

Dave Manson Precision Reamers
8200 Embury Road ph: 810-953-0732
Grand Blanc, MI 48439 fax: 810-953-0735

The BEST in the Business

Using the Manson Precision Long Forcing Cone Reamer

Most knowledgeable shotgunners know that extended forcing cones can lower perceived recoil and improve pattern density by reducing shot deformation. This translates into better scores for competition shooters and greater enjoyment for hunters—both good reasons for customers to come to you for this work.

Some shotguns aren't good candidates for this alteration. Those whose barrels taper down very quickly ahead of the chamber could become dangerously thin if long forcing cones were cut in them. You'll have to evaluate each job and decide whether it is appropriate—if in doubt, don't accept the job. You'll avoid a potentially dangerous situation and your customers will respect you for it.

Some modern shotguns have their barrels hard-chrome plated in the chamber and bore. High Speed Steel forcing cone reamers won't cut through this plating and attempting to do so may damage the tool. Check for the presence of chrome using cold blue: if it takes on the chamber area, it's steel and can be cut; if the surface won't blue, it's likely chrome-plated and should be avoided.

Position the barrel(s) horizontally in a padded bench vise with the muzzles tipped slightly down. Clamp a suitable tap wrench on the shank square, cover the reamer with good-quality cutting oil and carefully insert it in the chamber, being careful not to scrape the sides. It's a good idea to place catch pans under the muzzle and breech ends of the barrel to catch any oil drips.

Turn the Long Forcing Cone reamer in a clockwise direction while applying firm forward pressure. The left-hand spiral design cuts with a smooth, shearing action, but requires greater cutting pressure. The reason we recommend positioning the barrel(s) horizontally is that it's easier to apply necessary cutting pressure in this attitude.

With that in mind, take 10 or so turns with the reamer, then withdraw, clean both reamer and barrel and examine the area you just cut. The surface should not show any chatter marks (spiral lines/ridges), but should be fairly smooth. Continue the reaming process, stopping periodically to clean chips from the reamer and workpiece and to inspect your progress. Don't allow chips to build up to the point that they fill the flutes—this can cause chatter or a rough surface finish.

Long Forcing Cone Reamers are designed so that the body of the reamer is ground to the same taper and size as a standard shotgun chamber and will cut only if great pressure is applied. The leading section of the tool, however, cuts more rapidly, and blends into the body of the tool at chamber diameter. This means that the reamer will cut fairly easily until the body of the tool fills the chamber, when cutting effort will increase greatly. At this point also, the new forcing cone will blend into the existing chamber.

Stop now to clean and inspect your work. If there appears to be a small step at the transition between chamber and forcing cone, it may indicate a slightly oversize chamber. Small steps here can be removed by running the reamer in a *little* further. Under no circumstances should the reamer be run into the barrel past the end of the flutes.

The new forcing cone should now be polished to reduce plastic wad deposits and to facilitate cleaning. A two, or three-stone brake cylinder hone (available from auto parts stores or Brownells), when run with oil in a variable-speed drill motor, will do a good job of removing reaming marks from this area. A high polish can be achieved using 3M "Scotch-Brite" pads held on a dowel or split rod, or a Brownells "Flex-hone". Either can be run with the drill motor and lots of oil.

We've found these procedures work well. As you develop experience with the process you'll probably be able to come up with better ways to do it. If you do, please let us know—we're always looking to improve our recommendations. Likewise, if you experience problems with ANY of our products, please call us BEFORE you ruin a job—we can probably help work through the situation.

Finally, when you've used your reamer to the point it no longer cuts as you'd like, return it to us—it can be re-sharpened for a nominal charge.