POWDER KEG

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Crimps

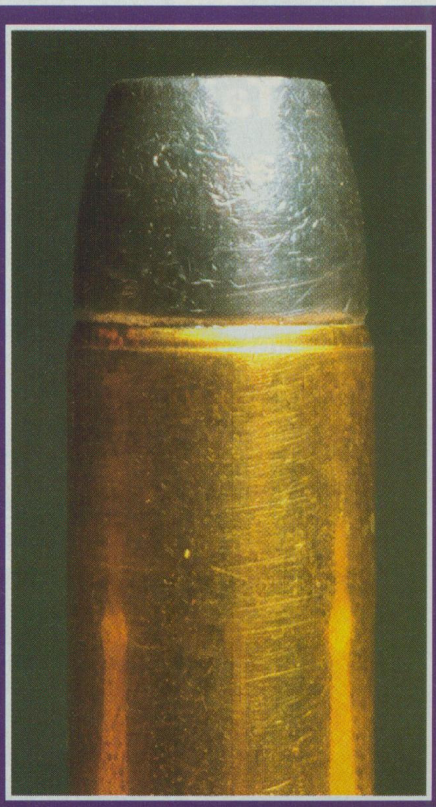
The crimp, or lack of a crimp, is a very important component. Crimps can be: good, bad, indifferent, essential or just plain irrelevant. Handloaders who understand them and use them correctly are better at their trade and more apt to hit their targets.

Let's begin with crimps we cannot live without and work our way through different kinds of loads and cartridges with varying degrees of "need."

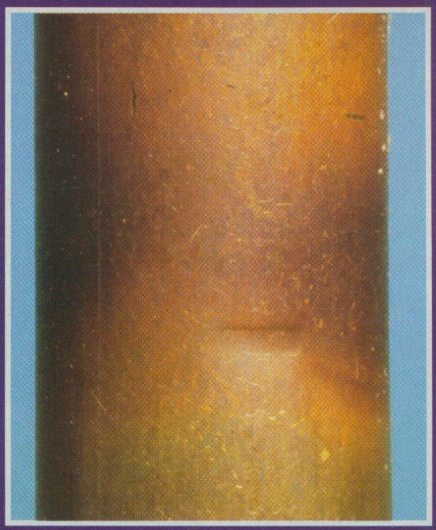
Shotshells demand crimps, perfect crimps, to be at their best. Actually, crimping a shotshell is so essential that their value and quality are easy to overlook. Your first reaction to shotshell crimps is probably, "Well, sure, fool, you have to crimp them or the shot falls out." That is true, but there is more to it than meets the eye. We can and will make a full study of the art in another column, but for now we will look at the basic premise.

Beyond folding the shell closed so the shot does not roll around in our pocket (very embarrassing), the crimp quality has a huge impact on a shotshell's ballistics. This is one arena where a handloader is hard pressed to be as effective as an ammunition factory. They get to start with brand new hulls, while we usually are working with second-hand models. Also, because we are frugal, we are apt to use a shotshell hull a bit too often. The essence of shotshell crimps is uniformity, tempered by strength.

The "crimp-pull" on a shotshell is a bit like revving the engine before you release the clutch. The resistance of the crimp is an important component in the powder burn. Usually less crimp pull means less efficient acceleration. A crimp that is too shallow, or formed with a soft, worn hull is apt to cause low velocity and inefficiency. Conversely, a crimp that is too deep can actually cause excess pressure in an otherwise normal and correct load. The bottom line is that they should be the same from shell to shell, and they should be very similar in depth to factory shells with that hull type. Variations that cause velocity spread are simply apt to cause you to miss, while uniformly inadequate crimps can produce uniform velocities that are low enough to compromise the shell's ability.



This .475 Linebaugh with a 430-grain bullet demands absolute maximum crimp. Here we can see the grease grooves and the bullet base from the outside!



Three of these small indents are all that were used on the original .450 Nitro, demonstrating how unnecessary huge crimps are even on big-bore rifle cartridges.

Handgun cartridges have a varying affinity for crimp, depending on the cartridge and load type. "Magnums," if loaded to full power, and/or ones that use slow powder, usually demand major crimps. Here the crimp has two functions: creating resistance to help the powder burn and to keep the bullets in the cases. Before we go further, it is important to understand that the actual "crimp," pressing the case into the bullet, is only part, perhaps a minor part, of the total called bullet pull. More important than the crimp itself is the grip the case walls have on the bullet. If you need a heavy crimp and the case does not grip sufficiently, no amount of mashing the case mouth into the bullet will make up for the shortfall.

The most obvious demonstration of weak bullet pull is with big-bore, magnum revolvers. These machines are inertial bullet pullers. Under recoil, the gun and case move rearward violently, while the bullet wants to stand still. If, after firing part of the cylinder, the bullets are beginning to creep out of the unfired loads, the bullet pull was insufficient. Our first reaction and remedy is to apply more "crimp." Assuming the offending rounds had a good crimp to begin, the culprit is probably not the crimp at all. Instead, it is most likely the cases were not hugging the bullets tightly enough.

At times sizing dies are undersize, but oversize expanders are far more common. Essentially, the "hole" in the case left after resizing and expanding should be .003 to .005 inch smaller than the bullet diameter. After you seat a bullet, you should be able to see and feel a slight bulge in the case at the base of the bullet. Also, I think I have perfection if I can detect the location of the grease grooves in a cast bullet by very slight depressions in the case wall. This kind of load is doing everything it can to hold the bullet in place. This not only keeps the bullets from jumping out of revolver cartridges, but

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also from being driven into auto-pistol rounds during the feeding cycle.

If you begin with this heavy case grip on the bullet and add a good crimp into the crimp groove or cannelure, the bullets should stay put. This holds true for even the most savage recoil produced by the heavy .45s, .475s and .500s. If you have this maximum bullet pull and the bullets still refuse to stay put for four or five rounds (depending on whether the gun is a five- or six-shooter), the trouble is likely due to too much powder compression. There is a limit to how much you can compress powder and keep the bullets in place. Once you cross that line, no amount of crimp and case tension can overcome it.

As we back away from the fire-breathing applications, crimp can become less important. Most auto-pistol rounds only want the slightest degree of roll or taper crimp to streamline the case mouth to increase feeding and ejection reliability. If the loads are of modest power and the powders are relatively fast (in contrast to H-110, W-296 and 2400 speeds), you might need little or no crimp at all. Experimentation is the answer.

Check first for function and ill-fated jumping bullets. If everything works okay, compare the accuracy and velocity spread of heavily crimped versus lightly or uncrimped loads. The .32 H&R Magnum is an interesting example. Even when loaded with "heavy" 110- and 120-grain bullets, driven by H-110 powder, *uncrimped* rounds are usually slightly faster and offer groups half the size of heavily crimped ones. Whatever degree of crimp you use, it is always best to apply it with a separate operation, first seating the bullets to correct depth and then crimping with a separate die or the standard seating die with the seating stem backed away from the bullet.

In contrast to shotguns and handguns where crimp is usually a good thing, rifles often do not like crimp, nor do they need it. I am fascinated by the ammunition factory's desire to almost cut the bullets in two with the crimp on almost every cartridge they make – including recoilless things like .222 Remington and .22 Hornet. In my opinion crimp is either neutral or harmful to accuracy and rarely offers any benefit at all.

Very heavy cartridges, like the .458 Winchester, might try to drive the bullets into the cases during recoil. Normally, good heavy case tension, as prescribed for handguns, will prevent the disease. If not, a slight crimp might help. Also, semiautomatics might need a bit of crimp to keep the bullets in place while the action slams and batters them into the barrel, and lever actions with long, tubular magazines might want some crimp. Beyond applications that absolutely demand it, crimping bullets in rifle cartridges is frivolous at best.

Ultimately look at crimp on metallic cartridges as secondary to the resistance of the case neck itself. Apply maximum crimp to heavy handgun loads and then work from the premise that crimping most other cartridges is unnecessary.