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The history of the cartridge known as the .357 Remington Maximum is a little puzzling, to say the least. There was certainly no hint of problems in November 1982 when Remington announced it would release a new, specialized revolver round. Primary use was indicated to be metallic silhouette competition. Higher velocity than other such cartridges was supposed to down those pesky 200 meter rams better. Less recoil, decreased muzzle jump and flatter trajectory than hot-loaded .44s or .45 Colts were to be other advantages. The round was to be simply a .357 magnum with its case lengthened 0.315 inch.

Remington reportedly began work on the .357 Maximum at the behest of Sturm, Ruger & Company. Besides the previously mentioned intent to make a flatter-shooting silhouette round, there was certainly another purpose. Less bullet drop and recoil would be quite advantageous in the hunting field. Handgun hunters seeking deer and varmints were supposedly looking for such performance.

Then there was the gun itself. A smaller diameter bullet than the common .44 or .45 would allow thicker barrel and cylinder walls when standard diameter parts were used. The .357 Maximum also required a longer cylinder. Thus more weight would remain in the gun to control recoil. Even more importantly, the extra steel would provide a larger margin of safety in the event handloaders inadvertently added a bit of extra powder. It’s been known to happen with such rounds.

The .357 in the title indicates the .35-caliber pistol bullet diameter of 0.357 inch as opposed to the rifle diameter of 0.358 inch. Weight of the slug was 158 grains, the same as the common .357 Magnum. Remington’s only factory offering was supposed to give this bullet a muzzle velocity of 1,825 fps from a 10.5-inch barrel. Speed dropped to 1,588 fps at 50 yards and 1,381 at 100. Energy figures came to 1,168, 885 and 669 foot-pounds (ft-lbs) at the three distances, respectively. These figures yield a midrange trajectory of 0.4 inch for 50 yards and 1.7 inches for 100.

Given that the .357 Maximum was introduced as a specialized handgun round with only one factory load, a question arises involving the bullet. Outward appearance was exactly the same as a bullet offered in a Remington .357 Magnum factory round. One would logically expect the slug to be more stoutly constructed in the Maximum because of its much greater starting velocity.

Although some writers of the time who used the new cartridge on game indicated factories loaded it with a tougher bullet, apparently this was not the case. Others stated emphatically that it wasn’t. Indeed, a more durable bullet may not really be desired.

Consider the silhouette shooting aspect. The first targets, the chickens, live 50 meters from the firing line. Any load/bullet combination one can put in a .357 Maximum will blow these targets off the stake. By the time the Maximum’s bullet gets to the 100-meter pigs, velocity is down enough that fragmenting is of little concern.

Certainly shooting live game is a different state of affairs, right?
Not really. Virtually all American shooters look at magnum cartridges as adding extra range, not as adding extra power to take animals more reliably at normal ranges. Why this is so has not been properly studied. If the .357 Maximum is thought of as simply adding about 50 yards range to the .357 Magnum so animals can be taken at 100 yards instead of 40 to 50, then there is no need to change bullet construction. The .357 Magnum and its bullet have proven at least adequate at 50 yards on suitable game. We are not, of course, talking about moose, grizzlies or carnivorous dinosaurs, even though such creatures seem to be continuously mentioned by handgun hunters.

All this talk about range and power really heats up when we discover that factory ammunition for the .357 Maximum did not achieve published velocity from the revolvers chambering it. All reliable sources seem to indicate at least 150 fps less muzzle velocity and some over 200 fps less! Standard deviation was rather large and accuracy nothing to brag about.

Federal Cartridge then began loading the .357 Maximum in 1984. Only one variation was offered, but it was a 180-grain jacketed hollowpoint (HP) at a published muzzle speed of 1,550 fps and energy of 960 ft-lbs, dropping to 1,305 fps/680 ft-lbs at 50 paces. It too suffered significant loss when fired in Ruger revolvers. Velocity was down 150 to 180 fps normally. Federal dropped its Maximum cartridge very quickly. More on this later.

Remington took Federal’s lead in 1985 and announced a 180-grain jacketed HP achieving 1,555 fps from the muzzle of 10½-inch test barrels. Fifty-yard velocity was 1,328 fps, 1,154 fps at 100. Energy figures came to 966, 705 and 532 ft-lbs, respectively. This loading was “subject to stock on hand” in 1989 and gone in 1990. The same treatment was given to the original 158-grain load in 1997. It was gone in 1998.

History of the .357 Maximum’s ammunition may seem puzzling, but that of the Ruger revolver firing it is even more so. Writers receiving the first Rugers and Remington ammunition discovered the combination produced a terrific muzzle blast. Then, after as few as 20 shots, it was noticed that metal was disappearing from the underside of the top strap just above the barrel/cylinder gap! Also the forcing cone was moderately to severely roughened – “by gas erosion” – it was said. Results of this discovery were both immediate and predictable.
First came the prophecy that 200 or 300 rounds would completely cut through the top strap! Anyone familiar with what it takes to cut steel using heat knows such a statement is just plain absurd. I have seen several revolvers in collections and while appearing to have been shot quite a bit, only enough “gas cutting” was visible to say that it actually existed. A couple of photos in gun magazines of the 1980s show grooves of perhaps 0.020 inch depth – not enough to more than mention in my opinion.

Obviously Ruger, Colt, S&W and others had made millions of .357 Magnums without a single severed top strap. What was going on here? Top pressure of the .357 Maximum was given as 48,000 to 50,000 CUP, while the .357 Magnum registers 46,000 CUP. Does anyone believe that a 4,000 CUP increase is going to cut through top straps and erode forcing cones in a couple of hundred rounds?

It is the forcing cone “erosion” that seems to give the problem away. Simply heating steel to a very high temperature doesn’t hurt it a bit, unless the temperature is enough to melt it into a puddle. Casehardening is a perfect example. Sure, high temperatures and pressure can cause minute cracking and flaking of a bore’s surface, but only in many thousands of rounds, not less than 100.

If this “erosion” was due to high pressure/temperature gas, why weren’t the barrel face, cylinder face and cylinder throats also damaged? Because gas pressure had help from hard, not completely consumed powder granules.

Consider that the long .357 Maximum case requires a very long column of slow-burning powder to generate the (supposed) high velocity given to its bullet. This bullet is then very short and lightweight for the powder charge in a revolver. Now note that virtually everyone who shot the .357 Maximum in the Ruger noticed smoke-smudging on the fired cases when 158-grain factory rounds were used – the same with maximum power handloads. Also, these loads gave velocity spreads of over 100 fps – sometimes a lot more. This can only mean one thing.

Cartridges developing over 48,000 CUP do not smoke cases, period! The smudging indicated that the pressure in the chamber at the time the bullet left the case mouth was not sufficient to expand the soft brass and seal the chamber. I believe the cylinder-to-barrel jump, light bullet and generous throat dimensions allowed pressure to drop enough to cause the hard-to-ignite, slow-burning powder to almost stop burning. The bullet then hit the forcing cone and stopped in the bore.
This is exactly the same situation that occurs in rifle barrels when light bullets ahead of very slow-burning powders are fired in chambers having long throats (long freebore). The bullet pops out of the neck, pressure drops and sometimes the fire almost goes out. The bullet coasts along until it hits the rifling, stopping there when not enough pressure exists to push it farther.

As the blockage allows pressure to build, the bullet usually starts moving. Velocities aren’t very uniform if many shots are measured. On rare occasions the slug doesn’t move fast enough and — boom! Rifle pieces that are not normally individual parts fly in all directions. This phenomenon was a mystery in rifles for many years, until transducer pressure measuring equipment revealed it.

In the .357 Maximum, stopping of the light 158-grain slug, then the greatly increased pressure buildup pushed hard, unburned powder grains against the forcing cone abrading it like so much sand. Hot gas and powder bits then exited the barrel-cylinder gap for a far longer duration than normal, slightly abrading the top strap. Simply changing powder in the factory load apparently could not solve the problem. Or at least muzzle velocities would have had to have been lower still. That would never do. It was reported that Remington used a different powder in its factory ammunition than had been loaded in the test cartridges supplied to Ruger during gun development. Why? No one has said.

Federal Cartridge apparently picked up on this almost immediately and dropped all .357 Maximum ammunition. No accidents seem to have happened, yet when handloaders got hold of the revolver and started using even lighter bullets there was that possibility.

With the largely cosmetic cutting of the top strap bothering gun writers, and low velocity and accuracy not all it should have been, Ruger quickly dropped the .357 Maximum. This got Remington off the hook as Thompson/Center was selling Contender barrels which, of course, were not plagued by revolver problems. Owners needed ammunition and brass to keep them shooting.

Empty cases are still available. Most, however, are not used in revolvers or even T/C Contenders. Forming little wildcats for single-shot varmint and cast bullet target rifles is their end. Who would have suspected this in 1982?
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December 31, 2007
The desert sky dawned blue and cloudless. The sun felt good in the early morning chill. It would be less benign later in the day, reddening bared skin and creating shimmering mirage to obscure the view through the scope.

Clair Rees

In addition to depleting the local prairie dog population, I and my fellow hunters were testing a brand-new varmint bullet Barnes Bullets was about to introduce – the Varmint Grenade.

The Varmint Grenade truly deserves its militaristic moniker. Earlier, Barnes had received a request from our military to develop a highly frangible projectile. The bullet would be a training round designed to fragment on contact, yielding minimal splash-back on steel targets.

The military also had another demand – the bullet must distribute no lead or other harmful pollutants into the atmosphere. To meet this specification, Barnes built the bullet to its recently adopted MPG™ (Multi-Purpose Green) standard. Containing no lead, the bullet featured a powdered copper/tin composite metal core surrounded by a gilding metal jacket. The hollow nose was designed for explosive performance!
rapid expansion, while the inside of the jacket was scribed to help the bullet instantly tear apart.

The military was delighted with the new bullet. In fact, it worked so well it gave the folks at Barnes a great idea. Why not use a similar, highly frangible design featuring the same technology to build a better varmint bullet? The fast-expanding bullet had been proven exceptionally accurate and should be downright deadly on marmots, prairie dogs and coyotes. Because it totally disintegrates on impact, ricochets would be eliminated.

When tested in ballistic gelatin, the military bullet penetrated 11 to 16 inches. The folks at Barnes wanted the new varmint bullet to disintegrate a lot quicker, so they went to work.

Without detailing exactly how Barnes did it – “There’s no need to educate our competitors,” said Barnes President Randy Brooks – the company tweaked the design of its frangible, lead-free military bullet so it comes apart instantly on impact. The bulk of the fragments penetrate no more than 6 to 8 inches, perfect for prairie dogs and similarly sized critters.

To illustrate this phenomenon, Barnes’s technical guru Tim Janzen suspended a grape, then shot a 36-grain .224-inch Varmint Grenade into it. He used a .22-250 Remington rifle with the bullet impacting at 4,300 fps. (The last photo in the accompanying sequence shows the frangible core flying off in all directions.)

As I learned during spring varmint shoots, prairie poodles are virtually vaporized. Shoot up a ’dog town with Varmint Grenades, and hungry hawks circling overhead have a hard time finding prairie dog parts big enough to snack on.
While Varmint Grenades are highly frangible, they won’t come apart in flight. I’ve fired them from a .22-250 Remington rifle at velocities exceeding 4,400 fps, and they held together just fine. Rifling twist rate can be an even greater factor than velocity when it comes to destroying bullets before they reach their target. The .22-250 mentioned had a standard one-in-14-inch twist. I’ve fired the same bullet at 3,700 fps through a lightweight .223 sporter Charlie Sisk made with a fast one-in-8-inch twist. In all instances, the bullets remained intact long enough to explosively dismantle ground squirrels, jackrabbits and prairie dogs out to 350 yards.

These new, highly frangible bullets delivered excellent accuracy in all the rifles I’ve fired them from. They include a bullbarreled Savage Model 12 that punched .24-inch, three-shot groups from 100 yards, the superlight Charlie Sisk custom .223 that did nearly as well, and a Ruger Mini-14 Ranch Rifle that

---

Above, Rees’s Encore .22-250 Remington shot well with Varmint Grenade handloads. Right, a fast twist Mini Mauser made by Charlie Sisk produced .25-inch, 100-yard groups with Varmint Grenade loads.

Below left, a suspended grape was targeted in the Varmint Grenade test. Center, as the bullet enters the grape, both bullet and grape instantly disintegrate. Facing page, passing through the grape, the frangible VG core flies off in all directions.
delivered minute-of-angle precision – great performance from an autoloader not noted for benchrest accuracy.

With .243 Winchester handloads pushing 62-grain Varmint Grenades, a light, easy-carrying Classic Model 10 Savage I've been using punches .59-inch, three-shot groups. This rifle will accompany me to South Dakota, where I'll be calling coyotes a few weeks from now.

Varmint Grenade bullets expand so quickly Tim Janzen theorized they would immediately disintegrate inside a coyote or bobcat, leaving no gaping exit wound. Pelt hunters appreciate bullets that do little damage to valuable hides.

To check this out, I worked up a Varmint Grenade load consisting of 39.0 grains of Reloder 15 for my .22-250 Remington Thompson/Center Encore pistol. The 36-grain bullet was seated .10 inch off the lands, resulting in a cartridge overall length (OAL) of 2.320 inches. While I tried a few other combinations, this was the load I settled on. The bullets left the muzzle of the 14 3/8-inch barrel at 3,825 fps and regularly printed .6-inch, three-shot groups from sandbags at 100 yards.

After one unproductive calling expedition brought no coyotes in, I teamed up with Ty Herring and tried again the following weekend. Both of us wore full desert camouflage, including multicolored face masks and lightweight mesh gloves. Canines are said to be color-blind, but we were taking no chances.

Instead of using mouth-blown calls, we relied on an electronic PreyMasters unit with a speaker positioned 40 yards upwind. The calling tape I selected mimicked a fawn in distress. I'd used it before with good success.

While Ty covered one approach with his rifle, I settled in behind him, my pistol pointing in the opposite direction. A Stoney Point bipod made the long-barreled handgun seem as steady as a bull-barreled rifle.

Minutes after I triggered the call, a fighting-mad doe ran from a grove of aspen trees, eager to trample whatever was torment-
The new environmentally friendly varmint bullet has proven exceptionally accurate.

Powders used in the .22-250 Remington handloads included Winchester 748, Varget and Reloder 15.

Powders used for the .223 Remington handloads included IMR-4198 and Reloder 7.

The wind blew all day long, without a moment's letup. The coyotes were smart enough to lie low out of the wind. We weren't.

The next morning the temperature dropped to 32 degrees, and we drove through a blizzard in the same 40-mph winds. With conditions worse than ever, we weren't surprised when our luck didn't change. By noon the snow had quit falling — but if anything, the wind blew harder than ever. When I opened the truck's door, the wind snatched a good felt hat from my head and carried it across the prairie. The last I saw of the hat it was 20 feet off the 110-yard shot, and the yodel dog died on the spot. There was an exit hole, but it was barely noticeable. The Varmint Grenade had left the pelt in pretty good shape.

A few weeks later, Tim and I drove to central Wyoming to meet Tim O'Brien, a champion coyote caller who wore a necklace of mouth-blown calls. When we left our hotel the following morning, the wind was blowing 40 mph. That's not unusual in desert country, but this time the wind blew all day long, without a moment’s letup. The coyotes were smart enough to lie low out of the wind. We weren't.

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I was worried she’d scare coyotes away. Suddenly raising her head, she stared off to my right, then hurried back into the trees. Minutes later, a coyote materialized, eagerly looking around for the plat du jour. It was an easy 110-yard shot, and the yodel dog died on the spot. There was an exit hole, but it was barely noticeable. The Varmint Grenade had left the pelt in pretty good shape.

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Rees tested prototype Varmint Grenades on Utah prairie dogs.
ground, headed for the New Mexico border.

On the way back to town that afternoon, Tim caught a glimpse of a coyote huddled against a tall sagebrush some 300 yards away. When the truck stopped moving, the animal took off. Tim tried to get a shot, but the wind made it impossible to hold the rifle steady. His crosshairs danced all over the place, allowing the song dog to make a clean exit.

Later on, Tim drove to California's Tejo Ranch, where he finally connected with a yodel dog. The coyote was quartering away, running flat out. Tim swung the rifle ahead of the fleeing coyote, guessing at the lead. When he pulled the trigger, the coyote made a forward somersault onto his back and lay still.

“The bullet hit the coyote in its spine,” Tim said. “While the bullet killed him instantly, it wasn’t a great test of penetration. When I reached the dead animal, I fired another bullet broadside into its chest at point-blank range. I couldn’t find the entrance wound, but the exit hole was about the diameter of my thumb.”

Above, this .60-inch, 100-yard group was made with a T/C Encore pistol loaded with 36-grain Varmint Grenades ahead of 39.0 grains of RL-15. Right Tim Janzen shot this coyote with a 6mm Varmint Grenade handload.
Handloader 249

For instance, a load consisting of 39.0 grains of TAC powder behind a 36-grain Varmint Grenade produced five-shot groups measuring .4 inch, center-to-center, when fired from a bull-barreled Model 700 .22-250 Remington. Winchester cases and Federal GM210M primers were used. Bullets were loaded .058 inch off the lands.

The same bullet fired from a Model 700 .223 Remington rifle averaged .50-inch groups. Again, TAC powder (29.5 grains) was the propellant. Winchester Small Rifle primers were used, and bullets were seated .020 inch off the lands.

Barnes’s new Varmint Grenade is now available in .224 and 6mm calibers. Those who don’t reload can buy Black Hills .223 Remington factory ammunition loaded with 36-grain VG bullets. The 36-grain .224-inch Varmint Grenade has a ballistic coefficient of .149. The 62-grain, 6mm Varmint Grenade’s ballistic coefficient is .199.

<table>
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**Notes:** Winchester cases and WSR primers used in the .223 Remington loads. Bullets were seated 0.020 inch off the lands. The 23.6-inch barrel had a one-in-12-inch rifling twist. Winchester cases and Federal GM21OM primers were used in the .22-250 Remington loads. Bullets were seated 0.058 inch off the lands. A 25.9-inch barrel with a one-in-14-inch rifling twist was used to fire these loads.
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