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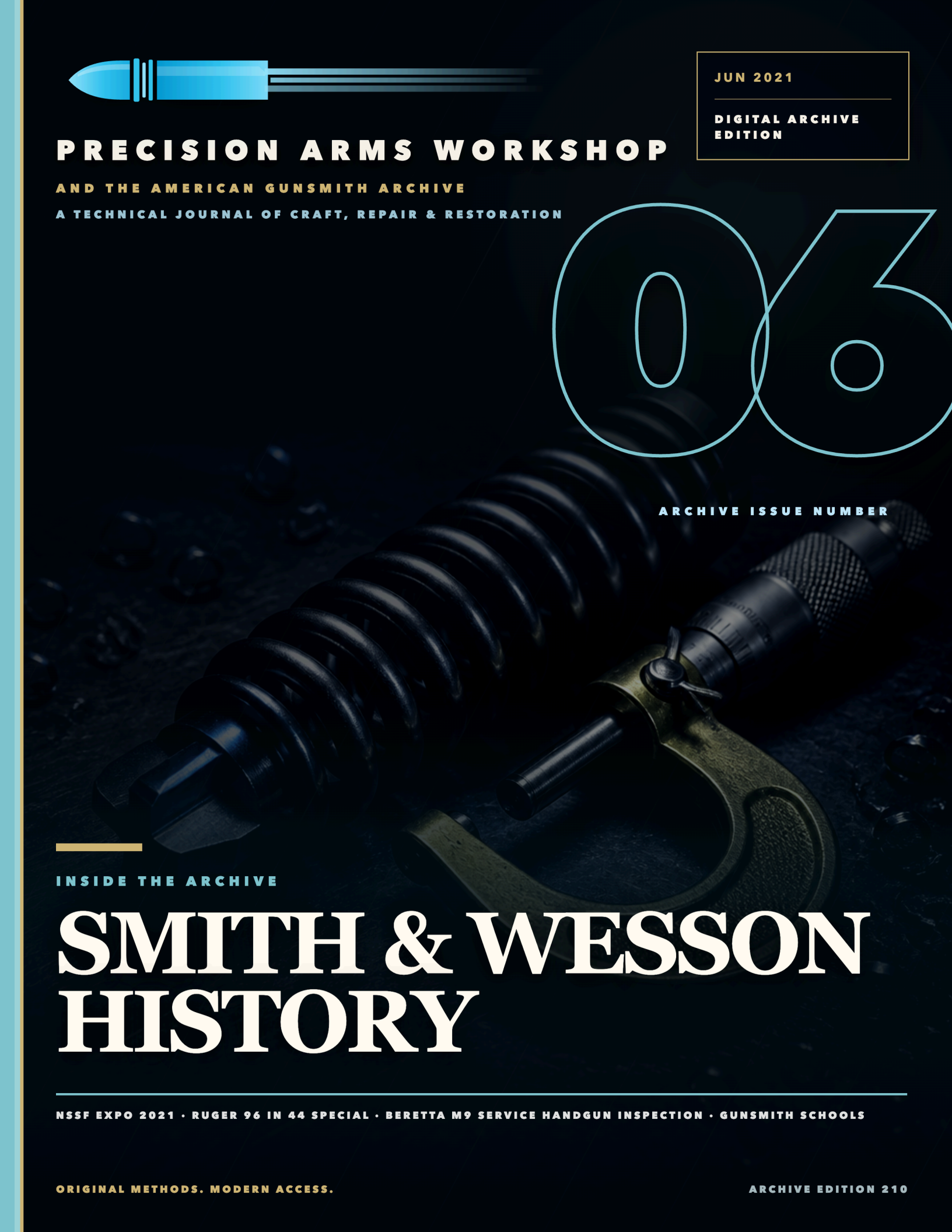

INSIDE THE ARCHIVE

SMITH & WESSON HISTORY

NSSF EXPO 2021 · RUGER 96 IN 44 SPECIAL · BERETTA M9 SERVICE HANDGUN INSPECTION · GUNSMITH SCHOOLS

DIGITAL ARCHIVE EDITION

Preserved for the bench.

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IN THIS ISSUE

Contents

A complete guide to the searchable editorial work preserved from June 2021.

FROM THE ARCHIVE

NSSF Expo 2021

BY AMERICAN GUNSMITH EDITORS JUNE 2021 ORIGINAL PP. 2

The National Shooting Sports Foundation (NSSF.org, announced open attendee registration for the Range-Retailer Business Expo on July 12-14 in West Palm Beach, Florida.

This Expo is the first major industry in-person event since the pandemic struck. "The Expo's return to the calendar of events gives firearm industry members who have endured pandemic-related disruptions to business and trade shows cause for excitement and optimism," said Zach Snow, NSSF's Director, Retail and Range Business Development.

"If 2020 taught industry anything, it's the importance of being flexible and able to adapt to a fastchanging business environment, as well as the necessity of innovating to attract and retain new customers." The scheduled education tracks will focus on adapting to a changed business environment and include topics such as making the most of opportunities presented by changing times and anew, non-traditional customer base; strategies to stay ahead of the competition; insights on improving business processes, customer development and engagement techniques; how to effectively engage established and new gun owners during times of high demand and scarce supplies; and how to develop events in the pandemic era to activate and reactivate customers and members.

The Expo's educational tracks benefit both established firearm range and retail operators as well those launching anew ranges or shops. The Expo will also hold a full range-retailer trade show with vendors showcasing the latest in range equipment, business software solutions, and equipment distributors, among others. "With the millions of new gun owners and shooters now part of the firearm community, demand on the range, retail floor and for classroom time has never been higher.

Attending the Expo is critical for existing businesses who want to gain, maintain or retain a competitive edge in this new environment," said Snow. "There's really no other event like it, and this year it has the added dimension of bringing industry a step closer to returning to normalcy." All firearm retailers and range operators are invited to attend, and NSSF members receive a significant discount on their registration fee.

Complete information on attendee registration, hotel reservations and the expo agenda can be found at NSSF.org/expo-2021.

ORIGINAL SOURCE PAGE 2

HISTORY

Smith & Wesson History

A history and overview of Smith & Wesson revolvers and their different generations.

BY ROBERT K. CAMPBELL JUNE 2021 ORIGINAL PP. 3-8

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The Smith & Wesson Hand Ejector, Military & Police (Model 10), and K-Frame revolvers have been in continuous service for more than one hundred and twenty years. This is the single most successful revolver of all time. While there are more glamorous, more powerful, and more accurate revolvers, none are more reliable. The K-Frame was designed as an in-between size, a bridge between the .32 caliber I-Frame and larger .44 and .45 caliber revolvers.

The K-Frame was originally chambered for the 38 Long Colt and then the 38 Special cartridge. In the 1950s the Combat Magnum was chambered in 357 Magnum. Other cartridges including the 22 Long Rifle, 22 Magnum, 32-20 Winchester, 38 S&W, and 9mm Luger have been chambered in the K-Frame. These revolvers have had the same general shape, size, and operation since 1899. Anyone capable of using one could use another, although the internals have been subject to considerable changes.

Some of these changes have been in order to increase safety, others to make manufacture more economical. Two recent situations have combined to spur me to form up this report. First, I was called to work on a nice six-inch barrel S&W Military & Police circa 1935. The revolver was well preserved with most of the finish remaining. The proprietor informed me it came into his shop with a hitch in the action.

One of his employees attempted to fit new parts into the action to fix it with the result being one of the worst actions I have ever felt. It turns out the fellow had mixed parts from a junked post war gun—a short action revolver—and attempted to fit them into the older long action gun. The result was a monstrosity that somehow cycled and fired, but not well. It was only a matter of time before it would have locked up or broke something.

The second incident was the purchase of a modern Classic Revolver Series Combat Magnum, about as different a revolver from the original Military & Police as possible. I decided to look over the K-Frame and enlighten myself and the reader as to the differences in these revolvers. If you have a bin of S&W revolver parts, and many of us do, you need to be able to determine what parts fit if you have an old part that is a good start to match. I learned that a mix of parts can be beneficial.

I have kept notes on revolvers and revolver work over the years and can't recall repairing a modern S&W revolver due to an issue involving normal wear or a manufacturer's defect. The repairs have been due to abuse save for those on very old or hard used revolvers. I think that is quite a record. The revolvers that were repaired due to wear have been over forty years old. On one occasion, a hunter packing out a deer had deer blood run into the action which was rusted by the time he noticed.

On other occasions the action was brutalized by a ham-handed or incompetent gun butcher. Even then, a S&W revolver that had been improperly repaired may not have needed much more than a spring replacement or a few internal parts replaced. I do a refresher whenever I order parts and fit them. As an example, recently I was called to fit a trigger. Generally triggers are interchangeable between generations up to the modern guns.

These generations begin with the often-called 5th Change about 1905 and continue to the few transitional type revolvers turned out in 1946 before the new short action was introduced. The short action guns were very consistent in parts interchangeability well into the 1990s. The pre-war or long action hammers differ in that the hammer stud (the stud on which the hammer must pivot) is in a different place than in the later Far

model revolvers, so there is no easy conversion of one to the other. The long action featured a longer hammer throw. Conventional wisdom states that the longer throw and heavier mainspring was necessary due to lower quality ammunition and harder primers. As far as safety and hammer blocks, the older generation S&W revolvers were generally safe to carry fully loaded but the only hammer block was actually a rebound lever in early revolvers. The rebound lever is powered by a kind of second mainspring.

This rebound was necessary to ensure the hammermounted firing pin was drawn out of the primer and returned to the at-rest position so that the cylinder could be opened. The rebound slide later developed is far superior. The mainspring was also repositioned. The rebound slide could break, at least in theory, if the revolver were dropped on its hammer. Far Smith & Wesson developed a more efficient hammer block that was mounted in the side plate.

A later development was a small block that cammed out of the safety position by a small, slanted surface on the hand itself. By the beginning of World War Two this wider hand was in standard use. These systems were complex and difficult to fit and depended on springs for safety. I have never seen one out of whack simply from shooting, however, a failure of the springs or even debris trapped in the action could prevent this safety from working.

Despite such a failure, the revolver could still be operating and firing normally and such a safety defect would not be apparent in normal use. Colt, in contrast, featured the positive hammer block. The trigger could not return to its forward position unless the hammer block was in place. Anew S&W hammer block was put into production near the end of World War Two. The new safety block was similar to the Colt Police Positive Special safety but locked by the rebound, not the trigger. It was a big step forward.

After a number of Military & Police revolvers were built, the shape of the bottom or foot of the hammer was changed to allow for a longer travel. The early models were shorter action than the 5th Model from 1905 forward. After 1905, the standard improvements of this type were used until the postwar short action revolvers were introduced. These early hammers do not fit later model revolvers unless the safety block was removed—a very bad idea.

From the introduction of the post-war short action all the way to the last models with a hammermounted firing pin, the hammers are the same. Some have a target-type spur and some are nicely checkered but they are interchangeable. There are two types of sears in the early model revolvers. One has a nicely curved front while the sec-

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The same procedure is used when working this revolver as the K-Frame. ond has a flat front. I have noted they interchange with each other, with the flat and curved component simply being a difference in appearance. Once you progress into the post-war short action guns there are again two types of sears with two different widths. One is serrated and 0.265" wide while the 0.240" wide sear seems to be encountered in Airweight revolvers, although this isn't a rule.

Early triggers do not have the hand lever pin for the hand spring. Rebound slides are the same in the same generation Kand N-Frame revolvers. As a rule, springs are much more readily interchangeable than any other part. Just the same, old springs are not easily measured for strength and it is questionable to use them in another handgun. Modern extra power springs are ideal for use in older, well-worn revolvers.

In other words, when a revolver has a bit of wear but still functions, extra power action springs take up slack in the action. A common problem with all Smith & Wesson revolvers was once that the ejector rod would unscrew itself during handling and firing. This problem was solved. The S&W ejector rod was changed from right hand to left hand thread sometime around 1960.

The majority of problems occurring with K-Frame revolvers after 1955 were the result of stretching the limitations of the revolver by chambering it in 357 Magnum. The original idea was to fire twenty rounds of 38 Special for every Magnum with 38 Special used in training. Later liability and training concerns dictated the use of full power Magnum loads in training. The result was a number of problems.

Frames did not crack but they stretched, which is also common with J-Frame Airweight guns used with +Por +P+ 38 Special ammunition. Forcing cones erode with fast burning powder while slower burning charges of powder are less offensive. The K- Frame was simply not envisioned to withstand the pounding of Magnum cartridges. The yoke design, which went into production in 1899 with few changes, required a flat section at the forcing cone and this is where the wall was thinnest.

Forcing cones suffered erosion and if they were not thoroughly cleaned and scrubbed free of leading from soft lead wadcutter ammunition, the result was greater pressure when Magnum loads came screaming through them. End shake was also common; end shake bushings help these wobbly cylinders. This problem seldom occurs with 38 Special revolvers, save for those used long and hard by enthusiastic handloaders!

ARCHIVE IMAGE WITHHELD

A big move by Smith & Wesson was the introduction of the L-Frame revolver. This revolver features the K-Frame grip and butt but a larger, more robust frame and heavy under-lugged barrel. The L- Frame stood up to the pounding of Magnum loads much better. The competing Ruger GP 100 is even stronger by most accounts, if not quite as smooth. S&W dropped the Model 19 in 1999 and the Model 66 stainless Combat Magnum a little later. In general, medium-size revolvers are stronger and more durable than ever.

Smith & Wesson reintroduced the Model 19 and Model 66 a few years ago. These are true K-Frame revolvers. The new revolvers have proven popular but they are also not the same revolver that was discontinued. A big difference is the manner in which the cylinder locks up. The locking detent under the barrel that locks up on the ejector rod is replaced by a detent on the crane that locks into the frame. This is a very rigid system that locks the crane up tight.

The rear adjustable sights and red insert front sight are the same as the early Model 19 only in appearance. The rear sight is removable with a much larger screw that the older sights and the front sight is pinned in. Gone is the pinned barrel or the later unpinned barrel. A “pinned” barrel refers to S&W revolvers that feature a pin as addition insurance to avoid the barrel rotating.

The new Combat Magnum features a stainless barrel inside of a blued or stainless barrel shroud, in common with other modern S&W revolvers. The difficulty of properly lining a barrel and sights in the proper north and south alignment during assembly is neatly solved with the new system. The top strap of the new revolver is optics ready with a proper mount. The hammer and trigger of the newer revolvers are MIM (Metal Injection Molding) and seem to work OK, but they are not forged parts.

The 4.25" barrel allows the revolver to be sold in Canada, where the barrel length must be 4.25 inches for legal sale. This is a good thing as the combination of a longer barrel and the deletion of the front lockup allows for a longer ejector rod and greater leverage for cartridge case ejection. The gas ring design in the new Combat Magnum makes for a tighter lockup and seems tighter than an L-Frame I had on hand.

This modification allows for greater room in the frame and anew forcing cone design with stronger walls. The new lockwork results in some confusion as the S&Wis not a transfer bar safety design in the same manner as the Ruger. Rather, the firing pin rides in the frame and the rebound/hammer safety is below the firing pin. The frame-mounted firing pin should withstand the Far force of Magnum loads better and relieves some of the need for a separate rebound to lock the hammer back enough to open the cylinder.

The new Combat Magnum cylinder is just enough longer to allow loading the heaviest cast lead bullets including 178-200 grain loads. The top strap is slightly thicker than early Model 19 revolvers. The top strap is also longer but only enough to provide about 0.07 more sight radius, although adding the 0.25" longer barrel provides a total of 0.32" more sight radius than the original Model 19.

As for working the action of the S&W Combat Magnum, circa 2020, I would advise caution in smoothing the mating surfaces of an MIM hammer and trigger. Metal Injection Molding parts seem to work well in normal firing but I have no experience in attempting to polish the surfaces. While the same technique will apply to older revolvers as far as taking care in polishing the mating surfaces of the hammer sear and trigger, the MIM parts give me pause. I will replace springs and little else.

Perhaps someone has experience they would share on this subject. I do know that under as much magnification as I have available the MIM surfaces appear much less smooth, with some having a pebbled look. I suppose over time the surfaces may smooth or burnish but I am not yet certain. Unlike forged parts, MIM is produced by fusing metal parts together and they are then held together by a binder. There are issues for me in attempting to polish a metal that does not have high

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density or 100% density. But then, I use stones rather than a Dremel for such work. S&W Grip Frames Smith & Wesson K-Frame grip frames have changed little over the years. The original grip frame was what is called round butt. While it is beyond the scope of this report, discussions usually end up agreeing that the round butt grip is good for cupping the hand around the grip for fast shooting while the square butt grip is best for slower target shooting.

The round butt has been offered in every generation, even the Combat Magnum with four-inch barrel. After about 1905 the square butt, which was introduced after the round butt, became the majority frame offered. The two-inch barrel revolver was usually offered in both styles. By the end of the original K- Frame run, most frames were square butt. With the new design pistols in the Classic series, the K- Frame became all round butt.

The revolvers were offered, however, with a square butt type grip, termed a "conversion grip". This allows the use of a standard round butt grip frame and the square butt grip in some revolvers without manufacturing two different frames. This means that there are three types of stocks for the K-Frame from beginning to current production, without regard to design and finish. These are the round butt, both the first and the latest of grip sizes, square butt grips, and the square butt conversion grip.

S&W grips differ a great deal in style. As an example, anew piece of information is that the common Magna stocks are not all the same. While checkering and diamond style grips differ, standard Military & Police grips of different generations also differ in thickness. The 1950s style grips, as an example, are not as thick as 1960s grips, something often overlooked by collectors. S&W K-Frame revolvers are an interesting study. While they are all similar in dimensions the internal parts, sights and grip frames differ.

This is something we must understand before working on these handguns. Other S&W Revolvers As a general rule S&W double action revolvers follow a similar line of development. The K-Frame and the large frame N-Frame were changed on a similar schedule from pinned barrels to non-pinned and then shrouded barrels. Finally, they were all changed to the new barrel and ignition system. There are differences even among modern revolvers. As an example, the modern Custom Shop revolver doesn't lock up on the crane.

Rather, this 686 Plus locks up in the traditional pattern with a detent under the barrel. So, be ready for variations. Another variation on the S&W revolver that is very popular is the J-Frame. The J-Frame revolver uses a coil spring rather than a leaf spring, resulting in no tension screw in the front strap. Is this always true? Not when the small frame revolver is an I-Frame. I am surprised that so many collectors and shop owners do not quite understand what an I-Frame is.

Prior to the development of the J-Frame, the I-Frame was S&W's small frame revolver. Offered as a six shot in .22 and .32 calibers, including the original Kit Gun, the I- Frame was a very popular revolver. A five shot version in 38 S&W, a near obsolete short cartridge, was also offered. This revolver originally used a leaf spring and tension screw. After World War Two the new introductions from S&W included the J-Frame revolver, the original 38 Special Chief's Special we all know.

The I-Frame was heavily modified to become the Chief's Special. The I-Frame received anew coil spring action as the "improved I-Frame". This transition occurred in the mid-1950s along with the half moon front sight becoming a ramp sight. Eventually, I-Frame production was halted in 1962 and all .32 and short .38 caliber revolvers were J-Frame types. These revolvers are still in wide use, at least in my area, and will need your attention from time to time.

SMITH & WESSON HISTORY CONTINUED ORIGINAL PAGE 8

S&W revolvers are definitely NOT all the same and you must correctly identify the revolver to order parts or do the work. Safety Lock Revolvers While the politics of the HUD (Housing and Urban Development) agreement that took place between Smith & Wesson and the company's then British owners and the Clinton administration are disturbing, the facts of the gun lock are important to gunsmiths.

S&W went from a majority position in firearms sales to poor sales and near bankruptcy, selling out at a fraction of their worth to an American company. The gun lock represents this debacle to many who want nothing to do with the lock. Others don't follow politics but are concerned with reliability. It has been an unpopular addition to the S&W revolver. The lock is operated by a small key. The key blocks the hammer. The lock is turned to engage a cam on the inside of the sideplate.

The cam bears against a locking piece with a raised stud. When the cam is rotated the stud raises into the locking position. A stud on the lock butts into a groove in the hammer. This stud binds on the hammer and locks the revolver in place. When activated the stud neatly fits into a recessed notch in the left side of the hammer. The trigger cannot move as the hammer is locked. The hammer is stabilized as the result is the rest of the hammer is locked in place.

The cylinder latch is not locked as a result of the lock being applied. A problem is that little pressure keeps the "flag" that is exposed on exposed hammer firearms when the piece is locked from staying in place. I have had the unpleasant experience of a revolver with a safety lock Far S&W revolvers are rugged but Magnum loads take a toll. failing on two occasions.

I shoot a lot, a great deal, and I have as a researcher and writer tended to test all of the modern guns as they are introduced, so most of my recent experience is with more modern S&W revolvers. In one case a revolver failed to cycle. The hammer and thus the action was locked. I saw the flag up and pressed it down with the tip of a screwdriver. The action did not repeat. In another case I experienced a rather odd problem.

The lock had moved just enough to retard hammer fall to the point I was getting light primer strikes. The first was a full size 357 Magnum revolver, the second a lightweight 44 Magnum. Neither had more than 500 cartridges fired in them. It would open the gunsmith or owner up to many liability and legal pitfalls to remove this device from a revolver. There are other ill-considered safety devices found on all manner of handguns to be certain but few have the negative political shadow on them the S&W lock does.

The likelihood of a failure remains low but the possibility is certainly proven. AG

PEOPLE & COMPANIES

Ruger 96 in 44 Special

Most work that gunsmiths perform is for customers. This time, it's personal. Here's how I tuned my Ruger 96 for 44 Special.

BY BRIAN R. SMITH JUNE 2021 ORIGINAL PP. 9-12

Above: The author's 96/44 resting on a well-worn range bench seat. The ebony forend cap is what caught his eye from a gun show table. The little carbine features a Williams aperture rear sight which the author uses without a peep insert for a ghost ring effect.

ORIGINAL ARCHIVE IMAGE · PERMISSION CONFIRMED

Left: Some of the loads fired in the 96/44 were, from left to right, uncrimped Fiocchi 240 grain JSP, Fiocchi 210 grain conical lead FP, Magtech/CFL 240 grain FMJ, HSM 200 grain lead FP, and the author's handloaded Steel Valley Casting coated 240 grain Keith-style lead SWC.

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The Ruger 96 is a light, handy lever action carbine that was met with lukewarm reception during its approximate 14-year time in Ruger's catalog. Perhaps the reason was due to it being pricey compared to its contemporary Marlin and Rossi competitors. Perhaps it was the somewhat "clubby" stock. Maybe some shooters were disappointed that it was never chambered in 357 Magnum or 45 Colt. One thing is for certain: The Ruger 96 is also one of those firearms that overnight became unobtanium once production was canceled.

Ruger introduced the Model 96 levergun in 1996, offering it as the 96/17 in 17 Hornady Magnum Rimfire, the 96/22 in 22 Long Rifle, the 96/22M in 22 Winchester Magnum Rimfire, and the 96/44, in 44 Remington Magnum. I've personally owned every model except the 96/17 at one time or another, and sold a 96/44 because of disillusionment with the 44 Magnum, but that's a story for a different article.

I consider the Ruger 96 as the hybrid offspring of a Ruger 10/22 and Savage 99, with some genetic material from a Winchester 88 spliced in for good measure. The stock is pure Ruger 10/22, right down to the The ebony forend cap is what caught his eye from a gun show table. The little carbine features a Williams aperture rear sight which the author uses without a peep insert for a ghost ring effect. curved plastic buttplate and that ugly carbine band at the front of the forend.

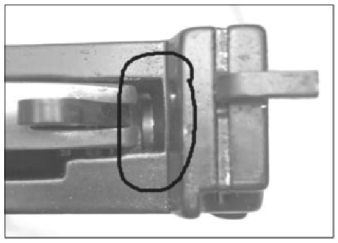
The lever and its long, curving bolt actuation arm, as well as the tilting bolt itself, are unquestionably Savage 99, as is the rotary magazine, although it's detachable. Savage offered a detachable magazine in its Model 99 in later years, but it did not incorporate the rotary spool-type cartridge feed of Savage 99s with internal magazines.

The clubby, too-wide-at-theforend stock with ugly carbine band aside, what makes the 96 attractive is its light weight and fast handling characteristics, foremost being the short-stroke lever. Given the low recoil of the four offered cartridges, even including the 44 Magnum, fast follow-up shots with the Model 96 are extremely easy.

The rotary magazines are simple to change, however, the Ruger 96 requires the lever be dropped at least a little bit to allow the magazine release to operate; the tip of the lever actuating arm abuts the rear of the conical magazine catch and prevents the magazine release from being depressed. A brass loaded chamber indicator pops up prominently at the top rear of the receiver and can be sensed both visually and tactilely.

Three models of the Ruger 96 family were skewed toward the small game/varmint end of the ammo spectrum, with the 44 Magnum version being the only cartridge chambered that had any appreciable "oomph." Many Ruger 96/44s provide yeoman service year after year taking whitetail deer for their owners. It's a great rifle for forests here in Pennsylvania where shots rarely exceed 75 yards. Those 96/44s are joined here in the Pennsylvania Wilds in late November by their familial relative, the Ruger 77/44.

MY EXPERIENCE WITH THE 96/44 ENTERED A SECOND CHAPTER A FEW YEARS



Above left: A safety feature of the Ruger 96 is the requirement that the lever be opened at least 1/2" for the magazine release to be operated. With the lever closed, the magazine release cannot be depressed and a magazine cannot be inserted into an open magazine well. Above right: The lever is closed and the upper end of the lever arm is shown tight against the rear end of the spring-loaded shallow conical magazine catch (circled).

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Above left: A safety feature of the Ruger 96 is the requirement that the lever be opened at least 1/2" for the magazine release to be operated. With the lever closed, the magazine release cannot be depressed and a magazine cannot be inserted into an open magazine well. Above right: The lever is closed and the upper end of the lever arm is shown tight against the rear end of the spring-loaded shallow conical magazine catch (circled).

ORIGINAL ARCHIVE IMAGE · PERMISSION CONFIRMED

Below left: The Ruger rotary magazine is what makes possible shooting shorter 44 Special rounds in the 44 Magnum-chambered 96/44. The slight nose-up orientation of the topmost of four cartridges is in near-perfect alignment with the chamber mouth. The rails in the steel magazine insert suitably guide the cartridge up and out of the magazine, allowing the bolt's extractor to capture the cartridge rim for controlled feed. Below right: Prior to removing the barreled action from the stock, place the crossbolt safety into a "centered" position so that the underside of the stock is not damaged due to the protruding side of the safety barrel.

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ORIGINAL ARCHIVE IMAGE · PERMISSION CONFIRMED

With the lever closed, the magazine release cannot be depressed and a magazine cannot be inserted into an open magazine well. ago after I rekindled along interest in the 44 Special. The 44 Special begat the 44 Magnum, with Elmer Keith serving in the midwife role. That tale has been told ad-infinitum over the years in the firearms press. Back to the 44 Special, it is an inherently accurate cartridge and loads for it can push a 200 or 240 grain bullet from 700 to 1000 feet per second.

I can hit pretty much anything I aim at using any of the several 44 Special revolvers in my safe. But I didn't have a 44 Special rifle… The slight nose-up orientation of the topmost of four cartridges is in near-perfect alignment with the chamber mouth. The rails in the steel magazine insert suitably guide the cartridge up and out of the magazine, allowing the bolt's extractor to capture the cartridge rim for controlled feed.

Spending some time wandering about the tables at a central Pennsylvania gun show, a Ruger 96 caught my eye. This one was especially appealing because someone had cut off the forend just behind the despised carbine band and attached an ebony forend cap. Picking it up and glancing at the muzzle, it was instantly recognizable as a 44, given the huge black hole in the muzzle. The 96/44 was clean, the metal free of rust, and the stock free of dents and nicks.

Looking at the magazine, I envisioned the cartridge sitting at top center, with a slight upward tilt at the front end and wondered if a 44 Special would feed reliably, given the almost-perfect alignment of the cartridge nose with the chamber opening. My Streamlight Microstream lit up the chamber through the ejection port, and I could see that leade tapered into the rifling nicely, but the edge of the chamber mouth looked sharp.

The price was right, so what the heck; I took anew project home, this time a personal one. With free time some months later, boxes of several different types of 44 Special ammunition and the 96/44 went to the range, primarily to try feeding reliability and to get a handle on accuracy. Making along story short, those 44 Special cartridges with decent to heavy crimps fed 100% without failure.

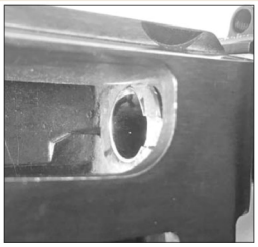
There were two factory loads that were not crimped, and the cartridge case mouths on those rounds presented a sharp edge circling the bullet. Those two uncrimped cartridges hung up all-toofrequently on the relatively sharp edge of the chamber opening.

In addition, my standard 44 Special bullet is a Keith-style coated 240 grain semiwadcutter from Steel Valley Casting in Beaver, Pennsylvania (SteelValleyCasting.com, and the edge of the bullet at the base of the truncated cone section caught a few times on the chamber opening, requiring "double-clutching" the 96/44's lever to get the rounds seated. My mild OCD being what it is, 100% reliable functioning is important, regardless of the amount of crimp or style of bullet.

While at the range I fired the 96/44 with a few of the loads, finding it grouped nicely at 50 yards and allowing me to dust clay birds on edge at 100 yards. So it passed the field accuracy test and was cer-

Left: The two pins holding the trigger housing to the receiver have been removed, and the pin mating the bolt to the lever link is now accessible to be pushed out with a punch. When the trigger housing is pinned to the receiver, the bolt pin is captured at the sides by the receiver skirt.

ORIGINAL ARCHIVE IMAGE · PERMISSION CONFIRMED



Below left: The unaltered chamber mouth is shown; note the factory-cut bevel chamfer with visible tool marks at the top of the chamber. The edge of the chamber was much sharper in reality than the photo conveys, causing uncrimped cases to catch and not feed. Below right: View of the chamber through the ejection port shows the slight polishing that "broke" the sharp chamber edge, permitting trouble-free feeding of cartridges with uncrimped case mouths. The author also polished the factory bevel chamfer at the top of the chamber mouth.

ORIGINAL ARCHIVE IMAGE · PERMISSION CONFIRMED

Below left: The unaltered chamber mouth is shown; note the factory-cut bevel chamfer with visible tool marks at the top of the chamber. The edge of the chamber was much sharper in reality than the photo conveys, causing uncrimped cases to catch and not feed. Below right: View of the chamber through the ejection port shows the slight polishing that "broke" the sharp chamber edge, permitting trouble-free feeding of cartridges with uncrimped case mouths. The author also polished the factory bevel chamfer at the top of the chamber mouth.

ORIGINAL ARCHIVE IMAGE · PERMISSION CONFIRMED

When the trigger housing is pinned to the receiver, the bolt pin is captured at the sides by the receiver skirt. tainly worth the time investment to tune it to handle 44 Specials. Disassembly came next. To anyone familiar with the 10/22, a disassembly guide is not particularly necessary. One screw in the underside of the stock holds the barreled action in place. The screw mates with a lug dovetailed into the underside of the barrel. Removing the screw allows the barreled action to be withdrawn from the stock.

The 96/44 differs from the 10/22 and the three rimfire Model 96s in that the 44 Magnum barrel is screwed into the receiver, as opposed to being held in place with the familiar two cap screws and a tapered wedge block. The edge of the chamber was much sharper in reality than the photo conveys, causing uncrimped cases to catch and not feed. The author also polished the factory bevel chamfer at the top of the chamber mouth.

Before lifting the barreled action from the stock, be sure to place the crossbolt safety button in a "centered" position so that one side of the protruding button doesn't dent the lower edge of the stock. The lever is retained in the trigger guard/fire control group housing by means of a flat head twopiece capture screw with a thin slot, but removal of the lever from the trigger housing is not necessary for basic disassembly.

Knocking out the two pins holding the trigger housing to the receiver permits withdrawal of the trigger housing with lever and bolt attached as an assembly. Since I intended to tune the extractor, I knocked out the pin connecting the bolt and lever link. All three pins are loose fits and are readily removed with an appropriatelysized punch. As is my practice, they went into a magnetic steel bowl to keep the small bits corralled.

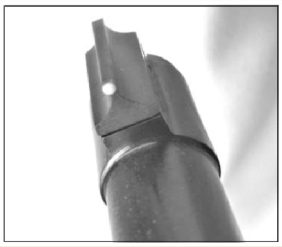
Examining the chamber opening from the bottom of the receiver and the ejection port, it was even more evident that the intersection of the chamber and the rear face of the barrel was fairly sharp. In addition, Ruger had machined a chamfer above the chamber mouth from 11 o'clock to 1 o'clock and the machining marks were obvious to the unaided eye.

Slipping a cartridge case rim under the extractor hook as with the 1911 pistol, there was considerable sideways force on the case rim such that the rim would not fully seat against the recess at the top of the boltface without upward force. When that force was removed the case would slip down a few millimeters, sometimes falling completely out of the boltface. Note taken, the bolt was set aside for later extractor tuning.

Given that the loads with uncrimped cases would feed some of the time, it was suspected that only breaking the edge of the chamber opening would be necessary. A conical mild abrasive rubber tip was fitted to the rotary tool and the opening in the bottom of the receiver provided more than adequate access to all 360 degrees of the chamber opening.

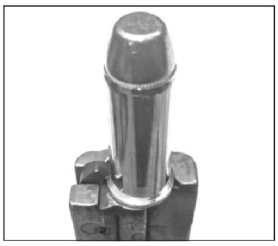
Polishing was performed in three stages, with partial reassembly of the bolt and trigger housing to the barreled receiver following some polishing, but with the firing pin removed from the bolt for safety's sake. Inserting a magazine filled with the uncrimped cartridges, the lever was cycled and the magazine filled and emptied a number of times.

Additional polishing of the chamber edge was needed twice more before both types of uncrimped cartridges and the Steel Valley 240 grain SWC handloads would feed 100% repeatedly with all magazines.



Above left: The roll pin punch tip points to the groove behind the extractor hook which was relieved slightly deeper using a Swiss pattern square file. The bottom corner of the extractor hook was rounded slightly to prevent it gouging into the side of the case. Above center: A cartridge is shown fully seated in its recess in the bolt face following tuning of the extractor hook in the same manner as is customary for that of a 1911 pistol. Above right: The finishing touch was a dab of almond colored appliance touch up paint on the brass bead crowning the front sight. This eliminates glare and accuracy-killing reflection that plagues older eyes; it's poor man's ivory bead.

ORIGINAL ARCHIVE IMAGE · PERMISSION CONFIRMED



Above left: The roll pin punch tip points to the groove behind the extractor hook which was relieved slightly deeper using a Swiss pattern square file. The bottom corner of the extractor hook was rounded slightly to prevent it gouging into the side of the case. Above center: A cartridge is shown fully seated in its recess in the bolt face following tuning of the extractor hook in the same manner as is customary for that of a 1911 pistol. Above right: The finishing touch was a dab of almond colored appliance touch up paint on the brass bead crowning the front sight. This eliminates glare and accuracy-killing reflection that plagues older eyes; it's poor man's ivory bead.

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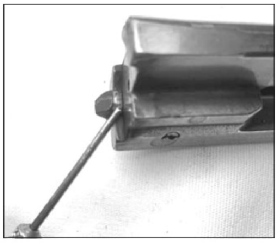

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ORIGINAL ARCHIVE IMAGE · PERMISSION CONFIRMED

Below: The tuned Ruger 96/44 on the bench after being put through its paces at the range, firing 44 Special cartridges without any failures to feed.

ORIGINAL ARCHIVE IMAGE · PERMISSION CONFIRMED

The bottom corner of the extractor hook was rounded slightly to prevent it gouging into the side of the case. Above center: A cartridge is shown fully seated in its recess in the bolt face following tuning of the extractor hook in the same manner as is customary for that of a 1911 pistol. This eliminates glare and accuracy-killing reflection that plagues older eyes; it's poor man's ivory bead.

Attention was next paid to the extractor tuning which was treated as that of a 1911 because the 96/44 utilizes controlled feeding just like Browning's ubiquitous pistol. First, the groove in the extractor just behind the hook was relieved with a Swiss pattern file and radiused at the bottom so that the case rim entering control of the 96/44's extractor from the magazine would neatly "slide" into that groove behind the extractor hook.

The bottom corner of the extractor hook itself was then slightly chamfered to prevent it from digging in to the cartridge case. With the relieving of the groove behind the extractor hook, a cartridge would fully seat in its recess in the bolt face and was retained solidly in place by the extractor force. Upon assembly, ejection was much improved; cases would be thrown to the side four or five feet instead of all but spilling out of the ejection port and falling at my feet.

Another trip to the range was in order, but first in deference to my aging eyes I applied a drop of almond-colored Rust-Oleum Appliance Touch-Up paint (Amazon.com/Appliance-Touch-Paint-Almond-0-6/dp/B000KEXWU6) to the brass bead in the front sight. Brass and silver beads "bloom" in direct sunlight, sometimes with a bright reflection at an edge of the bead.

A quick wipe of the brass bead with a cotton swab dipped in acetone and careful application of a dab of the almond touch up paint effectively transforms a metallic bead into a "poor man's ivory bead." So treated, the now off-white front sight bead stands out sharply, round, and without reflection to my eye, greatly aiding accuracy since a glint at the periphery of the brass bead causes one to align the sights off target.

At the range on a sunny fall day, the tuned 96/44 action cycled 100% without fail on uncrimped cartridges and those reloaded with the Steel Valley SWC bullets. I had no problem again dusting standard diameter clay birds standing on edge at 100 yards with the almond front bead and the Williams aperture rear ring without an insert installed.

The Ruger 96/44 and its rimfire siblings are sweet-handling, lightweight carbines and it's no wonder that demand has pushed Internet auction prices to levels ranging from around $800 to $1,200. That's what happens to guns that are largely ignored while in production, with demand going through the roof shortly after the guns are no longer cataloged. But that's supply and demand at work. The best thing about my 44 Special-tuned 96/44? No furshlugginer carbine band! AG

MEASUREMENT & INSPECTION

Beretta M9 Service Handgun Inspection

The Beretta M9 has proven its worth for both service members and civilians alike. Taking the time to give it a proper inspection will keep it functioning to standard.

BY STEPHANIE A. MARTZ JUNE 2021 ORIGINAL PP. 13-16

The M9 has been serving our United States military since 1985, formally adopting the Beretta 92 SB-Fas Pistol, Semiautomatic, 9mm, M9. Nearly four decades later, it is still a reliable handgun when taken care of. So many are quick to judge the pistol for reasoning of "it's past its prime, they constantly break, stick with the 1911, etc." When dealing with firearms that have been in service along time, like anything, there will be parts that have finally met their life span.

When going after the contract in the 1980s, this service pistol met all criteria and beat out many other reputable companies such as Smith & Wesson, Heckler and Koch, and Walther. Mind you, Beretta won it twice due to allegations that the first test was done under bias. The Beretta showed its durability during testing by lasting through severe temperature change, water, sand, mud, and snow testing, drop tests, and the often-popular mean rounds before failure (MRBF).

The Beretta showed a MRBF of 35,000 rounds; the criteria was to get through 5,000 rounds before failure. The testing criteria that these pistols go through when attempting to be chosen as anew service pistol is truly remarkable. Testing goes so far as measuring the indent of the firing pin on the primers throughout testing. Durability, accuracy, and reliability all go into criteria to be passed. When an issue is found with the winning pistol it is then determined by the branch of service how to proceed.

For instance, it was found that the Beretta had issues of slides cracking. During testing, the round count that both the crack was seen or shown through metallurgy testing was noted. The U. S. Army releases guidance. For

example, "for safety standards we will now advise that after 4,500 rounds on each pistol the slide is to be replaced." This will be advised in 23&P Technical Manuals or, if found later, a Maintenance Action Message will go out. A fun fact about the Beretta M9 slide and Maintenance Messages is that some of these that were put out in the 1990s are still being checked today. For example, a Modification Work Order (MWO) was put out back then about the headless hammer pin on the M9.

In the beginning the M9 was designed with a headless pin that held the hammer, strut, and spring in. It was found that if there was a malfunction This is what you will need to push down on from the top of the slide if it breaks during firing. with locking, the slide would come back to the rear and have no way to be stopped, thus potentially hitting the operator. When I say potentially I mean, well… it happened.

To fix this it was decided that the hammer pin would now be headed as away to stop the slide from flying off the rear of the frame. Fast forward to 2021. U. S. Army Small Arms Repairers are still checking every M9 they touch for this headed hammer pin. Every MWO that comes out within a weapons service life is to be checked for the entirety of the weapon's time in service for both functionality and safety. Things can be missed when dealing with thousands and thousands of parts replacements.

Frankly, no branch of service wants to be responsible for another serviceman getting hurt due to a MWO being missed. When a weapon is as reliable as the M9 it is also thought that nothing should break. As we all know, that is just not an obtainable standard. The M9 needs inspections and part replacements just like any other firearm. To find those potential issues the inspection takes about five minutes or less and should be done annually at the very least.

The inspection will require a ruler, two punches, and a magazine. This five minute inspection can be the difference between a weapon firing when needed or malfunctioning. Note, some of this inspection is Army specific as the Army has now been receiving certain parts in polymer instead of metal.

BERETTA M9 SERVICE HANDGUN INSPECTION CONTINUED ORIGINAL PAGE 15

To begin the inspection of the Beretta M9, clear the weapon of all ammunition with proper safety procedures. When field stripping and removing the slide it is important to strip the slide with your palm down ensuring your hand cups the recoil spring just in case the recoil rod slips off the locking block during removal. Base Components We'll start with the Barrel, Locking Block, Recoil Rod, and Recoil Spring. Recently, the Army has been receiving their recoil rods in polymer instead of metal.

The metal rod is still allowed until breakage. Ensure that the recoil rod isn't bent by rolling it across the table. Check for any burrs as well. Inspect the recoil spring for bends in the same manner. Measure the recoil spring to ensure the minimum five-inch criteria is met. If it is under five inches, replace it. Do NOT stretch the spring to make length. Remove the locking block from the barrel. The locking block is the most important piece to inspect in this group.

We have seen it fail during a lot of competitions and high round count events. With high round counts the blocks have seen to be developing hairline cracks. If the crack goes unnoticed the block can break during firing and lock the gun up. If this happens, point the gun in a safe direction, take a punch or pliers, and push down from the top of the slide onto one side of the ears on the block. This will (hopefully) release the broken locking block on one side, allowing the gun to free up.

Many of these cracks are hairline, so it is easy to miss them. Just do your best. When inspecting the barrel, look for rust, pitting, and burrs. Also look inside the barrel and ensure that there are no obstructions or burrs. Install the locking block back onto the barrel. Ensure that there is free movement between the plunger and locking block. It is okay if the locking block slips, it just means it is more worn in. There have been two types of locking blocks and plungers.

The upgraded style is the thin plunger and thin opening on the block. However the old style of wider plunger and wider block is still reliable. When ordering or replacing parts I do recommend that both the block and barrel/plunger mate up as far as style for maximum reliability. The Slide Inspect the slide for burrs on the inner rails by dragging your finger across the rails. Push the extractor/loaded chamber indicator out with a punch or your finger and ensure that there is still red paint on it.

If not, reapply with a paint pen. Check under the extractor for built up carbon, removing carefully if build up is present. Check for a severe amount of wear on the extractor piece housing in the slide. It has been seen that if the extractor spring is worn it will cause the extractor to move up and down, thus wearing down the housing on the slide. Oftentimes this isn't bad enough to warrant replacement, Also, push on the extractor pin pictured on the lower right of the photo.

just keep an eye on it to make sure enough material is there as to not cause a spring to be lost or continuous wear that will lead to requiring replacing the slide. An extractor is cheaper to replace than a slide. Inspect the firing pin hole and breech face for obstructions, cracks, out of round, or rust. Inspect the firing pin tip and function. With the safety/decocker on fire, use two punches to simultaneously press on the back of the striker and the firing pin block.

This will allow the firing pin to be pushed out and able to be inspected. Ensure the front and rear sight is not loose; repaint the sight as nec- Check that bushings are present and seated correctly. essary. There are two styles of rear sights. One style has a dot in the center and the other style has two dots on the left and right sides. Verify there are two spring pins and detent present on the safety/decocker. They are tiny so verify that they have not fallen out or are becoming loose.

Using a punch, push on the extractor pin from the inside of the slide ensuring that the staking on top of the slide is still holding the pin in. Verify that the pin for the firing pin block is there and not walking out. The Frame Inspect the slide stop lever spring for bends. You will know that it is bent if the leg is not present, not long enough to hold the pin in for the slide stop, and/or the leg on top of the slide lock is not straight. Verify that staking is present on the firing pin block lever pin.

Ensure that the hammer pin is a headed hammer pin inline with the MWO. Ensure that the trigger spring is installed correctly. Falls Church VA 22041 To check for tension on the hammer spring, press the lanyard loop onto a table and push down; if no movement is felt, the hammer strut spring could be dirty. The Army has been receiving polymer lanyard loop pins instead of the metal roll pin. The polymer straight pins have a small cutout that allows more room for the hammer spring to move.

If a nonmoving hammer spring was found the roll pin would be replaced with a polymer pin and the hammer spring and channel would be cleaned. Verify the trigger bar spring is present. Remove both grips and ensure that all four screws, washers, and bushings are present. If washers and bushings are not present the screws could protrude into the magazine well, not allowing the magazine to be seated or released properly. Paint pen or chalk in the serial number makes for easy reading if wanted.

The Army has been receiving polymer triggers instead of metal now as well. Function Check Now that the individual pieces of the M9 are inspected, fully assemble the handgun. Your function check should be checking the function of the safety, the decocker, firing on both single action and double, seating and dropping of the magazine, locking back on an empty mag, and reset of the trigger. The trigger weight should be checked.

A factory M9 trigger should fire on single action at a minimum of 5.5 pounds and double action should fire at a minimum of 12.3 pounds. Ensure that each piece is of crisp movement and not sluggishly moving due to gummed up lubricant or burrs. Finally, check for overall appearance. Ensure that your handgun doesn't show signs of rust or pitting and that finish is still present. This inspection is meant for both brand new and already-inservice M9s.

In the United States Army it is done on receipt, annually, or before a deployment. AG

RIFLES

Gunsmith Schools

An overview of NRA-approved gunsmithing schools and their education offerings.

BY DEAN MEIER JUNE 2021 ORIGINAL PP. 17-20

The National Rifle Association has approved four affiliated schools across the country. In addition to a uniform certifying process, all offer short-term gunsmithing courses to aspiring gunsmiths. Options range from individual courses lasting a few days to complete degree-producing programs. Becoming an NRA Gunsmithing school is a selective process.

All schools must have an existing gunsmithing program (minimum three years) with full-time students currently enrolled in classes, knowledgeable and experienced instructors, and proper facilities All of them are held at accredited university offering Gunsmith degree programs. Photos courtesy of Trinidad State Junior College. to host potential students. Schools meeting this criteria must submit a formal application and be vetted and verified by the NRA Gunsmith team.

The NRA Gunsmith courses are typically held during the spring and summer months and can range from several days to two weeks. This is in addition to the school's in-residence degree programs. Prices vary according to the course and school as do the number of students allowed per course. Students graduating from a course receive a certificate of completion from the school. However, you must complete along-term gunsmithing school to receive an official certification or degree as a gunsmith.

While all NRA Gunsmithing Schools provide basic introductions to the art of gunsmithing and offer valuable new skills and insight into the needed tools, the specific offerings vary by school as does the exact curriculum. Here are the current offerings. MCC We'll start with Montgomery Community College (Montgomery.edu/ nra, in Troy, North Carolina.

MCC Gunsmithing courses are taught by nationally and internationally known gunsmiths, armorers and craftsmen who share their expertise in courses ranging from basic to advanced techniques. The NRA courses combine a hands-on and lecture format and range from three days to two

ORIGINAL SOURCE PAGE 17

GUNSMITH SCHOOLS CONTINUED ORIGINAL PAGE 18

weeks in length. MCC also offers a two-year associate degree program in Gunsmithing. NRA Introductory Level Classes, despite the name, provide a high level of instruction and last several days. "Introductory" here means that prior experience is not a requirement. Examples include the AR-15 Armorer Course, Smith & Wesson M&P Customization, three classes in the Basic Gunsmithing series (Rifle, Shotgun, and Pistol), and Basic Stock Repair and Refinishing. Other MCC classes are more involved.

Basic Lathe Operation covers standard operations such as turning, facing, drilling, reaming and cutting precision threads. Basic Gunsmith Tool Making, with lathe and mill skills as a prerequisite, covers learning to build tools and jigs, including use of MCC's large tooling blue print collection as well as being able to reverse engineer tooling and fixtures.

Finishing classes include Basic Painted Finishes, Restoration of Fluid-Steel and Damascus-Steel Shotgun Barrels, Restoration of Shotgun Barrels, and Stencil Painted Finishes. Advanced Classes, Series I and II gets into machining experience. Precision Barrel Fitting for Auto-loading Pistols, Remington 700 Precision Barreling, AR-15/ AR-10 Custom Barreling, Factory Bolt Action Accurization, Custom 1911 Pistol Build Class make use of mills and lathes.

For facilities, MCC gunsmithing labs and classrooms comprise 9,000 square feet of student work- Far space. This includes a woodworking shop, a welding shop, two machine shops with 13 milling machines, 23 high-speed precision metal lathes, surface and pedestal grinders, and a metal refinishing room with buffers, sanders, immersion bluing, Parkerizing, nickel plating, and color case hardening facilities.

A state-of-the-art paint shop includes two paint booths and large curing oven for applying Cerakote and other firearms finishes. Three spacious classrooms with individual work stations, Kennedy roller cabinets, and locker facilities are available for each student. For live fire, a five-position, 100-yard outdoor firing range for use in test firing, chronographing, reloads, and bench rest shooting are available.

Through a donation from Midway USA, funds are available for annual updates to the program's firearms inventory kept in the Midway USA Arms Room, ensuring that students receive instruction on the most comprehensive, up-to-date firearms inventory possible. Brownells provides numerous gunsmithing scholarships to students and donations to offer the Brownells Labs. MCC's Gunsmithing instructional staff has a combined total of over 60 years of gunsmithing, teaching, and professional experience.

Students completing the degree program graduate with 24 custom gunsmithing tools and three custom firearms they build themselves, including a custom 1911. In addition, students annually travel to the SHOT Show held in Las Vegas to make career contacts and gather job prospects. TSJC Trinidad State Junior College (Trinidad-State.edu/gunsmithing, 800/621-TSJC) in Trinidad, Colorado has a Gunsmithing School has long traditions with their Summer NRA program.

Offered over nine weeks, craftsmen and artists from the Gunsmithing world gather at the southern Colorado school to offer a variety of short-term courses designed for anyone interested in learning Gunsmithing as a hobby or a vocation. Available for novices, current students, and professionals, each course is organized individually for those who wish to learn anew skill, refine a technique, or study new technical information.

Most Trinidad classes are conducted Monday through Friday during normal business hours, though some classes run on weekends or for extended hours. Gunsmithing Technician Certificate (16 credits) has Basic Machine Shop, Advanced Machine Shop, Welding for Gunsmiths, Bluing, and Benchmetal Hand Tools & Metallurgy as Core classes. Gun-

GUNSMITH SCHOOLS CONTINUED ORIGINAL PAGE 19

Students listed from left to right are: Marty Murphy from New Mexico, fifth semester; Mateus De Faria from Florida, second semester; and Mitchell Marks from Montana, fourth semester. Above center: Second semester Gunsmithing student, Parker Eastin from Colorado, works on a pistol frame in Custom Pistol Smithing class.

Thanks to Trinidad State Junior College for the pictures. smithing Fine Arts Certificate (18 credits) has Drawing I, Checkering, Gunstock Carving, Scrimshaw, Introductory Hand Engraving, Alternative Metal Finishes, Advanced Hand Engraving, and a final Capstone as Core classes. Small Arms Level I Certificate (18 credits) includes Introduction to Small Arms, Small Arms Hand Tools, Small Arms Repair, and Machine Gun Repair.

Trinidad's NRA Firearms Safety Instructor Certificate (18 Credits) is approved by the Department of Education and the Higher Learning Commission, making it possible for students to use financial aid, GI Bill, and/or Vocational Rehabilitation programs to pay for their classes.

Other classes include Damascus Billet Making, Barreling Precision Rifles, Action Blueprinting, Building a Race Gun, Action Blueprinting, Single Action Revolver Tuning, Conserving Vintage Firearms, and Basic Western Style Engraving, among others. Many NRA Summer Classes are available for credit towards a degree program and a Prior Learning Assessment (PLA) establishes all earned credits. Classes taken for credit are eligible for payment using financial aid, GI Bill, and Vocational Rehab.

For students taking summer classes as professional development for their job, classes are available for CEUs (Continuing Education Units) to be determined upon class registration. When taking classes for CEU's, the certificate of completion will reflect the units earned. A variety of scholarships are available to students. Information is available on the TSJC Educational Foundation's scholarship page.

MSC Murray State College (MSCOK.edu/academics/departments/gunsmithing-technology, in Tishomingo, Oklahoma has been offering courses in cooperation with the NRA Gunsmith program and law enforcement armorer schools since the summer of 1994. MSC offers courses in repair and function of rifles, auto pistols, revolvers, and shotguns. Other classes include bluing, re-barreling, alternative finishes, stock repair and refinishing.

While MSC's six-week program and classes are not currently credited, students receive a certificate for each class attended. In addition to the NRA Gunsmithing and law enforcement offerings, Murray State College has been offering their own core gunsmithing program, Gunsmithing Technology, since 1979, providing training in custom gunsmithing and gun repair. Students develop the basic knowledge and skills needed to become professional gunsmiths.

The two-year program teaches all aspects of building and repairing firearms. During the course, students visit several different firearm manufacturers and various gun shows. They also have the opportunity to receive on-campus training from firearm manufacturers to obtain additional certifications. Historically, MSC gunsmithing advisors and instructors receive up to three job requests for each student who graduates from the program. All graduates can be placed in employment if open to relocating.

Gunsmithing is a very popular program at MSC, with only 30 students chosen to enter each year. Prospective students are urged to submit applications early, specifying the intended year of entry. All classes start in Fall with students being chosen by the gunsmithing department committee the previous March. Acceptance is not automatic; each student is chosen on their own merit. The Gunsmithing Program teaches all aspects of building and repairing firearms.

Each student will build three firearms while attending the two-year program and students get to keep what they build. Pending rulemaking, including amendments to ITARS, is restricting access to firearms by non-citizens in the United States, therefore, applicant must be a citizen born in the United States to apply to the program. Areas of study include Stockmaking and Stock Repair, Rebarrel-

GUNSMITH SCHOOLS CONTINUED ORIGINAL PAGE 20

ing, Metal Refinishing, General Firearm Repair, Accurizing with pistol and rifle specifics. Specialty classes include Computer Numerical Control and Auto CAD (Computer Aided Design), TIG Welding, and Machine Shop (Lathe and Mill) work. Employment opportunities range from general gunsmithing and gun shop management, custom gunsmithing and machine work, and Cryogenic operation. Students have found good jobs with the government, military, and factory service work with major manufacturers.

Perspective students are invited to schedule a whole campus tour by contacting the MSC Outreach office or by visiting the Courtney Engineering Building on campus to tour the Gunsmithing Department. LCC Lassen Community College (LassenCollege.edu/academics/programs/gunsmithing/Pages/default. aspx, in Susanville, California was established in 1925 and has been offering the oldest gunsmithing school in the United States since 1945.

Lassen Community College is located in Susanville, a small mountain town in northeastern California. Outdoor activities are abundant, with Sierra Nevada Mountains to the south, Cascade Range to the north, Lassen and Plumas National Forests to the west and high desert country to the east. There are numerous streams and lakes available for fishing and boating, including Eagle Lake 20 miles away. As an NRA-affiliated Gunsmithing school, LCC offers one and two week NRA Short Term Gunsmithing Courses during the summer.

Courses are offered in Basic Machine Shop, Barreling, specific firearms platforms, Law Enforcement Armorers Schools, engraving, Knife making, and metal finishes, California P. O. S. T Certified Law Enforcement Armorer Schools, engraving, knife making, and metal finishes. LCC also offers Associate in Science Degrees in Firearms Repair and General Gunsmithing, as well as Certificates of Completion for Pistolsmith, Riflesmith, Long Guns, and Gunsmith Machinist and Metal Finishing.

Degree programs and Certificate programs are designed to be realistic and comprehensive, spanning the wide spectrum of skills needed to compete in the modern job market. LCC's Gunsmithing program focuses on firearm design, function and repair. The Gunsmithing courses are 1-2 weeks long, Monday through Friday. There is a first year student class and a second year student class offered each week. During the first year of the program, students take an evening welding course held on Monday and Wednesday nights.

Additionally, a lab class option on Tuesday, Wednesday, and Thursday evenings where students can work on class projects outside of their regular class time is available. LCC's Gunsmithing Program is two years long, consisting of gunsmithing-specific courses. Upon successful completion, students are eligible for all of the Certificates of Accomplishment/Achievement LCC offers. The Associate of Science Degrees requires additional general education courses as any degree program typically does.

The gunsmith portion is 64 courses over four semesters. Upon completions, graduates receive Certificates of Achievement in General Gunsmithing and Firearms Repair, and Certificates of Accomplishment in Gunsmith Machinist and Metal Finishing, Riflesmith, and Pistolsmith. Upon the completion of the General Education Requirements in addition to the full time gunsmithing program, students are eligible for graduation and can receive an Associate in Science degree for General Gunsmithing and/or Firearms Repair.

Typical Gunsmithing Program courses area week in duration and held Monday through Friday for 39 instructional hours. The coursework needs to be approached as a full-time job. All courses are presented by knowledgeable and full credentialed full and part time instructional staff, as well as varied guest lecturers. Instructors utilize various technologies and methodologies to help the student understand design, function and repair aspects of all firearms related to a particular course.

The majority of the coursework is hands on, with the student performing modifications and repairs to various firearms. The student will learn basic and advanced techniques using the lathe, milling machine, TIG welders and a variety of other machine tools. Lassen Community College is accredited by Western Association of Schools and Colleges (WASC) through the Accrediting Commission for Community and Junior Colleges.

WASC is recognized by the California POST Secondary Education Commission and the US Department of Education. LCC students are responsible for providing their own hand tools, most consumables, and firearms needed for their coursework. Tools required for the Gunsmithing Program can costa few thousand dollars over the course of the two year program, depending upon quality. There is one required text book for the program and tuition is charged on aper unit basis for each course.

In total, LCC lists 126 Course Outlines in the Gunsmithing curriculum. Each school determines the cost of their program. For questions regarding NRA Gunsmithing School courses or curriculum, please contact the school directly. For any additional questions, email MSprick@ nrahq.org for more information. AG

FROM THE ARCHIVE

General or Specialist?

Deciding on the type of gunsmith jobs you want and need.

BY BILL SMITH JUNE 2021 ORIGINAL PP. 21-22

If you're like most practicing gunsmiths, you probably started out and founded your business as being a general practitioner. Your reputation and your income was based on doing any job that came along. You did it well and reaped the rewards. Since the time that you started you have become more and more proficient and perhaps even hired an extra hand.

You may be getting a little tired of the run-of-the-mill jobs and you may prefer to do certain custom work, such pistolsmithing for specific types of competitions or working on your newly-designed aftermarket part that has taken off locally. You get a handsome figure for building and installing your new "Jim Crank" and believe you'll do even better if you advertise—naturally. You might be able to if this is something enough shooters want.

You are now thinking that due to the increase of the price that you can command for this job, it is a lot more fun and more profitable if you concentrate on this specialty work, which along with something like accurizing work, becomes a big ticket item. You won't have to have as many total jobs to take in in order to charge the same money as you were used to when you were handling more guns for less cost each that came in to your shop under the heading of general business. Well, stop and think a little.

All of the above may be true but there are several things to think about. One, how long will this business last? Is your idea patentable? If it is, are you prepared to layout about the thousands of dollars necessary to secure a patent? More important, are you prepared to pay even greater amounts of money in legal fees to defend your patent in court when other gunsmiths and companies (most of them having more money than you) take your idea and run with it?

The patent application process can take two or three years to complete and the possibility exists that there may be prior intellectual property on it, rendering your patent less good than you would like it. Then there is always the possibility of someone changing your idea or product just enough to evade patent infringement and selling it for less. This all depends on how popular your item proves to be beyond the immediate range of your shop.

What if the handful of local customers buying your idea aren't representative of the gun owning public at large? Let's say moving to a large market does work out and you avoid the issues stated above. Now you are flushed with orders from around the country and have reason to be convinced the world will beat a path to your shop. Maybe so—for awhile. You cannot insure yourself that this business bonanza will last for any given amount of time and may be fooling yourself as to how long the market will last.

Because of this, you now have dozens of orders for custom jobs in and can no longer be bothered with general gunsmithing. Your shop helper is now doing those jobs and is now the person your old customers are looking to for repairs and learning to depend on. You are left alone more and more to take care of your new business. Over a period of time you become more successful with your new item and custom job, losing contact with the very thing you built your business on—general gunsmithing.

Your helper now has the rapport with your local customers that you once had. Oh sure, they still talk to you, when they see you, but they have to talk to your helper with regard to their particular problems. Well, Ms./Mr. Gunsmith, congratulations on building anew reputation for your helper who is certain to leave and open up his own shop and take your old customer base that he has built in your shop along with him.

Now, just to make things more exciting, sales of your new, hot item and custom job start falling off. "Nothing to worry about, summer vacations and all that!" Maybe. Until in later months sales continue to fall again. If this drop continues, it indicates that the market is falling off. The rush is over. There is something even newer on the market or you have just saturated your market potential. It can get worse. What to do? First off, get back where you never should have left.

Get back to the meat and potatoes of this business: general gunsmithing. If your helper is still there you better move back to being the one who talks to the customers. Protect yourself and the shop and hopefully recapture your customers before they become convinced that you don't want to work on their guns, but your helper does.

Divide your time up so that perhaps the turn around time for the "hot" item still gets done but it takes a little longer and allows you to remain running your shop for your local (and returning) customers. Consider that a recession might drop the market for your item to little or nothing. Then what? It could happen. Gunsmiths, not unlike many people who have their own business, often forget their roots. Stop and think how you got to where you are. What did you do to

become established in this business to the point it was before starting on the new item? If you managed to keep your shop in business, then you know you can live off doing general gunsmithing. Perhaps you should instead train your helper to install the item or do some part of the task while you keep taking care of the shop and your core, local base of customers.

Those people will always need that repair or installation job done in the future and will likely tell their shooting friends and relatives of your good work. A lack of markets, wars and recessions are great for making one realize what one had before all this happened. If you specialize by either deciding to do one type of work or by building a good aftermarket product, I have some very simple rules to follow. First, always have enough money to ride out the lean times.

This is an adequate emergency fund of cash or similar liquid assets, separate from long term investments. Second, ensure that you have enough information proving your new specialty assures you good and continuing business. Finally, be certain that you really want to lose your general gunsmithing business. My advice is: don't sell the farm! Custom Shop Example Here's an example of how you might take this custom shop idea forward: The Poor Man's Custom Shop.

It is possible to produce custom rifles or products along with the best of them with a minimum of talent and machinery. You don't have to be a master stockmaker, which is the crux of custom rifles. You don't have to be able to rebarrel actions, which not only takes machinery but know-how as a machinist. What you must have is the knowledge of where to get these things done so that you can put out custom rifles that fill your customer's needs.

Just as important, you can do this custom approach as an add-on to your general services. Let's take a typical situation. You have a customer who wants a custom 398 Whiz Bang with custom barrel and stock specifications. There are several barrel makers who will fit the exact barrel you want, on your action, turned, chambered, and proofed. A word of caution right here.

You first have to realize that today if you supply the action to the barrel maker, order any stock, sights, or similar accessories that you are not only responsible for the excise tax but are considered to be a "producer" according to the BATFE. You ask, where does one obtain a "producer" license? I don't know, but I do know that BATFE spells out that the term "producer" and "manufacturer" mean the same thing. So where is your manufacturer's license? The official meanings of these things are spelled out in U. S.

C. 178.11, Meaning of Terms. As a gunsmith and duly licensed as such, you are restricted to repair, refinishing, and parts replacement. This does not allow you to "build" custom rifles without having a Manufacturer's license and paying the excise tax. While I am not a lawyer and am not offering any of this as legal advice, I am offering up a caution to all of you. The whole problem is solved, I believe, by following the procedure outlined herewith.

If ownership of the receiver is kept in the name of the purchaser and he orders you to customize it, then he is the manufacturer or producer and is first subject to any excise tax and regulations for manufacturer. Should your customer order a custom rifle based on a barreled action, regardless of maker, he must buy the barreled action first so that it is his, not yours. Getting off the legalities or liabilities of custom guns, let's get back to making honest money.

In either case, having an action barreled or starting with a barreled action, you go after the stock. You take a stock offering from a given maker, determine the type, wood or other material, and any finishing work such as checkering. You can either figure this from their website or catalog or contact the maker directly for a quote. Keep in mind you are going to get a first class job of inletting and finishing. Let's say, for discussion, the stock runs $800.

You arrange to get 25% off of retail, making $200 right off the bat. We'll assume the stockmaker has done a super job. You have no hours in so far and can now install the sights, trigger work, bluing, etc. to turn out a $1,500 custom gun. The day of sweating out a semiinletted stock, the hours, the finishing, etc. and then maybe it isn't as great a quality as it should be is over. Don't fight it!

If you don't want your customer to know the stock was initially done by a given maker, then either order the stock with a plain buttplate or install a different one yourself. The latter is especially good if the customer specified a particular recoil pad. With these provision, I doubt if anyone can tell who made the stock. Even if they did, what's the difference?

If you are honest about it and tell your customer that someone else made the stock that you finished for them, you certainly don't have to apologize for work that a good company offers anymore than you do for having a barrel put on by a barrel maker. Plus, going with an offering from a reputable aftermarket maker can help signify a custom job as opposed to using the base model provided on a factory gun. Operating in this manner puts you in the custom class but it is done with a minimum of time and effort.

I have done this on a number of rifles in the past and I find it not only convenient but profitable. You offered a service and provided custom options not normally available on common factory guns. Gunsmiths that do work that makes them a manufacturer are opening themselves up to possible liability. The only definition of "manufacturer" that matters is whatever BATFE says it is. AG

PISTOLS

Reader Forum

BY AMERICAN GUNSMITH EDITORS JUNE 2021 ORIGINAL PP. 23-24

Bersa Thunder I purchased a Bersa Thunder 380 Plus semi-auto handgun from a private party. Apparently they had trouble with the slide lock and had a gunsmith remove it from the weapon. Before shooting this gun, I want to re-install the slide lock and all necessary parts to make it work properly. Can you tell me what parts will need to be purchased for this to occur, and where they can be purchased from?

I would love to see a complete visual breakdown of this procedure so I can correctly re-assembly my gun as well as a possible explanation as to why this part might have been removed.

Would it be Bersa Thunder 380 Plus (Speci ications subject to change without notice) 1 Slide 2 Rear sight 3 Rear sight blade 4 Rear sight spring 5 Rear sight screw 6 Extractor 7 Extractor spring 8 Extractor pin 9 Firing pin 10 Firing pin spring 11 Manual Safety Lever 12 Manual Safety stop pin 13 Manual Safety spring 14 Barrel 15 Recoil spring 16 Frame 17 Slide stop 18 Slide stop spring 19 Trigger spring 20 Trigger 21 Disassembly lever 22 Trigger pin 23 Slide catch spring 24 Slide catch lever 25 Ejector 26 Barrel pin 27 Drawbar 28 Drawbar spring 29 Magazine catch 30 Magazine catch pin 31 Magazine catch spring 32 Hammer possible to fire safely without the slide lock?

Our standard advice is: Do not shoot any firearm unless it has all the manufacturer's parts properly in place and functioning. Return your firearm to the factory or take it to a qualified gunsmith for repairs. That said, some Bersa shooters have reported that this pistol can work without the slide lock in place. Your results may vary. Old Ri le Inquiry A friend of my grandson's gave him an old muzzleloader.

I was going to clean it up and reblue it to make into 33 Hammer spring guide 34 Hammer spring 35 Sear 36 Sear pin 37 Hammer release cam 38 Hammer pin 39 Hammer cam bushing 40 Hammer cam pin 41 Magazine tube 42 Magazine follower 43 Magazine spring 44 Magazine plate rivet 45 Magazine base 46 Firing pin holder 47 Firing pin holder spring 48 Lower grip bushing 49 Grip bushing 50 Grip screw 51 Grip 52 Mag catch bushing 53 Front sight 54 Safety key ring 55 Locking 56 Safety key 57 Automatic safety 58 Hammer pin washer 59 Drawbar retention ring 60 Locking stop pin spring 61 Locking stop pin a wall hanger for him.

In cleaning the old bluing off, I found some numbers but have no idea what they are. One looks like a date and the other looks like a bore size (metric). I did find the word Belgium (partially worn off) on the flat of the barrel just in front of the rear sight. Russ Wilson I haven't had a chance to mike the bore but I think it's around a .36 caliber. The center of the hammer has a recess in it to cover a primer cap when the hammer drops. The breech end of the barrel is threaded for a nipple.

The (thumb) cocking lever(?) on the hammer is offset to the right to allow sighting. Attempts to research Belgian firearms has turned up nothing, however, I have learned that the Flobert had an octagonal barrel near the breech end and went to round toward the muzzle. The one I have is full octagonal the whole length. Measurements area barrel length of 22.5" with the flats on the muzzle end being 0.630 and 0.770 at the breech end.

The overall length of the gun is about 37 inches, with the stock itself being around 22- 3/4 inches. It only has two screws that attach the barrel to the stock. One under the barrel through the forearm and the other through the top of the trigger/hammer assembly behind the hammer. The barrel is attached to the trigger assembly by a pin (just ahead of the hammer) and a screw (just ahead of the hammer spring keeper). It looks fully rifled but the bore is a little rough.

Oddly, if it's a muzzleloader there's no whole in the forearm for a ramrod. Charles Tibbs

From Mark Hollensen. The rifle looks like an early Flobert (pronounced flow-bare). The first link shows one that was for sale that looks similar (lock work) to the few photos attached to this email. The second link has information about the Flobert guns, most being made in Germany. Two articles to help: Bit.ly/3d Kd AUf and Bit.ly/3uyw7ts From Sergey Lyalko. This is a Louis-Nicolas Flobert Gallery Gun.

His cartridge consisted of a 6mm percussion cap and a small lead ball, inserted in its throat, with no powder inside. Most of the Flobert guns were made in Belgium. What appears to be a nipple hole must be a chamber for 6mm Flobert cartridge. The caliber 6mm is on the side of the barrel. LCP II The March 2021 article "Ruger LCP II and LCR" identifies the LCP II as a blowback design.

That is true of the 22 Long Rifle version, however, the 380 ACP is a locked barrel with the hood in the ejection port when in battery, similar to most modern pistols. The design is similar to the Kel Tec P32 and P3AT; some might say it's a near clone. My wife has a Kel Tec chambered in 32 ACP and I have an LCP II in 380 ACP. I love all of them in different ways! Steve Gibbs Rimfire Cost Saving Tip I thought I'd pass along a good money-saving tip.

I use yellow plasticribbed anchors from Home Deport (Everbilt #4-#6 x 7/8", 150 for under $6.00) for snap caps or dummy rounds for all my .22 caliber firearms. They work great and can be reused many times over. Jeffrey Raymond FEG PJK I am trying to clean and reblue a FEG 9JK. There is a shaft which the hammer appears to rotate on, but there is ahead on it that is similar to controls on safety switches. I can't move that and don't want to force it. Jim Thompson From Dick Maheu.

I cover the FEG Hungarian P9R, a Browning Hi-Power look-alike, in June 2016. The PJK is a Hi-Power clone and disassembled as such. Assuming you have detail striped the pistol down to the Safety Catch point, the shaft of this catch is the hammer cross pin. It is NOT a press fit pin and should remove without forcing. Dried grease, oil, powder residue, dirt, etc. can get into the pistol and cause difficult removal. I usually use kerosene, lacquer thinner, or WD-40 to loosen up any debris.

This should free up the part unless there is damage to the shaft or other associated parts. If you still have to force things, then take the pistol to a good gunsmith for diagnosis. AG

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