The Los Angeles Silhouette Club

A Cast Bullet For All Seasons

By: Glen E. Fryxell

The old adage of "Moderation in all things" has a great deal of merit for handgun hunters. Moderate velocity plus moderate bullet diameter plus moderate bullet weight has added up to quite a pile of venison in the freezer over the years. Trajectories aren't overly curvaceous, chamber pressures aren't riding the "red zone" and bullet cores aren't overly taxed. This formula has led to my fascination with things .35 caliber. This is not an effort to get on the nearest soapbox and preach some "sanctimonious higher inner truth" (which you may abbreviate anyway you see fit), just an explanation of my own particular fixation. Every shooter has their favorite cartridge, caliber, load, bullet and phase of the moon. For my dollar, nothing covers the spectrum quite so completely as .35 caliber. Starting with the diminutive .380 and climbing through the ranks (which include such time-honored cartridges as the 9mm Parabellum, .38 Special, .357 Magnum, .35 Remington and .35 Whelen) to the thunderous .358 Norma Magnum, most any shooting chore from thinning the local gopher population to stopping a grizzly charge can be responsibly handled with a .35 caliber firearm.

In discussing this point of view with some of my bullet casting buddies, the question arose of what the all-round bullet might look like. It would need to be gas-checked so as to function at maximum cast bullet velocities. It would need to be reasonably heavy in order to function as a big-game bullet. It would need to have a flat point in order to maximize its effectiveness on game. It would need to be a semi-wadcutter for Bullseye competition. And clearly, it would need to be .35 caliber. Lyman recently started making moulds for a 215 grain gas-checked SWC (mould #358627) in .35 caliber. Now before you scoff at the idea of loading bullets of this weight in the dainty .38 Special, remember that the original Police load consisted of a 200 grain lead round nose.

In any event, the mould was promptly purchased and a loading project was underway. I enlisted the aid of friend Dan Adams to help out with the loading and shooting "chores". Thousands of rounds later, this bullet just seems to get better and better.

Casting details first, the pistol bullets were cast from straight wheel-weights, and were sized .358" (except as noted). With wheel-weight alloy, these bullets came out of the mould weighing 216.3 +/- 1 grain (221.1 grains checked and lubed). Only those bullets with visual defects were discarded (i.e. no weight segregation was used for the pistol bullets). All bullets were lubed with Thompson's Cold Bear Lube and gas-checked with Hornady crimp-on gas-checks.

Taking measurements from the bullet and using the old Remington/DuPont wall charts, en estimated ballistic coefficient of 0.285 was arrived at. Sectional density of a 220 grain .35 caliber bullet is 0.245.

The loading was routine, but one comment should be made for the record, and that is that all cases (both straight-walled and bottle-necked) need to be flared (an RCBS .38/.357 flaring die was used for this data). The short-cut of not flaring cases was tried with the initial .35 Remington test loads, and my 97 year-old grandmother (grand old lady that she was) could throw bricks with better accuracy than that ammo was capable of. Flare the cases. All loads employed a healthy crimp. This bullet has two crimping grooves. The upper crimp groove (i.e. the one resulting in the shorter overall cartridge length) was used for the straight-walled pistol cartridges, whereas the lower crimping groove (resulting in the longer overall cartridge length) was generally used for the bottlenecked cartridges. In any case (pun intended, of course), five rounds were loaded at what was deemed a suitable starting point. The ammo was shot for accuracy and the load increased incrementally until the usual visual signs said "Stop!". The starting load, the most accurate load and the maximum load were then fired separately for velocity. These loads were safe in our guns and are presented only as an accurate record of our findings. As always, start at the low end and work up carefully. Without any further ado, let's get to the loading data.

.38 Special:

The .38 Special is one of the most loaded cartridges in history. It is a relatively low pressure cartridge, and the faster burning pistol powders are best suited for this case. Accuracy of this cartridge is usually quite good, and this bullet was no exception. Five shot groups at 25 yards were typically under 2 inches, and usually much better, when fired from an open-sighted, rested revolver. Velocities ran in the 500-700 fps range, as might be expected for a 6" revolver. It's worth noting that Accurate Arms #2 gave a satisfying combination of good accuracy and very consistent velocities. A general trend seems to be that this bullet in .38 Special is most accurate around 625 fps.

Some of you may be asking "What possible use could there be for a 220 grain SWC in .38 Special?". Windy day loads for outdoor Bullseye competition? Maybe. Custom butchers typically employ two guns in their trade, a .22 rifle for the routine jobs, and a "big gun" (traditionally a levergun in .25-20 or .32-20) for the bigger tougher animals. In recent years, more than one custom butcher has switched over to a Marlin levergun chambered for .357 Magnum and shoots .38 Special loads in it. The .38 Specials aren’t as loud as the .357 Magnums (and therefore scare less of the barnyard stock), and are capable of all the penetration needed for brain shots. The extra weight of this 220 grain SWC should insure that the brain is reached in those thick-skinned and thick-skulled critters that are sometimes encountered in this line of work. Carl Adams is in his 70s and has been a custom butcher most of his life. He has killed more animals than most hunters will ever *see*, so he was given a batch of this ammo (loaded with 3.5 grains of Unique) to “field test”. Carl reported back to say that both cattle and hogs dropped *right now* with this load. No staggering, no wobbling; they simply turned into so much suspended mass for gravity to act upon. Frontal brain shots typically liquefied the brain (“turned it to mush” were Carl’s exact words), exploded the upper neck joint of the spine, and then penetrated under the hide of the neck for several inches (for about 15” of total penetration). Not surprisingly, recovered bullets showed no expansion, only engraving from the rifling and nose scarring. He also reports that this ammo is noticeably quieter than the .38 ammo he had been using (undoubtedly because of the light powder charge).

.357 Magnum:

The .357 Magnum was born as the “world’s most powerful handgun” cartridge, which at the time was probably not the over-used cliché that it is today. It is an extremely versatile and popular cartridge, both for personal protection and hunting. Whether or not the .357 Magnum is an adequate big-game cartridge is a long-standing argument. This 220 grain SWC could easily find use in the hunting fields.

Some .357 Magnum brass is thicker than others in the lower portions of the case. Once this long bullet is loaded into the case, all loaded rounds bulge somewhat and some will not chamber. Load a dummy round first to make sure your lot of brass will chamber in your gun once loaded. Federal nickel plated cases were used for the test data. The medium to slow pistol powders gave the best results. Unique was too fast -- pressures climbed too quickly while velocities were still low. With powders slower than Unique, accuracy ranged from fair to excellent, with several 1” groups at 25 yards. Accuracy was generally best in the 1000 fps ballpark (from a 6” barrel).

From a 6” revolver, 1100 fps was the upper velocity limit for the .357 Magnum.

Accurate Arms #7 proved to be the single most accurate load, putting five shots into under 1” at 25 yards with 9.0 grain charges, and velocities were quite respectable at over 1000 fps.

Another of the more accurate loads was 10.0 grains of Accurate Arms #9. This load delivered 875 fps from a 2 1/2” revolver, 959 fps from a 6” and 1012 fps from and 8 3/8” barrel. Firing this load in a 10” Contender gave 1096 fps. This load was field tested on Montana jack rabbits over the summer. Launching this load from a 6” S&W 686 consistently resulted in a solid “Thump!” and a 1/2” to 3/4” exit. Well hit jacks were flattened instantly, while more poorly hit jacks never traveled more than 20 yards.

Bullets don’t need to be crimped in the Contender, so some test loads were assembled seating the bullets out to where they just touched the lands (OAL = 1.725”). Working up to 17.5 grains of Acc. Arms 1680, it was possible to achieve 1300 fps. It should be emphasized that this was possible only in the T/C and that this load is **not** suitable for .357 Magnum revolvers. This is a heavily compressed load and it was not possible to increase the load any further and still maintain the 1.725” overall length.

As a result, recourse was made to a slightly faster burning powder in order to minimize powder bulk and maximize velocity. When these bullets were launched out of a 10” iron-sighted Contender with 11.5 grains of Accurate Arms #9, accuracy was outstanding (1.0” five shot groups at 25 yards), and velocities average 1221 fps. The maximum charge of 13.0 grains of AA #9 wasn’t too far behind in the accuracy department at 1.3”, with truly impressive a (and consistent) velocities averaging 1358 fps. Working up in similar fashion with W296 revealed a maximum charge of 13.0 grains and a velocity of over 1400 fps! Again, these loads are for the Contender only, with the 358627 seated to an OAL of 1.725”.

These results should qualify the .35 Magnum as an adequate deer load out to about 75 yards in a suitably loaded Contender. There are some good ol’ boys down Georgia way that I

met when I lived down there that like to hunt feral hogs with .357 revolvers, and dollars to donuts says they'll be real interested in this bullet. This combination in the Contender could prove popular in silhouette circles as well. Time will tell.

.357 Maximum:

The .357 Maximum was created in order to convince any stubborn rams that they really wanted to fall down. This 220 grain SWC at 1400+ fps should prove to be quite convincing. In addition, this combination could prove to be a good handgun hunting load for deer-sized game, out to perhaps 100 yards. The loads fired in this Dan Wesson revolver were sized .356". Accuracy of most of these load were excellent (as seems to be the norm with DW revolvers), with several shooting into 1" or less at 25 yards. Stick with the slower burning powders in the .357 Maximum, the medium burners delivered significantly less satisfying results with this bullet. The overall winner seems to be Winchester 680, both in terms of accuracy and velocity. Bulging cases were also observed in the .357 Maximum loaded rounds, however in no cases did these minor bulges keep the rounds from being chambered.

.35 Remington:

Lyman 358627 & Remington 357 Maximum

The arthritic old .35 Remington has been with us since 1906 (a very good year for cartridges it seems). Thank goodness! It may be old and decrepit, but year after year it proves itself to be one helluva good hunting load by putting ton after ton of venison into the deep freeze. With T/C chambering their Contender for this venerable old-timer there has been a resurgence of interest in this cartridge in recent years. Never meant as a long-distance proposition, the .35 Remington will cleanly take deer out to 150 yards, and the 220 SWC fits into this philosophy quite nicely. What's more, with the penetration that this cast bullet is capable of, black bear and elk are also fair game for this combination. Accuracy was generally quite good, with all powders tested succeeding in shooting 1" 5-shot groups at 50 yards from a 14" Contender with a 5x scope. The clear winner was 35.0 grains of IMR 4895 producing a 50 yards group consisting of one ragged hole and averaging over 1800 fps.

Cartridges for the Contender were loaded to OAL of 2.42" (i.e. crimped in the bottom crimp groove). Assembled in this fashion, the bullet was lightly engraved upon closing the action. This OAL was found to be too long to chamber in a Marlin 336 .35 Remington, so test loads assembled for the rifle were crimped in the upper crimp groove (OAL = 2.30"). Loaded with 33.0 grains of IMR 3031, the rifle printed 2" groups at 50 yards (open buckhorn sights), with velocities just over 1900 fps. This OAL length was found to be too short to allow smooth functioning of the action is the magazine was loaded (the carrier would hang up on the next round in line), thereby limiting this load to double loading (i.e. one in the chamber, one in the magazine), which worked very nicely.

.35 Whelen:

The .35 Whelen is a grand old cartridge, with a well-earned reputation as a serious

hunter's load. This Lyman 220 grain SWC could be hard-pressed to find a better home than a .35 Whelen case. Early tests utilizing bullets cast with straight wheel-weights revealed that velocities in excess of 1900 fps resulted in key-holing and abysmally large groups (when lubed using commercial hard lube), thereby revealing after the fact that the .35 Remington loads were pushing the wheel-weight bullets to their limits. As a result, recourse was made to a harder alloy consisting of 7 parts stereotype and 2 parts wheel-weights (this alloy is approximately as hard as linotype). These bullets could be pushed up to about 2000 fps with very good accuracy. A general trend was noted in the rifle testing -- groups would shrink as the load was increased until the 2000 fps mark was reached, beyond which group size grew quickly. As a result, the loads listed are the starting load and the most accurate load for a given powder. Surprisingly, IMR 3031, traditionally a favorite in the .35 Whelen, provided very inconsistent velocities with this bullet. Much more consistent velocities (and better accuracy) was obtained with slower powders. The most accurate loads shot right at, or just below, 2 MOA (using a 4x scope). The clear-cut winner was 43.0 grains of IMR 4895, giving an excellent combination of velocity and accuracy.

These bullets were also employed in putting together "grouse loads". For this purpose, 6.0 grains of Unique is hard to beat as it is quiet, very accurate and shoots to the point of aim at 25 yards (when sighted in with full hunting loads). For those who want a little more punch for their small game loads, 20 grains of IMR 4198 is also a good choice. Both loads are accurate and generate little noise and recoil.

This may not be the ideal cast bullet for all applications, but it will comfortably handle grouse, ground squirrels, mule deer and moose, just depending on how it's served. I'd say that qualifies it as a candidate for all-round cast bullet. It serves well for paper-punching, silhouette tumbling and for slaughter around the farm. It's there for springtime plinking, summertime varmint shooting fall meat gathering and winter hide hunting. Truly, a cast bullet for all seasons.

- Glen E. Fryxell

Load Data Begins on Following Page (Pg 6)

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Glen E. Fryxell Article Index

Load Data From Article

Test Gun: 6” Taurus 66 **.38 Special**

Cases: Winchester Lyman 358627

Primers: CCI 500

Powder	Charge	Velocity	Comments
Bullseye	2.0	546	
	2.5	629	Accurate
	3.0	720	
Accurate Arms #2	2.5	546	
	3.0	629	Very accurate
	3.5	704	Accurate
Unique	2.5	516	
	3.5	708	Good accuracy
Winchester 540	4.5	607	Accurate
	5.0	718	

Test Gun: 6” Taurus 66 **.357 Magnum**

Cases: Federal (nickel) Lyman 358627

Primers: CCI 500

Powder	Charge	Velocity	Comments
2400	8.0	807	Accurate
	10.5	1084	
Accurate Arms #7	6.5	750	
	9.0	1011	Very accurate
	9.5	1088	
Accurate Arms #9	7.5	767	All #9 loads shot well
	10.0	959	Very accurate
	10.5	1068	
Winchester 296	8.5	748	Poor
	11.5	1008	Accurate
	10.5	959	Very accurate
	13.0	1113	Fastest .357 load
Accurate Arms #1680	12.5	857	Accurate
	13.5	914	
	15.5	1028	Accurate, 1096 fps in 8 3/8”, 1154 fps in 10” T/C

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Test Gun: 8” Dan Wesson **.357 Maximum**

Cases: IHMSA Lyman 358627

Primers: CCI Small Rifle Magnum

Powder	Charge	Velocity	Comments
Accurate Arms #7	9.0	961	All #7 loads shot well
	12.0	1231	Accurate
	13.0	1307	Very accurate
Winchester 296	18.0	1318	
	19.0	1357	Good velocity
Winchester 680	19.5	1328	
	20.5	1409	Fast and accurate
IMR 4227	18.5	1280	Accurate
	19.5	1341	Accurate

Test Gun: 14” Contender **.35 Remington**

Cases: IHMSA Lyman 358627

Primers: CCI 200

Powder	Charge	Velocity	Comments
H322	31.0	1710	
	32.0	1834	Accurate
	33.5	1887	Consistent velocities
IMR 3031	31.0	1593	
	33.0	1785	Accurate
	35.0	1882	Compressed
Accurate Arms #2230	34.5	1593	Fair accuracy
	36.0	1927	Fastest .35 Rem load
IMR 4895	34.0	1755	
	35.0	1822	Very accurate
	36.5	1871	Compressed
H 335	31.0	1572	
	33.0	1713	Accurate
	37.0	1836	

Test Gun: Remington 700 Classic **.35 Whelen**

Cases: R-P Lyman 358627

Primers: Winchester Large Rifle

Reduced loads

Powder	Charge	Velocity	Comments
Unique	6.0	862	Very accurate, on at 25 yards
IMR 4198	20.0	1349	Accurate, on at 50 yards

Full power loads

Powder	Charge	Velocity	Comments
IMR 3031	38.0	1851	Erratic velocities
	40.0	1971	Reasonable
IMR 4895	40.0	1845	
	43.0	1972	Very accurate
IMR 4064	40.0	1802	
	42.0	1916	Accurate
Accurate Arms #2520	41.0	1946	Very accurate