

The Los Angeles Silhouette Club

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Secrets Of Reloading The 9MM

Being basically a revolver shooter I have never thought too much about problems that may arise in reloading for the auto-loading handguns. I spent quite a few years learning the tricks of reloading in order to get the most accuracy from a revolver. It wasn't until I began playing with a 9mm Colt Combat Commander though, that I gave any serious thought about reloading for the auto-loading pistol. As I was to find out, reloading a 9mm so that it will fire and function is one thing, but getting the most accuracy out of it can be another altogether.

My first step was to read through the reloading manuals. I have some that go back as far as 1939, but basically all they give is the reloading process and a listing of loads with different bullets and powders. There was not much information on "why" some of the autoloaders just do not shoot as accurately as they should. It was not until I read the new SPEER RELOADING MANUAL #12 that I ran across any real information on "why". While the Speer Manual has the standard reloading information, it also has a special section dealing specifically with the 9mm and it's special needs. Beginning on page 432, this handy section contains information that can only be found otherwise through trial and error. While most of the information is stuff we hand-loaders SHOULD be aware of, I found it helpful and a good point from which to work. Reading through all the manuals by the way, was interesting and did give me some insights. For instance, in Speer Reloading Manual #11 I found that with 9mm handloads of 28,000 CUP (Copper Units of Pressure), should you seat the bullet only .030" deeper into the cartridge case, the pressures jump to 62,000 CUP!! Enough to wreck a good gun. I got the idea from this that the 9mm can be touchy to reload and that careful attention to detail (such as over-all loaded length) is very important.

Another thing that I found was while the 9mm cases are supposed to be a certain length, there can be large variations, even when the cases are from the same manufacturer. Cases should be sorted according to head-stamp before reloading. I also found that among the guns firing the 9mm cartridge there can be variations in bore diameters. It is helpful when you are searching for accuracy to have bullets that fit the bore. The bore diameters can surprise you. While the 9mm bore is supposed to be .355" I found many guns have barrel diameters of .356" or larger. Some are as large as .358", especially among European-built guns.

After cleaning my empty cases I sorted them all according the head-stamps. Before sizing, neck expanding, and priming the cases I decided to check them for over-all length (OAL). To my surprise I found that the cases varied by as much as .020" in length. Using six different brands and checking ten of each, I found cartridge cases ran from .7355" in length to .755" for the long ones. This large variation can means that

some cases are not head-spacing on the case mouth as supposed, but rather are head-spacing on the extractor. This could account for sloppy accuracy in itself.

While checking the case lengths I decided to weigh the water capacity of some of them and found the cases I checked to vary as much as 3.1 gr. weight of water. While gunpowder is much lighter and would not vary that much, it still shows the internal variations from cartridge to cartridge.

After reading and checking dimensions I began to theorize that I might be able to increase the accuracy of the 9mm - at least in my pistol - by carefully measuring the cartridge cases and with precise loading. To test the theory I choose two bullets to use, the Speer 115 gr. and the Speer 147 gr. Gold Dot hollow-points. I decided to use only CCI #500 primers and Speer cases for reloading. For powders I choose two old-timers, Hercules Bullseye and Unique. To keep variables at a minimum I chose arbitrarily an over-all loaded length of 1.130". I loaded 10 at this length and function-fired them. They worked through the action smoothly and gave no problems. What I was seeking was a length that functioned without any hang-ups. While experimenting with OAL of the loaded cartridge CAN increase accuracy sometimes, at this point my only goal was to see if my idea about case lengths was valid.

The powder charge selected was in the recommended range in the reloading manuals. I did not chronograph any of them. All I wanted was a load that would be safe and would function in the firearm. I was not out to see how fast they would go, but rather, could I make any difference in the accuracy by checking the length of the cartridge cases. Reloading was done with once-fired cases. I loaded enough to fire 6 five-shot groups with each group of cartridges. For a greater statistical average a minimum of 10 5-shot groups should have been used, but at the time I was short on bullets and figured 30 shots would give a good indication.

All firing was done from 25 yards using an Outers Pistol Perch. For the first segment of testing I had four groups of cartridges. Loaded with the 115 gr. Gold bullet and 4.7 gr. of Bullseye, the cases were sorted as follows:

- 30 that were chosen at random and not checked for length
- 30 that were measured but that varied .003" in length
- 30 that were .743" long
- 30 that were .750" long

After firing and recording all the groups and their averages it was determined that the cases of .750" gave the best accuracy by far.

I then went back to the reloading bench and did the whole exercise over again, this time using the 147 gr. Gold Dot bullet. Other than changing the powder charge to

3.9 gr. of Bullseye, the loading was the same. Over-all loaded length was kept at 1.130" and the CCI #500 primers were used throughout.

Again the cases that were .750" in length gave the best results, giving groups that averaged half the size of the the groups fired from cases that were not measured.

| Case length | Average of 6 5-shot groups. |
|--------------------------|-----------------------------|
| random length vary .003" | 3.9" |
| .743" | 4.2" |
| .743" | 5.6" |
| .750" | 2.6" |

I also tried using some cases that were longer than the .750" length that worked so well. I went up to .755" but accuracy deteriorated with cases over the preferred length. I guess this gun is just partial to them.

Loads with the 115 GR. Gold Dot bullet - SPEER cases used throughout - All loaded with 4.7 GR. BULLSEYE - All primers CCI #500 - All groups fired from an OUTERS Pistol Perch at 25 Yards.

Using Unique powder I found gave slightly smaller group averages. For some reason the pistol I was using preferred the slightly slower powder. I feel sure that by experimenting with over-all loaded length and by trying other powders or primers, some loads will shoot more accurately than the ones I recorded. However, each firearm is an individual and testing needs to be done with each one if you wish to get it to shoot to it's maximum potential. Note though, that simply by careful attention to details I was able to increase the useable accuracy of this particular firearm.

| Case length | Average of 6 5-shot groups |
|---------------|----------------------------|
| Random length | 5.3" |
| .748" | 4" |
| .750" | 2.5" |

Loads with the 147 GR. Gold Dot bullet - SPEER cases used throughout - All primers CCI #500 - All groups fired from an OUTERS Pistol Perch at 25 Yards.

| | |
|------------|-----------------|
| Federal | .7370" - .7425" |
| Winchester | .7415" - .7495" |
| Remington | .7335" - .7450" |
| Speer | .7410" - .7450" |
| Chinese | .7405" - .7550" |
| Russian | .7390" - .7470" |

Case length variations (only the largest and smallest given for each lot):

After studying the results of my shooting tests I decided to see if it would hold true with cast bullets. Using what I had learned from the previous tests, I used only 2 different lots of cases. One lot was cases picked at random and not measured for length. The other lot was cases of .750" length. The bullet diameters were .356", more closely fitting the bore diameter of the Colt Combat Commander. I used four different bullets during this phase of firing. One was a nice semi-wadcutter from BRP High Performance Cast bullets which weighed in at 115 gr. I also had 2 bullets from MT. Baldy Cast Bullets, both of 122 gr. weight. One was a flat point (FP) while the other was a round-nose (RN) design. The last cast bullet was one I cast myself. In a pointed shape, it was Lyman's version of one of the old original Luger bullets. Weighing in at 121 gr., the Lyman number for this design is #356402. Again, testing confirmed that in this gun at least, cases of .750" length shot the most accurately. As I have stated before, you will have to find what case length shoots the best in your particular firearm. However, this is a good starting point.

To summarize, when reloading:

- o Sort your cases by head-stamp.
- o 2. Check the over-all length of each case and sort them by length.
- o 3. Watch the over-all loaded length of the cartridges.

- 4. Monitor your powder charges carefully.
- 5. Determine which case length shoots the most accurately in your firearm.

NOTE: ALL OTHER GUIDELINES FOR SAFE RELOADING APPLY ALSO.

The 9mm can be a bit frustrating to load for at times, but your efforts will be rewarded. Do not get in a rush. The 9mm is a high-density cartridge and a small change can yield large results. Watch the powder charges and over-all lengths as well as the seating depth of the bullets. Do not try to hot-rod it. Stay within the bounds of the Manuals.

| Bullet | Powder Charge | Group with random length cases | Group with cases .750" |
|----------------------|---------------|--------------------------------|------------------------|
| BRP 115 gr. SWC | 4.2gr. | 2.5" | 1.8" |
| Mt. Baldy 122 gr. FP | 3.9gr. | 3.5" | 2.5" |
| Mt. Baldy 122gr. RN | 3.9gr | 5" | 3" |
| Lyman 121gr. | 3.9gr. | 4.1" | 2.5" |

Loads with cast bullets - All bullets .356" DIAMETER - All loaded in SPEER Cases - CCI #500 primers used throughout - All firing done at 25 Yards from a rest using an OUTERS Pistol Perch - All group averages are of 6, 5-SHOT GROUP - All loads with HERCULES BULLSEYE POWDER.

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