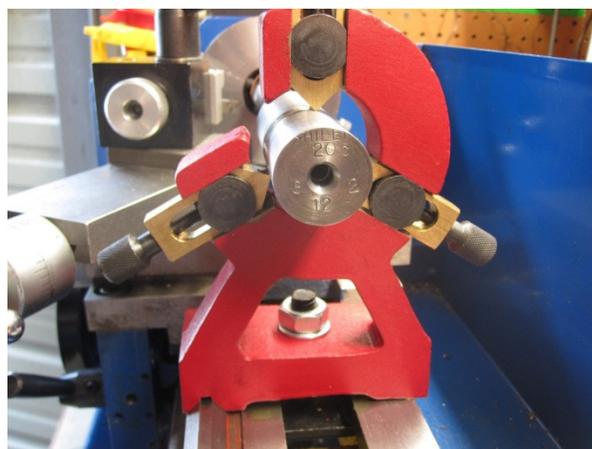


This chuck works well getting the barrel dialed in with the indicator. The spider on the left end of the spindle is set in place and indicated with the barrel on the tail stock center. I will not keep this setting as the next thing is to indicate the main 4 screw chuck. Turn the shank of the barrel down with the cutter going towards the tailstock center. The 4 screw chuck doesn't have much grip on the barrel so turn down from left to right. Leave a longer shank for the steady rest of hold the barrel when you are ready to chamber. Turn down for the correct thread diameter for the mini Mauser action. 22mmX1.5 threads is a cut and try with a tight fit. Lube the threads with white grease to keep from galling the action threads. The thread length is about .690 and a combination of gears will get very close to the correct size. A floating reamer holder of this type will allow the reamer to line up better than using a chuck or center in the tailstock. The round end is a piece of O-1 steel screwed to a short #2 center. There is another piece of O-1 inserted inside the handle end for the ball to push against and will float the reamer. The O-1 pieces must be harden and draw to a very light straw. There is about .020 clearance for the ball to fit up against the flat plate inside the reamer holder. This is the best way to use these small lathes. The reamer pilot will seek the center in the bore and the round ball will push the reamer in line to cut the chamber.





Place the barrel back into the spindle chuck and on tailstock center to indicate the barrel so that you have about 6 inches of barrel out. When the dial indicator is set up next to the screw chuck you can zero this short section of the barrel and it is very close to the bore line. Place and adjust the steady rest for chambering. This will leave about 8" for the chamber reamer and the floating reamer holder.



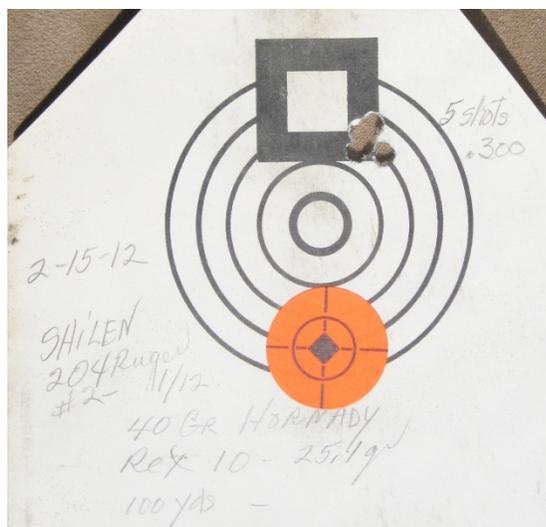
I made a barrel vise to remove the old barrel using some scrap 1X2 aluminum. This worked fine for a quick vise.



I went to the range to test fire the rifle with three different loads. The chamber came out perfect with the diameter and the headspace was set to .001 plus. Some of the original reloads from the first barrel were shot for a group. I fired about 6 rounds to test fire and checked to see where it was hitting at 50 yds. Moved out to 100 yds and shot a 4 shot group which measured .750 inch. These shots were fired without cleaning the barrel until after I had finished the tests. The barrel is a slight bit smaller than the original. Will see how well it groups when the wind dies down in a few days.

I decided to glass the action and float the barrel because the Shilen #2 is slightly small than the Krieger #2. The Nikon 6X18 helps me see the targets and I used some contrast glasses to view the bright orange targets. I fired about 30 total rounds without cleaning the barrel. The Win. 34 gr bullets shot about .825 groups first and then the Rem. 32 gr rounds grouped a little closer. The final rounds were shot with handloads which I had ready for the original Krieger barrel. The Hornady 40 bullets and Reloader 10 shot the best of all of the test rounds. 5 shots in .300 inch at 100 yds See the targets below





I don't know how many rounds were fired into this target.

I cleaned the barrel and now will be loading up some of the Hornady 40 grs to test more in a few days.

Here is the final rifle with the 6X18 Buckmaster Nikon scope.



The rust bluing is not good enough, so I will make up a new tank and a better burner to redo the finish.

THE END OF A PROJECT----FEB.15—2012 LES BROOKS

