THE .22 SUPER SAGA

Developing wildcat cartridges is always difficult, but how about a bottleneck high velocity pistol cartridge that will function in an autoloader?

By Art Blatt

Wildcatting a handgun cartridge for a revolver or a single-shot pistol isn't a difficult undertaking. Either exercise is usually a simple job of rechambering and/or rebarreling. After that task is accomplished, it's then only a matter of case forming and working up accurate loadings.

But, fulfilling a 10-year dream of conjuring up a wildcat cartridge to be chambered in an autoloading pistol proved to be an exasperating experience and opened up can after can of wiggly worms.

Currently, there are over two dozen factory-loaded handgun cartridges readily available—all mated with a vast array of compatible handguns. With this seemingly ample selection at hand, why in the world would anyone want to "invent" a new wildcat cartridge?

Experienced handloaders are extremely inquisitive and highly imaginative people. They are a select group who, like mountain climbers, are always searching for a new peak to conquer. Anyone who has ever poured powder or seated a bullet dreams that he too, someday, will concoct a new and terrific cartridge that would ballistically beat any factory number.

But in all honesty, can those of us who have developed their "wonder round" truthfully claim that their brainchild can outshoot the factory-inspired cartridge in either performance and reliability? It is doubtful.

If there's a "need" for a new semi-automatic pistol cartridge, it seems to me to fall somewhere between the .22 rimfire and the .38 Super. There is no .22 caliber centerfire cartridge chambered in an autoloading pistol. I've always wondered why.

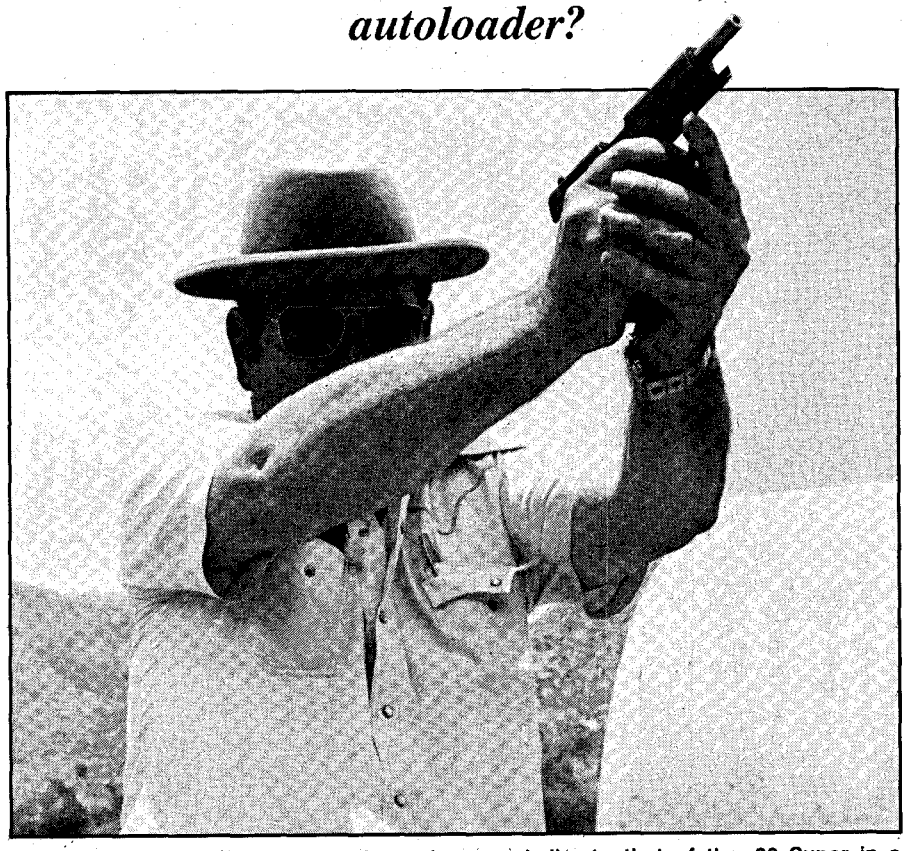
There've been some few double-deuce centerfires for revolvers—the likes of the Smith & Wesson .22 Jet plus many conversions taking the form of the .22 Hornet in standard or improved versions and even the .218 Bee. But these hot .22s were almost always used in large frame revolvers and/or single shot pistols. There are two noteworthy exceptions. In 1937, Col. Charles Askins and J.D. Buchanan, a pistolsmithing ace of that era, converted a Colt Woodsman to handle a special .22 centerfire cartridge based on a cut-down version of the European 5.5 mm Velo Dog round. The other successful conversion was performed by a Boise, Idaho gunsmith named W.F. Vickery. Prior to World War II, Vickery stated in his book, *Advanced Gunsmithing*, that he necked down a 9 mm Parabellum cartridge and chambered it in a German Luger. Vickery claimed a muzzle velocity in the 1,700 fps class using a 45-grain Hornet bullet backed by nine grains of (now obsolete) DuPont #1204 powder. He further stated that accuracy was in the sub-two-inch class at 50 yards over a sandbag rest.

The 9 mm/.22 conversion was intriguing, so we sought the services of RCBS to learn more about this unique wildcat cartridge. We were told that the 9 mm/.22 had been successful in revolvers, notably single-action Ruger conversions. We liked the idea for the 9 mm/.22 conversion because of the plethora of handguns chambered for the Big Nine plus plenty of readily available brass for case forming.

After sleeping on the idea for a while, we decided against the 9 mm/.22 for a couple of reasons. First, it had already been done, and we wanted to develop a wildcat with a little more horsepower. The next logical choice was the temperamental .38 Super case. Our ultimate goal would be to develop a cartridge which would produce muzzle energy of at least 300 foot pounds which would necessitate that a 55-grain .224 caliber bullet would have to exit the muzzle at around 1,550 fps.

These numbers did not seem to be out of reach, but we also added another important parameter—to keep the Colt Commander as "stock" as possible. Instead of making major modifications to the compact autoloading pistol, we would make the load fit the pistol instead of vice versa.

Ever since Colt helped introduce the .38 Super cartridge in 1929, handgunners have either praised it or buried it. There are seemingly no "middle of the road" attitudes surrounding this unique cartridge. It carries a certain stigma regarding accuracy, with the fault lying in its method of headspacing. The .38 Super is classified as



The recoil generated by the .22 Super is very similar to that of the .38 Super in a Commander, but the similarity ends there! The muzzle blast is very sharp. Functioning proved to be quite reliable, given the right load and properly formed cases.

a semi-rimmed case; when seated in the chamber, it is supported by the narrow rim of its case resting on a shoulder formed by the projecting lip at the top of the barrel. At best, it is a precarious method of headspacing and is the major factor contributing to the .38 Super's erratic accuracy.

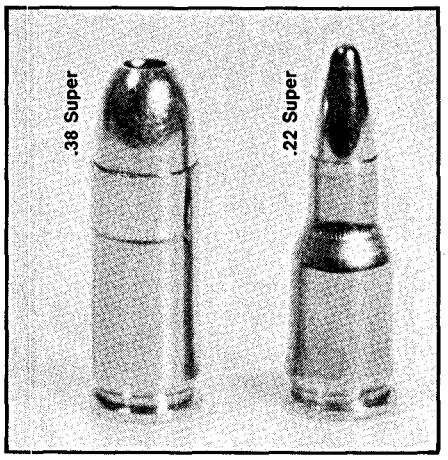
But, on the flip side of the coin, the .38 Super is a potent cartridge and surpasses the performance of the 80-year-old 9 mm Parabellum. It is just a tad below the energy figures achieved by the popular .357 Magnum cartridge.

Another reason why we chose the .38 Super case was its name! Like "magnum," the word "super" has a nice ring to it. The .38 Super case appeared to have enough boiler room to accommodate a goodly amount of powder to whisk a 55-grain bullet downrange and provide proper bullet expansion. To validate our theory, we talked to Mike Bussard of Sierra Bullets, and Mike confirmed our belief that either 50 or 55-grain Sierra varmint-type bullets would expand properly with muzzle velocities in the 1,500 to 1,600 fps. range. Now we had our bullets.

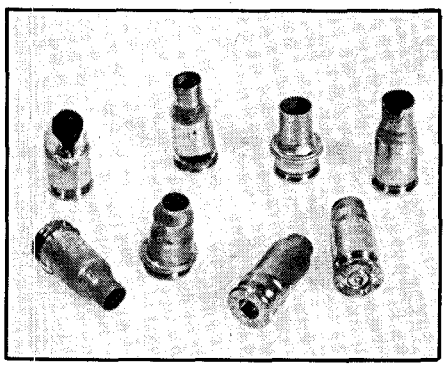
While discussing this fascinating project with our R&D team over gallons of coffee, we decided our first attempt to make this conversion would be to make a simple .22 caliber barrel insert utilizing the Commander's existing .38 Super chamber. The barrel insert was turned down from a discarded Mossberg rifle and the insert was held in place with a knurled nut which protruded from the muzzle. This initial attempt was both ugly in appearance and worthless in performance. After a few shots, the insert would have to be retrieved downrange as it wanted to follow the path of the bullet—not a desirable happenstance.

The initial cases were jury-rigged using two separate dies—a .30 Luger and a .22 Varminter for case forming and reducing the neck down to .224 caliber. As anticipated during this embryo stage, an ejection problem reared its ugly head. Apparently, when forming the case using a .22 Varminter die ground down to accommodate the Super case length, the shoulder angle was too severe and caused the fired case to grab the chamber walls and stick. Even though all our initial gyrations must be labeled a dismal failure, we learned what not to do in future attempts.

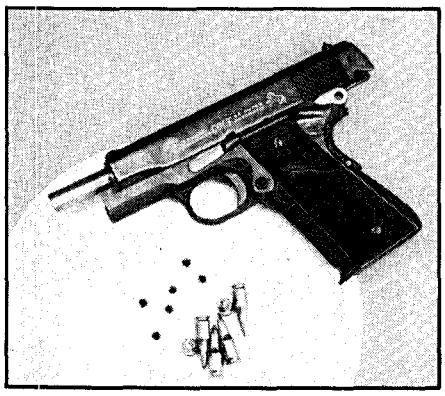
Next, we solicited the service of a highly talented .45-smith named Jim Boland. This Panorama City, California resident has performed some remarkable Colt auto conversions, including his astonishing gas-operated long slide models. Boland, with his more scientific mind, chided us about our attempt to use a barrel insert and volunteered to take over this project—and make it work. We were thrilled with this heartening news.



The parent case for the .22 Super is the .38 Super. The finished round is a bit longer than the .38 Super—1.280 inches.



Not all case-forming attempts come out perfect; these are a few of the cases that had to be discarded after sizing.

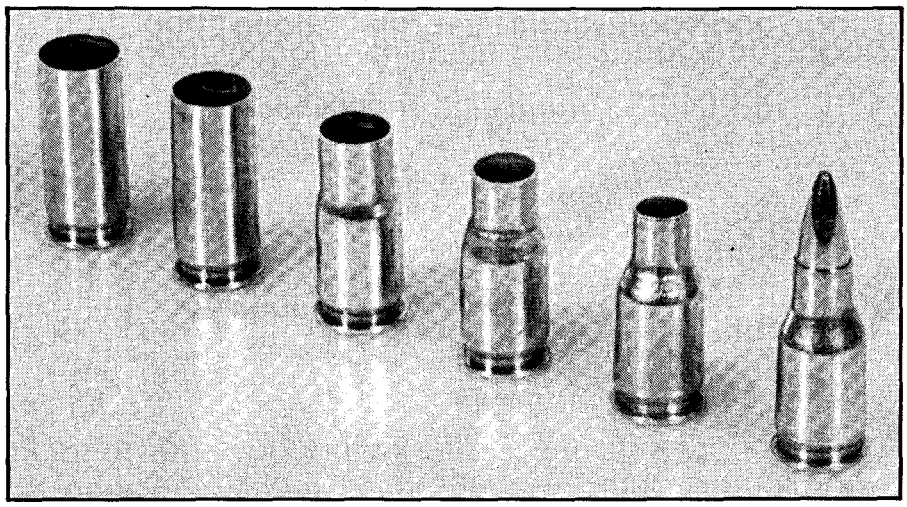


This six-shot 35-yard group, fired with the aid of a Lee pistol rest, measured just under two inches—not too shabby!

PRIMER PERFORMANCE
INSTRUMENTAL VELOCITY*

PRIMER	POWDER CHARGE	BULLET WEIGHT	10-inch T/C BARREL	4 ¼-Inch COLT BARREL
Federal Small Pistol	8.5 grains H-110	Sierra 55-Gr. B.T.	2,022 fps	1,504 fps
Winchester Small Pistol	8.5 grains H-110	Sierra 55-Gr. B.T.	1,970 fps	1,458 fps
CCI #500 Small Pistol	8.5 grains H-110	Sierra 55-Gr. B.T.	1,986 fps	1,484 fps
Federal #205M Small Rifle Bench Rest	8.5 grains H-110	Sierra 55-Gr. B.T.	2,047 fps	1,495 fps
CCI #500 Small Pistol Magnum	8.5 grains H-110	Sierra 55-Gr. B.T.	2,034 fps	1,437 fps
Remington #7½ Small Rifle Bench Rest	8.5 grains H-110	Sierra 55-Gr. B.T.	2,043 fps	1,565 fps
Remington #1½ Small Pistol	8.5 grains H-110	Sierra 55-Gr. B.T.	2,018 fps	1,498 fps

* Instrumental velocity was recorded with a Custom Chronograph equipped with skyscreens. Muzzles of both handguns were placed six feet from "starting" skyscreen.



From left to right are the steps required to form .22 Super cases: parent .38 Super case; sized in .380 ACP die; sized in .30 Luger die; sized in .25-35 die; sized in .221 Remington Fireball die; and the finished and loaded .22 Super round.

Two days later, we received a phone call from Boland telling us that the Commander was converted and now it was time to make brass. It sounded too good to be true, but when we walked into Boland's shop, he handed us the Commander with a tiny hole at the end of the muzzle. Jim explained that he sliced off a piece from a discarded Douglas Supreme barrel, turned it down on a lathe and press-fit it inside the .38 Super barrel. Chambering was accomplished by using a shoulder angle of 23 degrees. A month earlier, we ordered a 10-inch, unchambered .224 Contender barrel from Thompson/Center Arms which we anticipated would become our "proof" barrel to slowly and carefully work up loads. The Contender barrel was also chambered for our .22 Super Mark II version. And so, with anxious hands, we started the long and arduous task of making .22 Super cases.

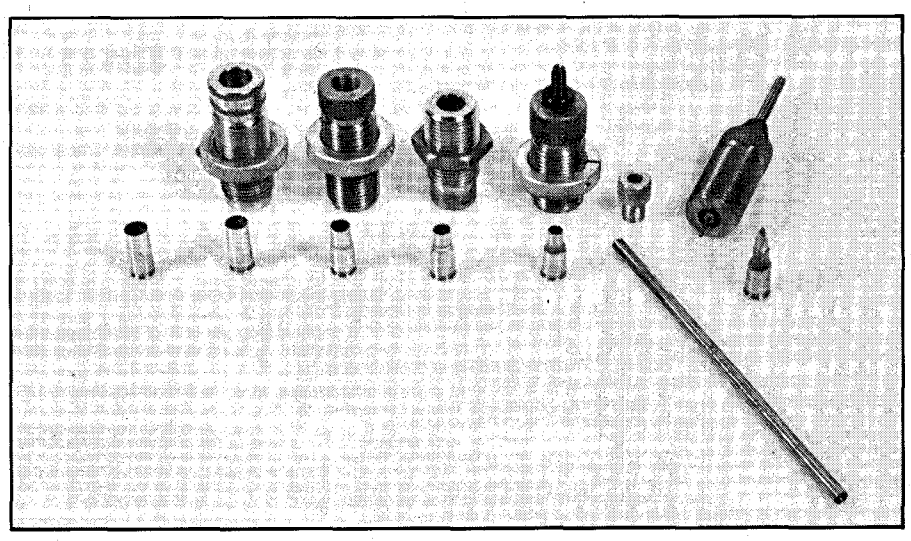
To eliminate the expected ejection problem, we put a slight taper on the .38 Super case by running the cases into a .380 ACP sizing die. Next, we used a .30 Luger die to reduce the outside neck diameter. The next step was to reduce the neck to .25 caliber and for this we used a cut-down .25-35 sizing die. Finally, the .221 Remington Fireball sizing die formed the shoulder and the cases started to take on a finished look. With all this squeezing of the brass, the inside neck diameter shrunk to .2105-inch, and inside reaming was necessary to open up the case mouth to accept a .224 caliber bullet. Inside neck reaming, as many experienced handloaders will attest, can be a tedious task. We reworked a decapping rod nut which, when the case was fully inserted into the .221 die, would act as a guide for the .221-inch reamer. To speed up this operation, the reamer was chucked into a drill motor, which proved to be both fast and efficent. Only one more operation was necessary—trimming the cases to an overall length of .9-inch. Again, a drill motor was chucked to an RCBS case trimmer and in less than an hour we trimmed enough brass to fill a cigar box.

Even though we had stretched and worked the brass considerably, we never had to anneal the cases, and for that we thank the tutelary spirit of handloading.

We opted to utilize the Thompson/Center Contender pistol to initiate and test our loads. Armed with seven varieties of powders and three bullet weights, we proceeded to stir up quite a few recipes. We incurred all kinds of results ranging from too much pressure and too little recoil to operate the slide to exact opposite extremes. Bottleneck pistol cases create a different set of problems for the handloader. The results of given experimental loads are virtually unpredictable, and what is a successful concoction for a straight-wall case does not necessarily hold true for troublesome bottleneck designs. Quite a few loads showed too much pressure as evidenced by bulged cases and blown primers. By trial and error, we were eventually able to eliminate the poor loads and zero in with a particular (55-grain Sierra B.T.) bullet and a couple of powder charges which we felt would work well in the Colt Commander.

Our starting loads for the .22 Super/Commander were 8.0 grains of Hercules Blue Dot, 8.5 grains of Hodgdon's H-110 and 10.5 grains of Winchester Ball Powder #680. We loaded ten rounds of each selection and headed for the shooting range. Nervously, we wedged five rounds into the magazine and with a firm two-hand hold fired the first round over the chronograph. For those of you who have shot an experimental cartridge for the first time, you'll appreciate and understand the feeling of accomplishment when that moment of truth arrives. One never hears the report or is aware of the recoil because the body system's adrenalin is flowing like a rampaging river.

The first field work with the new cartridge was on Idaho rockchucks; this fat "chuck" was the first of several that fell to the hot little cartridge. Using Sierra 55-grain boattail bullets, the compact Commander proved deadly out to about 50 yards.



It takes a lot of elbow grease to make a wildcat cartridge. Tools needed were, left to right, .380 sizing die, .30 Luger sizing die, .25-35 sizing die, .221 Remington Fireball sizing die, decapping rod nut as guide for reamer, and sizing/seating die.

It would be terrific to report that our first shot was a howling success, but in reality, our test load of 8.0 grains of Blue Dot created so much pressure in the Commander that it blew the bottom out of the case. These redirected gases were funneled down through the magazine well into the magazine, which in turn damaged the magazine spring and subsequently fractured both walnut grip panels. This was one time where we were aware of the first shot being fired. Needless to say, we abandoned this load in the Commander, but later would use it with excellent success in the Contender.

The broken magazine spring was replaced and we then installed a set of Pachmayr neoprene grips that have a steel insert between the grips and the frame. In the event that we ran into similar pressure problems, the Pachmayr grips would give us a little more margin of safety in the event that this mini-catastrophe repeated itself. Fortunately, it didn't happen again.

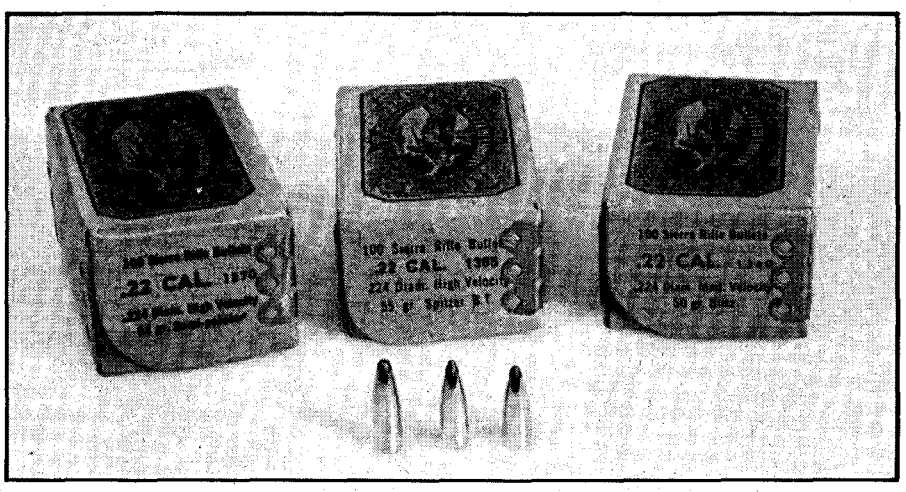
The next load of 10.5 grains of W-W #680 was a tad inconsistent and didn't seem to operate the slide smoothly and reliably from shot to shot. Felt recoil was very light, although muzzle blast was severe. In all of our loads, one of the characteristics of the .22 Super is its sharp cracking report, regardless of the load. The short (4¼-inch) barrel contributes to this happenstance.

By process of elimination, we finally settled for the 8.5 grains of H-110 and the Sierra 55-grain Spitzer B.T. bullet. We tested this particular load for slide function and feeding reliability. This load consistently chronographed around 1,565 fps and developed 299 foot pounds of muzzle energy. Our kitchen table ballistics were met—save for one more testing session to determine whether or not primers made any appreciable difference.

To determine which primer would provide the most *oomph* for this wildcat cartridge would require that we use as many different types as possible. Again, please refer to the accompanying chart and you'll see that primers do indeed make a big difference. There was a spread of 128 fps between the hottest and coldest primer. Over the years, we've used this same primer evaluation system and it has proven to be most effective and reliable.

While we were testing primers, we made our initial accuracy test with the aid of the Lee Pistol rest. This inexpensive device is a boon as it is quick to set up and greatly reduces shooter's error. Our tightest six-shot group fired at 35 yards measured just under two inches. Not exactly target accuracy, but worthy of being classified as utilitarian. We knew that we would be able to eventually tighten up these groups with weighed charges and some minor tuning to the Colt Commander.

It was now time for a practical shakedown test of our new wildcat. We decided to take both the Contender and Commander on a rockchuck hunt to Idaho. A



Sierra .224 bullets proved to be dependable both in the field and on the range. The three weights tested were 50-grain "Blitz," 55-gr. Spitzer B.T., and 63-grain semi-spitzer. The 55-grain bullet provided the most reliable functioning in the Colt.

Wildcatting any new cartridge for which no loading data exists is a potentially hazardous reloading problem requiring careful adherence to sound procedures. The author started by using powders he was familiar with and working up loads very gradually.

Primer selection is always critical to concocting a good load, but the .22 Super proved to be more finicky than most. With H-110 powder, which proved the most manageable, Remington's No. 7½ Small Rifle Bench Rest primers were the most efficient.

telephone call to Steve Herrett in Twin Falls was all it took to make arrangements. Herrett, a master at wildcatting handgun cartridges, was almost as eager to partake in our initial testing as we were. A week later, we were tooling around the Southern Idaho landscape searching for rockchucks. And we found them—not in the usual form of a chuck here or there, but rather swarms of them scuttling back and forth between their favorite lunch fields and rock houses.

The first afternoon of shooting was a bit frustrating as nearly all the varminting was done at long range—at least 150 yards—too far for the iron-sighted pistols, but well within range of our scope-equipped Contenders chambered for .30 Herrett and .223 Remington. But in the event that we should encounter a chuck at short range, the Commander patiently sat at our side.

Just before dusk, we decided to make a quiet stalk to within 50 yards of a well occupied rock chuck den. Sitting as still as possible, we'd hoped that a straggler or two would casually stroll by en route home, which would give us the anxiously awaited first hunting shot with .22 Super. It would be wonderful to report perfect results with our initial shot, but in actuality, we missed our first dozen firings and finally connected on the lucky 13th shot. A good-sized 10 pound rockchuck gave its all in the name of ballistic science. A quick autopsy revealed that the 55-grain slug did its job precisely and literally exploded inside the chuck's boiler room.

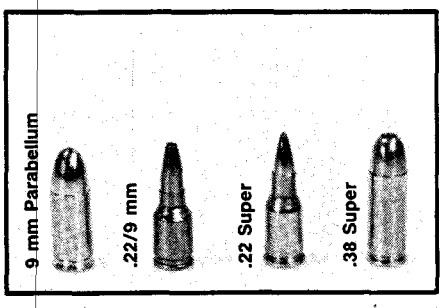
That evening, after a delightful dinner served by Marie Herrett, Steve and I gabbed at great length regarding other wildcat handgun cartridges. Wildcat cartridge development is more than just a science, it takes precise calculations, lots of time and determination and with a generous helping of the most important ingredient—luck! Herrett proved this by dragging out numerous odd-looking handgun cartridges that on paper seemed to be exceptional performers. But under actual shooting conditions, they were dismal failures. So after seeing a parade of Herrett's follies, we felt a bit proud—and lucky—that we developed a reasonably good and accurate cartridge while encountering only a minimum number of stumbling blocks.

Again, drawing from Herrett's wealth of knowledge, we felt that a faster rifling twist would influence and increase the .22 Super's accuracy and decided to replace the 1-in-14-inch barrel twist with a 1-in-9-inch twist.

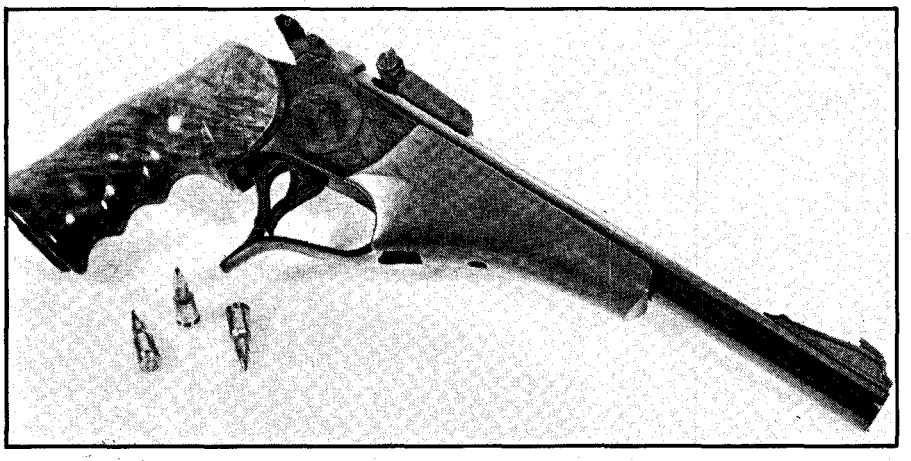
When we returned to Los Angeles, a special barrel was ordered, and within a couple of weeks, we had the new tube installed. Again, it was time to set up for an accuracy session, and the results of this test session were virtually identical to our initial test. Obviously, that wasn't the solution for match accuracy, so we decided to be content with the acceptable results we had previously obtained.

With the exception of sleeving the .38 Super's original barrel, the only other modification we made to the "stock" Commander was to alter the magazine follower. A spot of Heliarc weld was applied to the top of the follower to ensure a positive feed angle, and nothing else was altered. It takes only a couple of minutes to convert the .22 Super back to a .38 Super by replacing the barrel and a standard factory magazine.

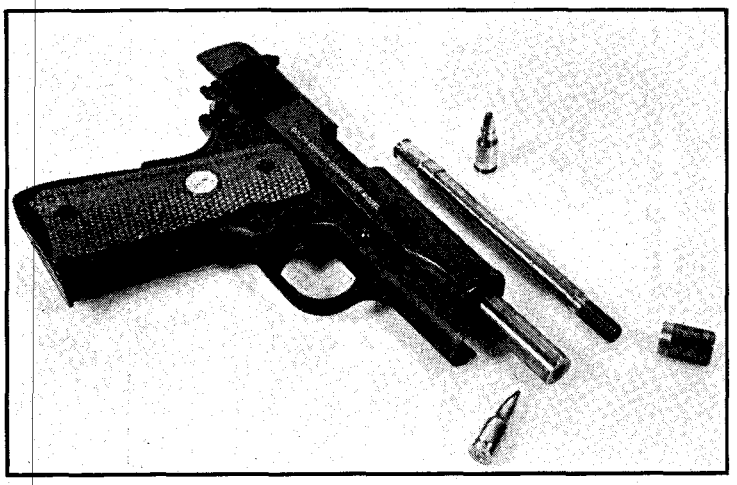
We felt we had accomplished our intended purpose. The cost of the entire project was under $150 for all the parts and labor. As we put both the Commander and Contender pistols into the gun safe, we felt a little saddened that the test was over. There's a natural let-down whenever a dream is fulfilled. Was it now time to think about another wildcat? Hmmm, how about a .22 Super Magnum based on a .45 ACP case? That just might work!



The .22/9 mm wildcat provided the original idea, but the 9 mm case has too little powder space for a varmint round.



In the strong Thompson/Center Contender pistol with a 10-inch bull barrel, .22 Super velocities exceeded 2,200 feet per second, a performance level that of course the Commander couldn't come close to. The combo proved deadly on rockchucks!



The initial attempt at chambering the .22 Super in a Commander was with a barrel insert held in place by a knurled nut. This was unsatisfactory, so Jim Boland lathe-turned and press-fit a new insert.

A 10-year-old dream is fulfilled—a stock Commander in varmint chambering without major modifications. The only magazine modification is a step on top of the follower.