GUN NOTES

By Elmer Keith, Executive Editor

SIXGUN RELOADING

In all sixgun reloading, the cases should be full-length resized. Loaded rounds should be loose enough in the cylinder so that when you shake the gun you hear them play back and forth against the recoil shield. If the cases are not full-length resized, they often fit the chambers so tightly that they may drag on the recoil shield.

Likewise, when not fully seated in the chambers, the blow of the firing pin has to drive the whole cartridge forward until the rim contacts the chamber. This often results in misfires, as too much of the power of the mainspring is utilized in forcing the cartridge fully home into the chamber.

Therefore, always resize all cases to full length. The inside expanding plug should also be checked carefully, and if it is too large it must be ground down to proper size. A sixgun bullet should seat very tightly in the case before the crimp is administered. In fact, it should be so tight that you cannot turn it with your fingers. This may mean that the case is often smaller behind the bullet and shows reduction visibly but that does no harm.

To ensure a perfect crimp, the cases must be trimmed to exact overall length and a hard, heavy crimp made. If cases are fully resized and the expanding plug is small enough so you cannot turn the bullet in the case before it is crimped, you are well on your way to perfect ammo.

Next, if the cases are trimmed to proper length you will then get a uniform heavy crimp that will hold said bullet against the recoil of other loads. This is mandatory, else you may find bullets jumping forward and projecting out the front of the cylinder, thus tying up the gun until they are pushed back in the cartridge case.

Be sure your bullets are exact groove diameter or slightly under groove diameter. The cutting-in of the lands and the displacement of metal therefrom will seal the bore. I have never, but never, obtained accuracy from over-size bullets. Likewise, bullets must be hard enough to hold the rifling. With the Model 1917 .45 revolvers having very shallow lands, .002 inch to .003 inch, bullets not softer than one-to-ten

tin and lead will best hold the rifling.

With other calibers, and deeper lands, bullets of one-to-16 tin and lead will work perfectly. Such a bullet temper upsets well in barrels that are larger than groove diameter, such as Smith & Wesson .45 Colt barrels for instance. But in the 1917 Smith & Wesson barrels, always use very hard bullets at the exact groove diameter.

Modern primers vary in length and sixgun cases vary in the depth of their primer pockets. Be sure and select a combination that will allow seating primers just below flush with the base of the case or cartridge head.

If primers protrude or ride the recoil shield you may have several go off at once as once happened to this old cowpoke with a .45 Colt single action. Recoil set off a couple more chambers when it slammed the cases back against the recoil shield and three went at once. Also, the top strap and half the cylinder departed this vale of tears. One portion of the cylinder went through a door and I never located the other portion, nor the top strap, until a week later when I found the top strap out in the bronc corral.

Those cases had been fired a lot with heavy loads and their primer pockets had expanded. Having loose primers was what I believe caused the blow-ups. The load was the old 260-grain government bullet and a case full of King's Semi-smokeless.

Discard any case in which the primer seats easier than normal, as it is either an expanded or a soft case. Best crush them so they will not be used again.

RCBS, Pacific, Lyman and many others furnish excellent dies and tools, but you must furnish the gray matter to produce perfect handloads.

I do not believe any sixgun ammunition should be loaded to over about 34,000 pounds psi, even for the big magnum revolvers. That is about the limit of alloyed lead's ability to hold rifling in a proper fashion.

That is also the reason I designed my lines of bullets in .38 Special, .357 Magnum, .41 Magnum and .44 Special and .44 Magnum with a wide full-groove diameter band in front of the cartridge case. This band cuts down the jump from case to barrel throat and takes the thrust of the lands when the bullet jumps straight forward out of the case to the barrel throat proper and fully engages the lands of the rifling.

Examination of recovered sixgun bullets will nearly always show some skidding of the lands on the bullet before it enters the rifling far enough to be gripped firmly. That is the reason for my forward band of full-groove diameter in front of the case.

Gas checks on sixgun bullets are a delusion. They do not always upset to fill the chamber throats as they should, and some escaping gas then gets past them. They raise pressures invariably and they also cause excessive gas cutting of the top strap at the barrel and cylinder junction. Half

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jackets are even worn worse and lead any gun if pushed to near-maximum velocities. Lead alloy bullets must be either lubricated properly or else fully jacketed over their bearing surface, or leading will occur.

CUSTOM PPC GUNS

Ron Power is producing some of the finest and most elaborate handguns for the PPC course as well as silhouette shooting that I have seen. Recently, I examined one of his masterpieces in the form of a remodeled Ruger Redhawk. The barrel length was cut to 5½ inches, making it a better-balanced gun. The special rib was made for the interchangeable front sights and a new design of rear sight blade, and under the extension is a dial extending out from each side for the shooter's fingers to grasp. This, in turn, has three distinct clicks graduated for 100, 200 and 300 yards. Once the gun is zeroed for the 100-yard range, then you simply turn the dial to change range to 200 or 300 yards. It is a very useful quick-adjustment system for the longer ranges, useful either for hunting game or silhouette shooting.

Years ago, back in 1928 in fact, I designed a three-leaf rear sight on Teddy Roosevelt's old revolver. Harold Croft and I had it flat-topped and rebarrelled to a .44 Special. This sight carried a standard for 100 yards and a leaf in front of the standard for 300 and one to the rear of the standard for 200 yards. It worked out very well and still does yeoman service for long-range work. For years, I was questioned because of my comments on long-range sixgun shooting, but the silhouette game has now proven that my published statements were not exaggerations. I had friend Croft pick up an old screw-front .45 Colt SAA—a rusty wreck found in a Philadelphia, PA pawn shop for five bucks. This I wanted to flat-top and target-sight, which we did. When it arrived at Durkee, Oregon, I proceeded to sand first, then steel-wool the rust off the frame. The barrel and cylinder of this vintage .45 Colt were rusted hopelessly.

The black powder frame, with its set screw base pin lock, came out in good shape but when I steel-wooled the rust from the backstrap, there deeply engraved was the name "Theodore Roosevelt," and on the butt of the straps, "Medora, North Dakota." Neal Houchins of Philadelphia did a magnificent job of fitting a .44 Special barrel, cylinder and ramp front sight and my three-leaf rear sight. The first test was at a five-gallon can at 300 yards. I hit it three out of five shots with a seated back rest and the gun held between my knees. It is still one of my most prized handguns.

The Ron Power Ruger Redhawk I examined was tastefully engraved and the action was polished to the ninth degree. It was the best specimen of a Ruger Redhawk I have seen! I hope Ruger brings out this fine gun in a four-inch barrel length and all

blued steel instead of stainless, as I believe it would then become a popular peace officer's gun, especially for highway patrolmen, where a powerful gun is often necessary to stop cars. Ron Power's address is: Box 1604, Independence, MO 64055. If you were considering remodeling a handgun, write to him for further details.

SHOTSHELL RELOAD CHARGES

Federal Cartridge Co., 2700 Foshay Tower, Minneapolis, MN 65402, makers of Premium-grade shotshells, which have the closest and highest counting patterns I have ever run, are now out with a brochure of loads for all 12, 20, 28 and .410 gauge shotgun shells. Write them for the latest list of proven loads for Mag 12, standard 12, Mag 20 and standard 20 as well as 28 and .410 gauge loads. They can furnish components, including shot containers.

EXPANDING RIFLE BULLETS

Back in black powder days, people experimented with various types of expanding bullets—from plain hollowpoint to the old Hoxie bullet with a ball bearing in the front of the hollowpoint for further expansion, to the explosive bullet with a charge of very fine black powder in the cavity and a percussion cap in the nose. This stuff all blew up on impact and was only useful for blowing up pests. It was never very popular on big game as it produced mostly just surface wounds.

Then we come to the era of the .30-30, .35 Remington, .33 Winchester, .35 and .405 Winchester and the .30-40 Krag and the old 1903 .30-06 with a 220-grain bullet. Soft nose bullets in all these calibers were very reliable. They expanded some and held together at their relatively low velocities of 1,800 to 2,200 feet per second (fps) velocity. They were all very reliable bullets on big game if used with a caliber relative to game size. Trouble started when we went to the more modern, high-velocity cartridges such as the .30-06 150-grain, the .256 Newton and .30 and .35 Newtons, the .280 Ross, the .22 Hi-Power, and the .250 Savage. Modern shaped spitzers in full-patch 150-grain .30 caliber were very erratic after striking an animal but usually tumbled on impact and were for that reason, pretty good killers. I don't remember ever losing a coyote hit with them, but when I shifted to full-patch spitzers with nine degree boattails, I lost 15 coyotes shot through the lungs one winter. They simply drilled through and did not tumble. The 150-grain solid service load was used a lot in Africa in the .30-06 by American sportsmen. However, they were never certain what it would do on impact. I had a wounded bull elk turn on me at 30 yards and I shot him in the bulge of his throat as he came for me with his hair all standing on end. The .30-06 service 150-grain load dropped him in his charge, but when I skinned out the head later, I found the tiny spitzer, less part of its weight, had turned back toward me and was lodged in the low-

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er jaw. Some hunters reported having these bullets enter the skin and go around an animal without penetrating the vitals at all. The fact they mostly tumbled was the reason they killed most of the time.

During the years I tested about all the trick-point, high-velocity bullets on game of one kind or another. Most of these high velocity—2,700 fps up to 3,000 fps—blew up after hitting the game and seriously lacked penetration on all our heavier game. If they went through the rib cage on broadside shots into the heart or lungs, they were quick killers, but if misplaced, these bullets seldom had enough penetration.

I placed five of the 150-grain Remington bronze-point .30-06 rounds behind the shoulder of a five-point bull elk at 300 yards. He just stood and took them, then turned and faced me and I put a Government Match boattail solid in the center of his neck which exited on top of his tail, killing him instantly. We found the five bronze-point 150-grainers each blew out a small crater of hen egg-size in the near lung and stopped there; the bullets were badly broken up. These light, high-velocity expanding bullets usually blew up and destroyed a lot of eating meat. They were never reliable killers on heavy game, unless exactly placed in the heart, lungs or spine.

On the other hand, long heavy soft-point bullets always drove through to the limit of their penetration with good to moderate expansion, depending, of course, on range. These were by far the most reliable. Trick points and hollowpoints often fail miserably in expansion out at long range where velocity has dropped off while a soft-point will still expand to a certain extent. Even for the highest velocity loads like our .338-378 K.T., I still prefer a long, heavy soft-nose to any trick point bullet. The old 275-grain heavy jacket Speer was one of the best bullets I ever used in .338 calibers. It always held together, never shed its jacket and expanded some, especially on the heavier game. It gave me a full four feet of penetration in my ten-foot polar bear at 300 yards and little weight loss with perfect expansion.

For the best penetration and no breakup of bullets, even solid, in the big calibers for African game, a velocity of around, and not more than, 2,300 feet per second had been found to be the most reliable. I have had the 570-grain steel-jacket .500 Nitro break up badly in a huge hippo's head and have seen the 400-grain, .416 solids with steel jackets break upon cape buffalo bones in shoulder shots. So, if you want penetration on any game, don't expect to get it by adding velocity over 2,400 fps.

Bullet jacket material is, in many makes, too brittle and fragments quite easily. Modern Barnes bullets of pure copper jackets seem to hold together and fragment far less than cupro-nickel, steel or other materials such as gilding metal. I had one batch of Kynoch 300-grain .333 bullets that worked wonderfully in our old .333 O.K.H. and .334 O.K.H. rifles, but a later batch I bought just before going to Africa in 1957 proved very brittle and they blew up even on a little tiny tommy at 100 yards. The older batch was perfect, and I shot a wounded, running black bear for a client in Alaska at around 100 yards. The bullet hit him in the rump. We found the perfectly expanded 300-grain bullet lodged against his jaw bone. The jacket ruptured in strings along the land cuts in the jacket and was furled back in strips and the slug expanded halfway, but very little of the lead core was gone—ideal performance! There is no substitute for live flesh and bone as a true test of what any bullet will do on game.

The late Leslie Simson, who hunted Africa for 26 years, said of a plains rifle that it should be at least .35 caliber with a 275-grain bullet with a tough jacket and that one should add bullet weight rather than velocity if any change is to be made. His ideas hold true today. It is better to use a long, heavy bullet at moderate velocity than any high-speed bullet that will blow up or shed its jacket. Barnes bullets are now a far cry from the ones Fred made during World War II. I have had reports from African hunters which claim that while their solids rivet some, they always hold together and their soft-nose bullets do not shed jackets as so many others do. Their 500-grain .45 caliber bullets have shown adequate penetration on both elephant, for brain shots, and buffalo with shoulder/spine shots.

PACHMAYR'S RIFLE STOCKS

Pachmayr Gun Works, 1220 South Grand Ave., Los Angeles, CA 90015, so well known for their custom rifle work and .45 Colt auto conversions, also have an extensive gun shop for stocking fine arms and have a large supply of the very finest, hardest and densest exotic woods available in this country. They can handle the most elaborate stocking and checkering job. At some of the big gun shows I have attended, Frank Pachmayr has exhibited the finest rifles and shotguns, stocked with some of the most beautiful wood I have ever seen! Write to them for more information.

BULLET DIAMETER

Many handloaders do not realize the importance of using bullets of correct diameter for their pet rifles or sixguns. Correct relation between bullet and groove diameter is of utmost importance if best accuracy combined with easy working pressures and maximum velocities are to be obtained.

For many years even the handloading manuals advised oversize bullets for a perfect gas seal, in both rifles and pistols with cast, grooved, lubricated bullets. There may have been some justification for this with extremely light squib loads, but I have never seen any man make any money resizing bullets ahead of 15,000 to 35,000 pounds pressure with lead alloy bullets.

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For that matter I have never seen good accuracy from oversized metal jacketed bullets at pressures from 35,000 to 55,000 pounds. Many factors enter into the problem and must be understood, then evaluated for best results. Each new generation has to re-learn what the preceding one has forgotten.

First the revolver. Usually, chamber throats are larger than the groove diameter of the barrel. The rear end of the barrel is also chamfered to prevent spitting when the bullet enters the barrel proper. Lead alloy bullets, if not too hard, upset to fill the chamber throats in front of the cylinder first, then move on into the barrel throat or cone and must resize themselves down to fit the groove diameter of the barrel proper. If the bullet is very hard, say, pure type metal, or one to ten, tin and lead, or other hard alloy like wheel weights, and the powder charge is light, the bullet may not upset at all. When no upsettage occurs, considerable powder gas is lost past the bullet, and it is very hot and often fuses or melts the bands of the bullet, causing leading and lead plating of the front of the cylinder and barrel throat. This gas escaping past a bullet is very hot and acts more like a cutting torch than a propellant. If the powder charge is normal to heavy and the bullets are not too hard, say one to 16 tin and lead, to possibly one to ten parts tin and lead for heavy loads and the bullets are sized exact groove diameter, then the pressure of the powder gas upsets them to fill the chamber throats, thus sealing off the pushing gas. While the said bullet is then from two to three thousandths larger than the groove diameter of the barrel, it seals off the gas and bridges the gap from cylinder to barrel throat nicely. The bearing surfaces being the bands and relatively narrow are easily swaged down to fit the grooves of the barrel perfectly. This is the normal action and the one that gives best accuracy. With an abnormally hard bullet for the powder charge it may not upset and the escaping gas may burn away or melt some of the base band, thus destroying the accuracy of the bullet, before it ever reaches the barrel proper. With too soft a bullet and a stiff powder charge the soft lead acts just like putty. This is true of all the half jacket and gas check cup factory bullets made of pure, or nearly pure, soft lead. The slug upsets to fill the chamber throat and also squashes all out of shape in the tapered barrel cone, while the nose flows back into a shapeless blob of lead. This shapeless mass of lead must then resize itself down to groove diameter and go on out of the barrel. In doing so, one side of the base or the other may be pulled out longer than the other, and the whole base often loses all semblance of its original shape. Leading and poor accuracy result. If you have any doubts as to the veracity of these state-

ments, then remove the barrel from your pet sixgun and fire a few rounds with any soft lead factory load in the .357 or .44 Magnum into snow drifts, cotton waste, or oiled sawdust and take a look at the recovered bullets. You will find the base greatly enlarged over the rest of the bullet.

This is one reason why all so-called belly guns with two to three-inch barrels for heavy loads like the .357 Magnum, when used with soft bullets, usually give very poor accuracy. Muzzle blast is still sufficient with heavy loads in these short barrels to distort the base of the bullet and that, Mister, is the steering end.

The same short barrel guns will give fine accuracy with a full jacketed or harder cast, swaged bullet that better resists upsettage in the barrel throat and also after leaving the muzzle from the hot, gas.

A bullet temper of one to 16 tin and lead is as soft as one should ever use with heavy loads and a temper of one part tin to 12 or 14 parts lead is very good with most heavy loads, providing the bullet is sized down to exact groove diameter before loading. Such a bullet holds the rifling better than a very soft bullet, resists deformation and upsettage better, and also retains its exact shape after firing. With some very shallow grooved barrels such as those put out by Smith & Wesson for the jacketed .45 auto cartridge, a cast bullet should always be very hard; say one part tin to ten parts lead, or pure typemetal. Such hard bullets are needed in these guns to hold the rifling.

I have fired many soft lead .45 Auto Rim cartridges in various 1917, 1950 Target and 1955 Target S&W guns. They were very inaccurate and scattered all over the paper. The same cartridges loaded with jacketed 230-grain bullets or hard cast bullets were wonderfully accurate.

If the cast bullet is very much oversize before firing, for the groove diameter, pressures are greatly increased. Also, the addition of a gas check to a lead alloy bullet in normal .44 Magnum loads increased pressures an average of 5,000 pounds as shown by White Lab chronograph. A hard gas check cup, while wonderful in rifles and autoloading pistols, where it lies in the barrel throat before firing is worthless and often detrimental to best accuracy when used in a sixgun.

This is for the very good reason that it is too small to fill and seal off pushing gas in the chamber throats. The softer lead upsets ahead of it to fill the chamber throats and the gas check may then very well be slightly off center before it enters the barrel.

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Due to the volume of mail received, Mr. Keith cannot answer letters personally, unless they are accompanied by a self addressed stamped envelope. Queries for Mr. Keith may be addressed to Guns & Ammo, *8490 Sunset Blvd., Los Angeles, CA 90069.*