The Los Angeles Silhouette Club

This article written for The Los Angeles Silhouette Club
For publishing on lasc.us.
Thanks Glen, another great article.

The 357 Maximum

By: Glen E. Fryxell

I wasn't there, so I can't say for sure, but I've got a feeling that marksmanship competitions have been around ever since that second cave-man learned how to throw a rock. Almost certainly, these competitions started off just aiming at some random target of opportunity, but then likely evolved into a test to see who could *knock something down* (e.g. knock a pine cone down out of a tree, knock over a piece of firewood, knock a deer skull off a hillside, etc.). Mankind has long been fascinated with the accurate placement of a projectile onto a remote target, and to have that target respond to the impact. The roots of silhouette competition run deep through human history.

We also like to eat. Year's ago, a group of shooters in Mexico started tethering barnyard animals (goats, chickens, pigs, etc.) out at braggin' distances, and shooting at them as a part of a larger social event. When an animal was killed, it was butchered and thrown on the grill for the post-match festivities. Eventually, humanitarian concerns arose surrounding the occasional crippled beast, leading to the animals' silhouettes being cut out of steel and the critters left in the barn. The pigs and goats were slaughtered cleanly and humanely back in the barn and were grilled behind the firing line while the competitors fired their relays, and salivated over the aromas emanating from the fire-pit.

Formal silhouette competition came about in the mid-1970s and was led by such handgun pioneers as Lee Jurras, Hal Swiggett, Elgin Gates and John Adams (John Adams was the first President of IHMSA, founder of LASC and owner of SAECO Bullet Moulds). IHMSA silhouette competition experienced dramatic growth in the 1980's, and is still an active and fun form of shooting competition today. Some venues have even maintained the tradition of cooking barbeque to distract the shooters olfactory senses while they concentrate on the mantra "sight picture, trigger control.... sight picture, trigger control.... man! that sure smells good!".

As with any form of competitive shooting, once the game got rolling, the hardware gurus started tweaking the tools for a competitive edge. There was a great deal of experimentation going on the in world of silhouette handguns and cartridges in the early 1980s. The .357 Magnum was considered an absolute minimum cartridge to be competitive, but it would sometimes still leave full-footed rams standing. Elgin Gates was among the silhouette pioneers building new guns and developing new wildcat cartridges at this time. As a part of his experimentation, he developed the SuperMag series of cartridges specifically for

revolvers (he also had an extensive line of wildcats for single-shots, like the XP-100 and T/C Contender). The idea was to increase the downrange momentum by increasing case length to 1.6" (thereby increasing case capacity) to drive heavier bullets faster, but still have a relatively compact revolver, with modest recoil. Gates developed SuperMag cartridges in .357, .375, .414 and .445 calibers. Basically, the .357 SuperMag was born specifically to knock over the stubborn full-footed rams on the 200 meter line. Rarely has a cartridge ever been born into such a specific ballistic niche. Usually new cartridges are developed and marketed to address multiple applications in order to maximize sales, but the .357 SuperMag was born to bust steel, period. No military applications, no law enforcement applications, no bullseye or PPC, no IPSC, no cowboy action shooting, and while it is a capable hunter, it was (and always has been) overshadowed by the tremendous success of the .44 Magnum in the hunting fields, making the more modest hunting capability of the .357 Maximum little more than an after-thought initially. It was born to topple steel. It succeeded admirably.

In 1983, Elgin Gates' SuperMag concept was commercialized in the form of the .357 Remington Maximum cartridge, with ammunition being made by Remington and a stout single-action revolver based on a "stretched" Super Blackhawk frame being made by Sturm Ruger & Co. Dan Wesson followed suit with a double-action revolver, Seville with another SA sixgun, and Thompson /Center with their single-shot break-action Contender. Federal also made brass for the .357 Maximum. The stage was set for success. So what happened?

The Ruger .357 Maximum Super Blackhawk revolver, built on a stretched Super Blackhawk frame. This revolver was available in 7 1/2" and 10 1/2" barrel lengths.

Initially, there was a surge of interest in taking light bullets and trying to drive them as fast as possible with the .357 Max. This is counter-productive. These short stumpy bullets are ballistically inefficient and shed velocity quickly, and provide poor terminal performance. These loads also tend to be the ones that accelerate top-strap cutting and forcing cone erosion (especially with W296/H110). Like any Magnum, the reason for the .357 Maximum's existence is not to take lightweight bullets and drive them ultra-fast, but rather to take heavier than normal bullets and drive them as fast (or faster) than the standard cartridge drives standard weight bullets. The .357 Max does its best with bullets weighing 175 grains and up. The top-strap cutting and forcing cone erosion that resulted from these experiments rattled the folks at Ruger, and the .357 Maximum was dropped from production after only about 9,000-10,000 were made. The negative PR also damaged the sales of Dan Wesson revolvers. They tried to counter it by offering a second barrel with the gun, but that didn't help much. The popularity of the .357 Maximum was waning. Which is too bad, because all that was really needed was an under-

standing of how to properly load the cartridge, and to recognize that top-strap cutting is a self-limiting process that stops after it reaches a certain point.

In terms of hunting applications, the .357 Maximum is far more cartridge than is needed for varmint hunting, and is too light for elk and black bear. For the handgun hunter who prefers to hunt with a revolver it is suitable for deer and antelope when loaded with the right bullets.

For silhouette competition, cast bullets are a natural choice for their accuracy, higher velocities at lower pressures, kindness to barrel steel and affordability. As with any shooting discipline, the only way to get good is to practice. A lot. Casting allows one to do this. However, the .357 Maximum presents an interesting situation to the handloader: it is one of those unique revolver rounds that generates pressures in excess of 40,000 psi, along with velocities that routinely exceed 1500 fps. Plain-based cast bullets can be severely tested under these conditions if the handloader doesn't pay attention to all of the details. Gas-checked cast bullets are definitely appropriate for the .357 Max.

Handloading the .357 Maximum:

Ball powders have been implicated in contributing to top-strap cutting and forcing cone erosion (especially W296/H110). If your gun is going to be used for competition, with thousands of rounds put through it annually, then it's probably best to stick with extruded stick powders (e.g. 4227 or even Re 7). If the gun is going to be used to hunt with, and maybe have a couple hundred rounds a year put through it, then the damage from slow ball powders will likely be minimal as long as heavy bullets are used. My favorite powder for the .357 Maximum overall is IMR 4227. The now discontinued Winchester 680 is also an excellent powder for the .357 Maximum in terms of top velocities and accuracy. I have a stash of W680 that I have held on to, specifically for the .357 Maximum. The newer, and still available AA 1680 is similar (a little slower), and also works nicely in the Max (keep in mind previous comments about ball powders if you're going to be shooting your Max a lot with either 680 or 1680).

When one peruses the available loading data for the .357 Maximum, it becomes apparent that there's a fair amount of discrepancy between the various sources, both in terms of what a given source considers an acceptable pressure ceiling, as well as what velocity correlates to what pressure level. For the jacketed bullets, I have stayed within the guidelines set forth by the manufacturer in terms of powder charges. For the cast bullets I have worked up loads until extraction became sticky and then backed off approximately 3/4 grain. There is about .009" clearance at the expansion ring in the chambers of my revolver, so high pressure rounds will bulge cases and cause sticky extraction. These loads were found to be completely safe in my guns, but may not be in others. Pay attention to what you're doing and work up carefully.

Small rifle primers are recommended for use in the .357 Maximum as a result of the high peak pressure encountered. I have gotten much better consistency using the CCI 450 primer (particularly in cold weather), so that's my default primer choice. This data uses the CCI 450 primer unless otherwise noted. Be aware that some of the loading data you see for the .357 Maximum uses small pistol, small pistol magnum, small rifle, or small rifle magnum primers. Using a small rifle magnum primer increases both chamber pressures and velocities relative to "gentler" primers, but provides better uniformity. Substituting a small rifle magnum primer with a powder charge worked up with a small pistol primer can raise peak pressures to unacceptable levels. Again, pay attention and work your loads up slowly if you make a primer substitution.

Jacketed bullet loads:

As far as hunting loads go for the .357 Maximum, the bullet diameter is small enough that the bullet needs to either expand well upon impact, or have as much meplat as it can and still provide stable flight over all hunting distances. My favorite jacketed load for the .357 Maximum is the Hornady 180 grain XTP HP over 20.0 grains of IMR 4227. This combination delivers about 1450 fps, and superb accuracy. 22.0 grains of Winchester 680 is also very accurate and gives 1457 fps. Tests reveal that this bullet provides controlled expansion at these velocities. For hunting deer and antelope sized game with the .357 Maximum, this bullet would be a fine choice.

The Hornady 180 is very accurate, and makes a fine hunting bullet for the .357 Maximum.

Top-strap cutting and forcing cone erosion are obviously not an issue with T/C Contender, so the handloader has more latitude in terms of powder selection during load development. The fixed breech design also allows more flexibility in terms of cartridge OAL, allowing the use of longer spitzer bullets. Hunters have reported top-notch performance from the .357 Maximum in the Contender using the excellent Hornady 180 grain SSP bullets on deer sized game, approaching the velocities possible with the .357 Herrett. I have seen two big-bodied mulie bucks dropped by the Hornady 180 SSP bullet at these speeds and was impressed by its performance, both bucks basically folded up in their tracks. The SSP delivered a superb combination of expansion and penetration, exiting in both cases (in one case after penetrating almost 3 feet of mule deer on a raking shot).

Cast bullet loads:

Given the pressures and velocities that the .357 Maximum operates at, this is definitely a case where hard bullets and GC's are called for. I generally either cast my .357 Max bullets from straight linotype (BHN of about 22), or water-quenched WW alloy (BHN of about 18). As far as cast bullets go, my Ruger

demands that bullets be sized .357", and that *all* of the bearing surface be *completely* sized. It has snug .357" throats and stubbornly will not allow .358" bullets to chamber.

Wadcutters provide the maximum possible meplat for a given bullet diameter, but they tend to be aerodynamically unstable and start to tumble after about 50-60 yards, not much use if that 15" antelope buck walks out broadside at 85 yards. After much cast bullet experimentation, I believe that the 73% meplat offers the best compromise of good aerodynamic stability and meat-crushing meplat. Below 70% and one begins to sacrifice tissue crushing capability, and above 75% the bullets start to lose both aerodynamic and hydrodynamic stability and can tumble on impact (straight line penetration is always a good thing as it allows the hunter to plan where the wound channel goes, tumbling creates a random wound path and destroys this ability to place the wound channel through specific vital organs). The LBT WFN meplat diameter is arrived at by subtracting .090" from the bullet diameter, so in .357 this means a meplat of .267", or about 74% -- excellent balance for a hunting bullet. Note also that the time-honored .44 Keith SWC (Lyman 429421) has a meplat diameter of .275", and since it is the combination of meplat and momentum that creates the wound channel, it can be seen that the LBT 180 WFN is in fine company.

As a result, my favorite cast bullet for hunting in the .357 Maximum is the LBT 180 grain WFN-GC at 1550-1600 fps. This bullet weighs 175 grains (checked and lubed) when cast of linotype. When loaded over 23.0 grains of IMR 4227 this bullet gave 1600 fps with good accuracy. Winchester 680 is also a good powder for this bullet, and in 24.7 grain charges delivers 1547 fps and good accuracy over all revolver hunting ranges. Accurate Arms 1680 delivers similar velocities (1555 fps) with 26.0 grain charges, but groups aren't quite as tight as with Winchester 680 (in my gun). The 180 WFN-GC is a long bullet, seated well out of the case to make lots of room for powder (in other words, do NOT use these powder charges with other 180 grain bullets, all of which are much more deeply seated). When loaded it comes right to the front edge of the Ruger Super Blackhawk's cylinder, so it needs to be fully seated and well-crimped to make sure that it doesn't inch forward and tie up the revolver. Fortunately, the .357 Max doesn't have that much recoil.

The LBT 180 grain WFN-GC is an excellent hunting bullet for the .357 Maximum.

In contrast to it's larger bore brethren, the .357" 180 WFN has good flight stability and groups well at extended range. For the .357 WFN, the meplat is 74% of bullet diameter, while for the .44 and .45 WFN's the meplat is about 80% of bullet diameter. The big bore WFN's start to lose aerodynamic stability out about 100 yards or so, and accuracy falls off rapidly after that (much like a wadcutter). Thus, due to the smaller aspect ratio of meplat diameter

to bullet diameter, the .357 180 WFN groups well at longer range, while the larger WFN's generally do not.

While the .357 180 WFN may group well at the ram line, it's broad meplat slows the bullet down to where it has lost too much momentum, and it's momentum that knocks rams down. A shapelier form is needed for maximum retained momentum at the 200 meter line. The truncated cone designs of SAECO and SSK (NEI 200-358-GC) satisfy this criterion nicely, as does the all-round utilitarian SWC design from Lyman (358627), useful for both hunting and silhouette. All of these bullets group well at 200 yards. RCBS also makes a fine-looking 180 grain silhouette bullet, but I haven't worked with this bullet yet.

The SAECO 200 TCGC bullet weighs 196 grains when cast of water-quenched WW alloy (199 grains checked and lubed). When loaded on top of 19.5 grains of 4227 with a CCI 450 primer, this bullet delivered exceptional accuracy (5 shots into less than an inch at 25 yards) at 1571 fps. It grouped well out to 200 yards. Of all the bullets tested, this one appears to be the flattest-shooting in general.

The Saeco 200 grain TCGC bullet is both accurate and flat-shooting.

The 217 grain SSK truncated cone, a hard-hitting silhouette bullet.

The SSK cast bullet designs have given me consistently good accuracy across the board, due to their extended bearing surface and ample lubrication. The NEI 358-200-GC bullet is no exception, and in this case the TC ogive and the moderate meplat make this bullet very aerodynamic, and it's added weight means that it packs extra punch out at the ram line. When cast of water-quenched WW alloy, it weighs 217 grains as-cast (221 grains checked and lubed). When loaded over 18.5 grains of IMR 4227 with a CCI 450 primer, it generates 1427 fps from the 7 1/2" Ruger Super Blackhawk and groups nicely (1 1/2" at 25 yards). This accuracy is carried out to at least 200 yards and it groups well at this distance. This is an accurate, stable and hard-hitting bullet; one very well-suited for hammering steel targets.

Back in the late 1920's, Elmer Keith drew up what he figured was the best all-round bullet profile for use in revolvers. Over the last 3/4 of a century, the Keith SWC's have proven to generation after generation of sixgunners that Elmer's vision was right on the money. Lyman used the Keith SWC as their inspiration for designing their entry into the handgun silhouette market. Conceptually the Lyman 358627 can be envisioned as starting out with the Keith 358429 and adding another center driving band and crimp groove, and then adding a GC shank onto the backside. This second crimp groove has often left me scratching my head, as it is .140" behind the first. The difference in

case length for .38 Special and .357 Magnum is .100"; and the difference between the .357 Magnum and .357 Maximum is .310", so what is the purpose of putting a second crimp groove .140" behind the first? It's not so one can use Special brass in a Magnum revolver, nor does it seem to be tailored to allow the use of Magnum brass in a Maximum revolver. Who knows? In any event, the result is a GC-SWC that is listed at 215 grains (presumably with Lyman #2 alloy). When cast of linotype, they weigh 208 grains after being checked and lubed. Loaded over 19.0 grains of IMR 4227, and using the CCI 450 primer, this bullet delivers 1517 fps and excellent accuracy (5 shots into less than 1 1/8" at 25 yards). As an all-round hunting/silhouette load for the .357 Maximum, this one would be hard to beat.

The 208 grain Lyman 358627 GC-SWC, an excellent all-round bullet for the .357 Maximum, inspired by the Keith SWC.

Moderate loads:

Not all Maximum loads have to be loaded to the maximum. Previous experience with the Lyman 358156 GC-HP from a .357 Magnum Marlin 1894 carbine at 1700 fps has shown this bullet to be an accurate and reliable varmint shredder. I wanted to see if I could reproduce this performance with moderate pressure loads from the .357 Maximum (max loads will easily launch this bullet in excess of 1850 fps, which would surely vaporize this bullet on impact, not to mention erode the forcing cone of this revolver). I also wanted to find out if this bullet at this speed was a "varmint only" proposition, or if it might also be useful for antelope sized critters. Ray Thompson designed the 358156 HP to have a smaller cavity than the other .357 cast HP's, and I thought this characteristic might be of value when paired with the higher velocities of the Max. Bullets were cast of sweetened WW alloy, they weighed 151 grains as-cast (154 grains checked and lubed) and had a measured BHN of 13. Loaded over 22.5 grains of 4227 and sparked with a CCI 450 primer, these bullets had a muzzle velocity of 1647 fps and provided mediocre accuracy. Expansion testing revealed that this bullet completely fragmented at these velocities. In fact, with the first round tested, the fragments never even left the 2L bottle! This combination may be adequate for vermin, but poorly suited for antelope-sized game.

The Lyman 358156 HP is too fragile for the velocities possible with the .357 Maximum, and fragments completely at 1650 fps.

The .357 Maximum was born a highly specialized cartridge. That hasn't changed. For many years it was the cartridge of champions among silhouette circles, and it is still very good at slamming steel to the ground. As a hunting round it is also somewhat specialized -- a bit hard to find guns, ammo and brass, and a bit overkill for routine Varminting (it works just fine, but why not just use a .357 Magnum?). Properly loaded it will do the job on antelope and deer sized game. In this case, "properly loaded" means bullets

weighing at least 175 grains and preferably using extruded powder (e.g. 4227). The Dan Wesson and Ruger .357 Max revolvers have proven themselves to be very accurate, and recoil is mild enough that shooters have little trouble mastering it and learning to place their shots with precision. 50 years from now, the .357 Maximum will likely be little more than an asterisk in the history books and an oddity in cartridge collections, but that doesn't change the fact that they are accurate, flat-shooting, and hard-hitting; in short, all the things that a good silhouette/hunting revolver and round should be!

- Glen E. Fryxell

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