

UniqueTek “Tips” File #10: “Bullet Seating Stem Customization”

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The “stem” inside a bullet seating die is designed to cradle the nose of the bullet and ensure both consistent bullet seating depth and bullet alignment (a.k.a. concentricity or runout) within the case. But if the bullet you want to use has a shape that doesn’t mate well with the bullet seating stem in your die, it can result in excessive OAL variation and/or runout. Some stems are reversible (e.g. Dillon Precision), with one end shaped for ball and the other end shaped for flat-nosed bullets. Reversing the stem is often enough to correct the problem. But if the die you use doesn’t have a reversible or replaceable stem, or you’ve tried both ends of a Dillon stem, what do you do?

Fortunately, there is a way to customize the bullet seating stem for a particular bullet shape. And it is easy to do at home, without the need for a machine shop. All you’ll need are the items listed below.

What you’ll need:

- Hot Glue Gun
- Brakleen® (or other good degreasing solvent)
- Case Lube (Hornady One Shot™, Imperial® Sizing Die Wax, etc.)
- Razor blade

Customizing the Bullet Seating Stem

Step 1: Disassemble Bullet Seating Die

Disassemble the bullet seating die. The only part you really need to remove is the bullet seating stem. Depending on the die design, it may not be necessary to remove the die from the toolhead, but it may be easier to remove the bullet seating stem if you do. You will need to adjust the die after modification, so loosening your die adjustment won’t matter.

Step 2: Degrease Bullet Seating Stem

Degrease the bullet seating stem thoroughly with Brakleen® or other strong degreasing solvent. It is critical that the pocket where the bullet nose contacts, is absolutely clean so that the hot glue will adhere well.

Step 3: Select a Representative Bullet

Inspect several bullets and select one that is representative of the type. Don’t use a bullet that has a dent, ding or other irregularity.

Note: If the bullet is a hollow point, you may want to fill the hollow (with modeling clay, plumbers putty, plaster of Paris, etc.). The hollow of hollow-point bullets is well known to be the most irregular feature. Filling it prevents the hot glue from entering the hollow-point. Thus, the modified bullet seating stem will align the bullet by engaging only on the outer bullet shape and not by engaging the hollow point.

Step 4: Lube the Bullet

Apply case lube to the bullet. The case lube acts as a “release agent” and keeps the bullet from sticking to the hot glue. A very thin coating is desirable and wax lubes (e.g. Hornady One Shot, Imperial Sizing Die Wax, etc.) are recommended. Don’t use a bullet lube.

Step 5: Heat Up the Glue Gun

Make sure that the hot glue gun has had plenty of time to come to full temperature. The hotter the glue, the more time you will have to work before the hot glue “sets”. Even then, you will only have a few seconds. You can also try warming up the stem and bullet using a hair dryer, as this will give you a few extra seconds to position the bullet before the glue cools.

Step 6: Apply Hot Glue and Press Bullet Into Stem

Apply hot glue into bullet cavity of bullet seating stem. Immediately press the bullet firmly into the hot glue. Hold firmly until glue has begun to cool. Set aside, with the bullet still in place, to cool completely before proceeding. Don’t apply too much hot glue. There should be only just enough that a tiny bit squeezes out all the way around the bullet. The more glue you apply, the more you will have to trim off.

Step 7: Trim Excess Hot Glue

Trim off all excess hot glue with a razor blade. Be very careful to not scratch the bullet seating stem. You may want to start with the bullet still in place, and then remove the bullet to finish. Remove all glue that is outside the stem cavity. Finish by wiping the outside of bullet seating stem with Brakleen® to remove all traces of hot glue. Apply a sparing amount of Brakleen® to a cloth, then wipe the stem so you don’t accidentally get any onto the hot glue in the bullet cavity.

Some seating stems have a vent hole that allows air to vent into and out of the seating stem each cycle of the press. You can clear the vent hole with a sewing needle or piece of stiff wire that has been heated just enough to easily push through the glue. You can also use a drill bit, but use one smaller than the hole and turn it with just your finger tips so that you don’t risk boring the hole any larger. You only need to clear a small pathway through the glue to allow air to vent. If your stem doesn’t have a vent hole, don’t worry about this step.

Step 8: Assemble Die

Assemble the modified bullet seating stem into the die. If the bullet seating die manufacturer recommends lubricating the bullet seating stem, apply the appropriate lubricant as recommended.

Step 9: Install and Set Up Die

Install the bullet seating die in the toolhead or press frame. Adjust the die as you normally would to set bullet seating depth.

The really neat thing about this technique is that if you screw up, the hot glue is easily removed and you can try again. The first time I tried this, it took several attempts before I got it right. And, if you change to a different bullet, you don’t need to buy a new seating stem or die. Just remove the old hot glue and start over with the new bullet.

ADDENDUM

Epoxy Instead of Hot Glue:

A customer recently sent me an email describing how he had done the same thing but using JB Weld instead of hot glue. As with everything, there are advantages and disadvantages of his method.

Advantages: JB Weld is permanent, hard and very durable.

JB Weld has a much longer “set time” (20 to 25 minutes) compared to hot glue, allowing you much more time to get the bullet aligned.

In addition, he used Dillon Dies, which have an easily removable seating stem that is relatively inexpensive and easy to get. He customized several seating stems and just swaps them as needed. And finally, he inserted the seating stem back into the die body to ensure precise alignment of the bullet while the JB Weld set and cured (15 to 24 hours).

The singular disadvantage in all this is that you must be very careful to not use too much JB Weld. Any excess that squeezes out inside the die would permanently bond everything together. The judicious application of a “release agent”, as described in Step 4, is an absolute necessity. And in the case of the Dillon die, don’t forget to apply release agent also to the pin that holds the seating stem in place.

Custom Seat Stems:

The original Dillon seat stem can be flipped to seat either round nose or SWC bullets. It does a good job with most common RN bullet profiles but not so well with SWC or FWC bullets. A few industrious handloaders are manufacturing custom seat stems and selling them on eBay and through other outlets. There aren’t many and the most notable is an alternative seat stem that fits in the Dillon Precision “New Dynamic” Bullet Seat Dies.

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Acknowledgements:

Robin Sharpless at Redding Reloading suggested this technique to me. He also “suggested” to me that it would make a good “Tips” file. Thanks for the subtle nudge.

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