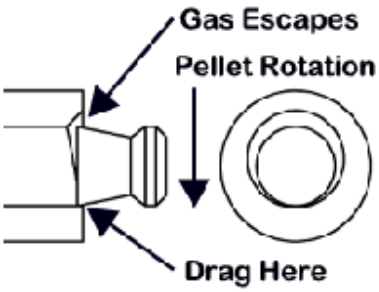
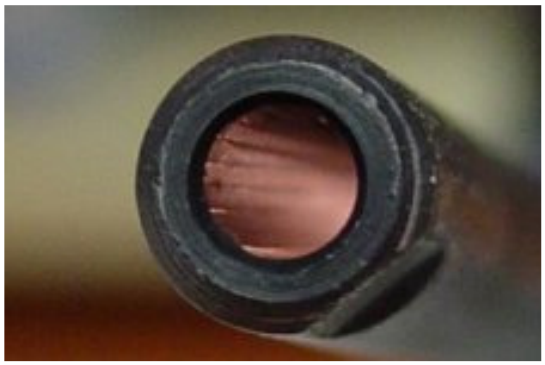


Barrel Muzzle Crown Procedure



Description

The crown of a barrel is the "edge" where the bore meets the end of the barrel. Uniformity of the crown is important to the accuracy of the airgun. An uneven, or damaged crown will allow the high-pressure gasses pushing the pellet down the barrel to escape unevenly. At the moment the pellet leaves the bore, this will push the rear of the pellet in the direction of the escaping gasses. Furthermore the portion of the bore still in contact with the pellet will cause drag which will add to the affect of the gasses. Any deviation in the shape of the crown will cause this to happen with varying degrees of severity.

Tools & Supplies

1 Metal Ball Bearing

The ball must be larger than the bore. A screw with a ball style head can be used if you are using a power drill or drill press. A suggestion from Rogue Possum is to use 3/8 inch sling shot ammo as the polishing tool. You can even chuck this in a drill or drill press to accomplish the task quicker.

Metal Polishing Compound

Two different grits will allow you to rough out the large imperfections and then put a fine finish on afterwards (example #120 grit rough, and #280 grit fine).

1 Pellet

This is used to block the bore of the barrel and keep grinding compound from going farther down the barrel than necessary.

A Wooden or Plastic Rod

This rod will be used to remove the pellet from the end of the bore. The rod must be able to fit inside the barrel and be longer than the length of the barrel.

Magnifying Glass (optional)

This makes it easier to inspect the initial condition of the crown and check on the progress of your work.

Cleaning Supplies

You will need some paper towels, cotton swabs, and standard bore cleaning supplies

Procedure

Remove Barrel
It is important to have the barrel removed from the gun if possible. This makes it easier to work with.

Inspect Crown
It is important to inspect the crown so that you are familiar with its irregularities. Once you have identified the irregularities you can plan on how you are going to remove them. It will be easier to inspect the crown if you use a magnifying glass. If the crown is out of center it may help to mark the end of the barrel to show the point where the crown is closest to the bore. If the crown is damaged, you may also want to mark those spots. A fine point permanent marker works well for this.

Prepare for Grinding
Push the pellet into the muzzle of the barrel with the skirt of the pellet towards the crown. This will keep the polishing compound from getting too far down the bore. Be careful not to push the pellet in too far. The closer to the crown, without interfering, the better.

Grinding
A two stage grinding process is recommended. First is the roughing stage. In this stage you will shape the new crown. This is where you will get rid of the existing irregularities. Next is the finishing stage. This is where you will polish the rough crown to give it a smooth finish. You shouldn't do much shaping during this stage. The intent is to polish the rough surface.

Begin the rough grinding by making sure that you know where the grinding needs to take place. Once you are orientated coat the ball with rough grinding compound. Start grinding away the existing crown. During the grinding process be sure to use the entire surface of the ball. If you do not constantly rotate the ball it can be ground to the shape of the crown. This will affect the final outcome of the process. Check your progress often. It is better to go slow than have to undo damage. Whenever the gritty feeling stops you will need to add more grinding compound to the ball. Once you have the new crown shaped and uniform you can move on to the finishing stage.

To finish the crown clean away the rough grinding compound. If any of the rough grit is left behind on the barrel or the ball it will scratch the surface as you try to polish it. Once the barrel and ball are clean start. Apply the fine grit compound to the ball and begin polishing. Again, check your progress often. It helps to use a magnifying glass during any inspecting.

Clean & Install Barrel
Clean the grinding compound off of the front of the barrel. Using the paper towels and cotton swabs remove as much grinding compound as possible so the bore will not be damaged during the normal cleaning. Remove the pellet from the barrel using the wood or plastic rod, forcing it out from the chamber end of the barrel. Clean the barrel thoroughly to remove any residue that may be left behind from the grinding process. Once the barrel is clean, install your freshly crowned barrel back on the airgun.

Conclusion
Once the crowning process is complete you may have to sight your gun in again. It is common for the Point of Impact to shift after the crown has been re-ground. Depending on the initial quality of the crown you will see varying degrees of improvement.

This is only one method of re-crowning a barrel. You can use power tools to speed the process. There are dedicated tools that are made especially for re-crowning barrels. You can also have a gunsmith perform the operation for you. When done correctly, re-crowning a barrel can be one of the greatest improvements in accuracy.

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