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EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

06

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

FIXED POWER SCOPES

MASTER PIECE ARMS • THE BERETTA OLIMPIA, PART ONE • WINCHESTER .22 SPEEDLOADER • INSPECTING YOUR WORK

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 186

DIGITAL ARCHIVE EDITION

Preserved for the bench.

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MACHINING

Master Piece Arms

BY AMERICAN GUNSMITH EDITORS JUNE 2019

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Master Piece Arms was named the Official Chassis of the 2019 Precision Rifle Series season, marking the third consecutive year the company earned the distinction. MPA Chassis are machined from 6061 aluminum, have a V-bedding system, adjustable cheek piece and length of pull, a recoil pad adjustable for height and cant, Picatinny rails for optics and accessories, multiple QD sling swivel attachments, and built-in bubble level.

The MPA Chassis can be had for an ever-increasing list of barreled actions, including Remington 700 Short and Long, Savage and Howa Short or Long Actions, Badger M2013, Mauser/Springfield, Surgeon, Stillers, and others. All are available in a variety of Cerakote finish and color options. To give back to the shooters, MPA sponsors multiple PRS matches throughout the year, including the 2019 PRS Finale scheduled November 15-17, 2019.

The Precision Rifle Series is a series of nearly 40 competitions throughout the United States with the largest being the GAP Grind having hosted over 400 competitors at the 2018 event. The Series tracks over 5,000 competitors competing in numerous Regional Series events consisting of local, one-day matches. PRS competition can be described as a blend of conventional and practical/action shooting.

Rather than firing at static targets with concentric score rings from rulebookprescribed positions, PRS shooting is done on steel targets of varying sizes and distances

from varying positions and places of support, or lack thereof. The precision elements common to conventional competition are there as the targets usually subtend only a few minutes of angle and must be hit based on current environmental conditions.

The action elements include ever-changing shoot scenarios and positions with elapsed times commonly used to break ties among competitors with an equal number of hits. Skilled shooters have described it as an ideal way to practice field marksmanship for designated marksmen and snipers. "At MPA, we've made a commitment to the long-range shooting community and we are truly honored to once again be named the Official Sponsor of the PRS season.

When you purchase one of our chassis, we never want you to regret that decision, and that is why all our chassis are backward compatible," said Phil Cashin, owner of MPA. "We are out on the range, in the field, and at the matches with our customers, listening to their feedback and continue using it to produce a better product for them. We are committed to producing an innovative, quality-built chassis that every shooter can rely on." MSRP for the MPA Chassis ranges from \$999-\$1,150 depending on options.

Master Piece Arms uses high accuracy CNC machining, turning, laser cutting, and bending in its manufacturing process controlled by their ISO9002/TS16949 Registered Quality System. The company can be reached online at MasterPieceArms.com or

PEOPLE & COMPANIES

The Beretta Olympia, Part One

While scarce before 2016, recent imports of this .22 trainer has raised interest in this unique “semi-auto bolt action” rifle and carbine.

BY BRIAN R. SMITH JUNE 2019

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Top: The Beretta Olympia rifle (top) and carbine (bottom), right side view showing butter knife bolt handle. Above: Left side view illustrates the differences in the stocks; the rifle having the Monte Carlo cheek rest and a longer, checkered forend in contrast to the carbine's checkered pistol grip and shorter forend with finger grooves.

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Far left: Olympia carbine shown in battery, illustrating the butter knife bolt handle, receiver ring with two scope mount screw cross grooves, and massive adjustable rear sight. Left: Olympia rifle action shown open, with the bolt handle locked into the rear notch. The forward bolt handle notch is clearly visible, along with the breech end of the barrel and the top of the empty magazine.

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Far left: Olympia carbine shown in battery, illustrating the butter knife bolt handle, receiver ring with two scope mount screw cross grooves, and massive adjustable rear sight. Left: Olympia rifle action shown open, with the bolt handle locked into the rear notch. The forward bolt handle notch is clearly visible, along with the breech end of the barrel and the top of the empty magazine.

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“Semi-automatic bolt action” A almost sounds like a phrase created by a gun control advocate, like “full semi-automatic AR-15.” Shooters unfamiliar with the Beretta Olympia and observing it in operation for the first time will likely have a “Huh, what?” moment. The Olympia Rifle and Carbine, sometimes referred to as the “Beretta Olympia Modello Unione,” was produced from the 1950s through the 1980s and have the distinction of being operable as a locked breech bolt action or as recoil-operated semi-autos.

The key to the dual functionality is the bolt handle which can rotate through a fixed angle and is capable of being locked into one of two notches in the right side of the breech and stock. Throughout this article I use the Italian spelling “Olimpia” because that is the official Beretta model name.

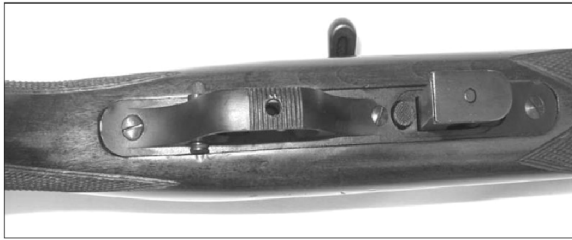
The Italian spelling and the more common, anglicized Olympia version are used interchangeably in print and on the Interwebz but my OCD forces me to use the Italian spelling herein because that is the official Beretta

spelling from back in the day. A friend's need for a replacement magazine is what introduced

When he asked if I could locate a spare magazine or three for his “new to him” Beretta, I recognized the similarity between the Olympia and a Walther Model 1 from my teen years when I frequently spent time at our town gunsmith's basement. The forward bolt handle notch is clearly visible, along with the breech end of the barrel and the top of the empty magazine.

THE BERETTA OLIMPIA, PART ONE CONTINUED

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Above left: Olympia rifle molded trigger guard with round crossbolt-type push button safety, knurled magazine release button, magazine, and three guard screws. The hole in the trigger guard is for adjustment of the sear let off. The Olympia carbine uses a stamped trigger guard and underlying trigger plate, bent in place with two large and two small guard screws. Above right: Front sling swivel mounting plate shown in the rifle. The carbine is identical and both arms offer five positions for securing the front sling swivel to match the sling set-up to the shooter's arm length and stature.

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Below left: Front sight of the Olympia rifle showing the robust circular hood which slides on from the rear. The target crown is visible, as is the front sight post insert retaining screw. Below right: Typical serial number and proof marks shown on the Olympia rifle's receiver ring. The left side groove for the scope mount claw runs longitudinally at the top of the receiver ring and the two cross grooves for the mount's clamp screws surround a crosswise dovetail.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



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ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

The hole in the trigger guard is for adjustment of the sear let off. The Olympia carbine uses a stamped trigger guard and underlying trigger plate, bent in place with two large and two small guard screws. The carbine is identical and both arms offer five positions for securing the front sling swivel to match the sling set-up to the shooter's arm length and stature. shop as an extra set of hands, a strong back and weak mind, and general no-cost shop janitor.

In the end, the education in firearms and gunsmithing was well worth more than any monetary compensation would have been. Like so many of his personal rifles, Charlie the gunsmith had the Walther Model 1 hanging from hooks screwed into the side of the shop. The target crown is visible, as is the front sight post insert retaining screw.

The left side groove for the scope mount claw runs longitudinally at the top of the receiver ring and the two cross grooves for the

mount's clamp screws surround a crosswise dovetail. ceiling joists in his shop. One Saturday morning I heard Charlie and a regular shop "hang-out" get into a discussion about .22 trainers and Charlie mentioned his "semi-auto bolt action" trainer. The regular scoffed, so Charlie asked me to reach up and fetch him that Walther.

As was my practice, I kept my mouth shut and ears open and soon knew all about the Model 1 and its dual function design. More about that later. Charlie went on to tell the regular about American locked breech semi-auto .22 rifles which functioned essentially the same as the Walther Model 1 but had differences in execution.

The Savage Models 6, 7, and 87, the High Standard Sport King, and respective Sears copies thereof all had the capability of firing "bolt action" with a locked breech by means of the bolt knob which could be pushed to

the left with the bolt in battery, thus preventing semi-auto feeding and making the rifles single shot.

Pushing and pulling the bolt knob sideways is considerably more awkward than flicking a butter knife bolt handle up or down with one finger and therein lies the appeal of the Walther and its Beretta copies. With the Walther and Beretta, when the bolt handle is rotated upward to its detent stop, the arm operates like any blowback semiauto .22 rifle. A reasonably massive bolt and a stiff recoil spring keep the breech closed until chamber pressure has dropped to safe levels and/or the bullet has exited the barrel.

The force on the case head pushes the bolt and case rearward, ejecting the case, stripping anew cartridge from the magazine, and chambering it. Each pull of the trigger re-

THE BERETTA OLIMPIA, PART ONE CONTINUED

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Above left: Butter knife bolt handle is shown locked in the forward notch. In this position, the rifle functions as a single shot. Above center: Bolt handle in the up position with the bolt in battery. The rifle will function semi-automatically. Above right: Bolt locked in the rear notch, holding the bolt to the rear and the breech open.

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ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



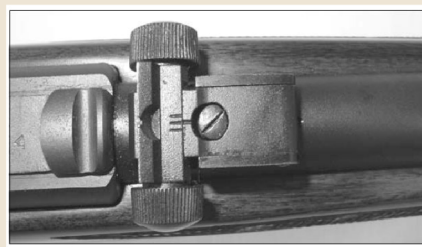
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ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below: Manufacturer information stamped into the bolt cover.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below: Manufacturer information stamped into the bolt cover.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

In this position, the rifle functions as a single shot. Above center: Bolt handle in the up position with the bolt in battery. The rifle will function semi-automatically, sults in a repeat until the magazine empties. The Beretta Olympia and its Walther inspiration offer the shooter the option to lock the breech closed for every shot by rotating the bolt handle downward into a notch in the breech and the stock when the bolt is closed.

So locked, the bolt handle keeps the bolt forward and the breech closed during and after around is fired until the bolt handle is manually lifted up (more like “flicked” up) into a ball detent, the bolt pulled to the rear to eject the spent case, and released to feed the next cartridge. Hence, the Beretta Olympia is a “split personality” rifle owing to its de-

signed-in dual functionality. The Olympia was used extensively in carbine form for training military, police, and the paramilitary Italian Carabinieri.

The carbine and rifle versions were also sold to the public and shooting clubs. The Beretta Olympia is robust for a .22 rifle, with a heft that makes it feel like a larger, centerfire weapon. The receiver is reasonably standard for a rimfire rifle, being fabricated from two parallel steel plates sandwiching a number of steel blocks that are held in place with pins.

These blocks include a barrel extension into which the breech end of the barrel is pressed and pinned, a receiver tang projecting from the rear of the receiver, and the magazine well. Other pins retain or act as pivots for the

hammer, trigger, sear, and other bits. There is around window in the left receiver plate that offers a clear view of the engagement of the sear surfaces in the sear lever and hammer. The barrel is 0.900" in diameter and is the source of much of the Olympia's mass.

The barrel is fitted with a ramp front sight over which is slid a thick C-sectioned protective steel hood. Front sight posts are 2.5 mm wide factory-installed, but either 1.5 mm or 2.0 mm wide post inserts were also available as accessories. The standard rear sight is equally robust, with a large blade rear sight that is adjustable for windage using two huge serrated opposing lock screws which one unscrews one side and tightens the other to shift the rear sight as

THE BERETTA OLIMPIA, PART ONE CONTINUED

ORIGINAL PAGE 6



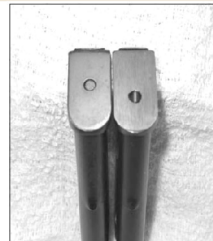
Above left: Side view of ten-round Olympia magazines; Beretta (L) and Triple K (R). Above center: Spine view of Olympia magazines showing horizontal magazine catch retaining groove slightly more than halfway up from the base; Beretta (L) and Triple K (R). Above right: Floorplates of Beretta (L) and Triple K (R) magazines. The Beretta magazine floorplate keeper is centered, whereas the Triple K keeper is slightly forward of center. Given the close similarity between the two magazines, the floorplate keeper position is about the simplest way to identify Olympia magazines.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Above left: Side view of ten-round Olympia magazines; Beretta (L) and Triple K (R). Above center: Spine view of Olympia magazines showing horizontal magazine catch retaining groove slightly more than halfway up from the base; Beretta (L) and Triple K (R). Above right: Floorplates of Beretta (L) and Triple K (R) magazines. The Beretta magazine floorplate keeper is centered, whereas the Triple K keeper is slightly forward of center. Given the close similarity between the two magazines, the floorplate keeper position is about the simplest way to identify Olympia magazines.

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ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below left: Index finger is depressing knurled magazine release button, located between the magazine and the front of the trigger guard. Below right: Close up of the Olympia carbine's stamped trigger guard and stamped crossbolt safety. The rear guard screw and two small guardscrews are visible along with the sear let-off adjustment screw directly in front of the trigger.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



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Above center: Spine view of Olympia magazines showing horizontal magazine catch retaining groove slightly more than halfway up from the base; Beretta (L) and Triple K (R). The Beretta magazine floorplate keeper is centered, whereas the Triple K keeper is slightly forward of center. Given the close similarity between the two magazines, the floorplate keeper position is about the simplest way to identify Olympia magazines. desired.

There is a central screw in the rear sight that adjusts for elevation against a spring beneath the rear sight base. A diopter rear sight was offered by Beretta and mounted to the rear tang. These diopters are occasionally offered on e Bay and Gunbroker but are scarce and spendy.

Directly behind the rear sight is the receiver ring, which features The rear guard screw and two small guardscrews are visible along

with the sear let-off adjustment screw directly in front of the trigger. one of two mounting arrangements for a scope: Some early production Olympias have one slot centered on the receiver ring, while later Olympias have receiver rings with two slots about one-inch apart. Thus there are two scope mount types.

The scope mounts are unique in that they area single mount with one ring, which is most often fitted to a scope tube between the crosshair adjustment block and the objective bell. The scope is therefore cantilevered back over the receiver. To Americans who are accustomed to two rings mounting scopes to their rifles, the singleringed Olympia mount when fitted to both scope and rifle looks just as unconventional as it sounds. Scope mounts are available from sources in Europe but they are not inexpensive!

The barreled receiver is fitted into stocks of either European birch for the Olympia carbines or walnut for the rifle. While both stock types feature checkering in the pistol grip area, the walnut stock also has a Monte Carlo-style cheekpiece and more checkering on the forend grip area. Two-piece stamped sheet metal trigger guards are fitted to Olympia carbines and the trigger guard parts are not thin stampings, either. The outermost screws are larger and are the traditional "guard" screws.

The two inner screws are smaller in diameter and bind the outer trigger guard to the inner trigger plate. A one-piece black-finished white metal cast or black polymer trigger guard was fitted to the Olympia rifle. It is held in place by two large guard screws at

THE BERETTA OLIMPIA, PART ONE CONTINUED

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each end with just one small guard screw in the center. To review the Olympia's operation, with the bolt handle rotated upward to its detent stop, the action operates like any blowback semiauto .22 rifle. A reasonably massive bolt and a stiff recoil spring keep the breech closed until chamber pressure has dropped to safe levels and/or the bullet has exited the barrel. The force on the case head pushes the bolt and case rearward, ejecting the case, stripping anew cartridge from the magazine, and chambering it.

Each pull of the trigger results in a repeat until the magazine empties. Pushing the bolt handle down into the forward notch locks the bolt closed during and after around is fired until the bolt handle is manually lifted and pulled to the rear to eject the spent case and released to feed the next cartridge. The magazine well is formed by the receiver sideplates and the steel blocks contained therein.

The magazine catch is a chisel-pointed steel bit that is cammed away from a mating horizontal groove in the magazine's spine by pressing upward on a knurled button projecting down through the trigger guard. Beretta manufactured magazines of 5, 10, and 20 round capacity. Original Beretta Olympia magazines are quite scarce and the recently-imported Beretta Olimprias come with one ten-round version. But back to my friend's interest in a spare Olympia magazine.

Some Interwebz firearm chat room participants have stated that Walther Model 1 magazines will fit and function in a Beretta Olympia and vice-versa. I have not confirmed that because Walther Model 1 rifles are extremely scarce and pricey in the United States and Model 1 magazines are pure unobtainium.

The same forums teach that the magazine for a Weatherby .22 will fit in the Olympia but these require a tab to be filed or ground off and "adjustment" to the

horizontal groove in the spine to ensure proper latching of the Weatherby magazine in an Olympia rifle. We elected to take a different path, going with an order to Triple K for two of their catalog 1180M 10round magazines. Triple K (Triple K. com, is a source for reproduction magazines and grips for a number of common and notso-common handguns.

While a few decades ago my own personal experience with their products was hit or miss, in the past 10-15 years the times when I have purchased a Triple K magazine they have functioned reliably, perhaps requiring minor fitting or polishing of the cartridge follower in some cases.

Given the scarcity of original magazines and the high, often 3-digit-dollar prices of used original magazines from dealers who specialize in them, a \$44 magazine from Triple K offers a cost-effective option for Olympia owners seeking a spare. When the magazines came, they fit and latched perfectly and each fed aluminum snap cap cartridges when cycled briskly by hand.

My friend, his Olympia, and the two new magazines went off to the range for function testing with live rounds and he reported back that each new Triple K mag fed 50 rounds of CCI Mini-mag ammo without issue. Speaking of firing, when subsonic ammunition is fired in an Olympia from a locked bolt, the bullet may exit the barrel at supersonic or transonic velocities.

Owners of Olympia rifles and carbines have reported deteriorated accuracy when fired in this manner as opposed to semi-automatically, in which case the muzzle velocity is most often subsonic and the bullet isn't subjected to transonic buffeting, throwing off accuracy. In Part 2 I'll go over disassembly procedures, parts, and schematic diagram. AG

PEOPLE & COMPANIES

Winchester .22 Speedloader

Suitable for Winchester 190, 290, and Sears Roebuck & Co. Ted Williams 3T/3T-A tube-fed .22 rifles, this speedloader makes loading them faster and easier.

BY ED NUTTER JUNE 2019

ORIGINAL PP. 8-10

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One advantage of magazinefed semi-automatic firearms is that you can spend a rainy day filling magazines before you go shooting so when you arrive at the range you can spend time shooting instead of loading. This gives rifles like the Ruger 10/22 an edge over rifles with a magazine tube. There are other potential benefits to speedloaders besides simple convenience. I was in a gun shop that had a rifle with a magazine tube like the 190 that was suppressed.

I was a bit confused by that given the need to pull out the inner magazine tube spring assembly. In order to do that on the suppressed rifle I saw, you would have to remove the suppressor first, load the rifle, screw it back on, and repeat every 15 shots. Using a magazine fed rifle lets you just change the magazine, instead of removing the suppressor every time. A speedloader helps a little there. While it will never be as fast as changing a magazine, there is away to reduce your reloading time with tube-fed guns.

Before we build speedloaders, let's conduct a good inspection and handle any needed maintenance or repairs. Inspection and Repairs Older tube-fed .22s like the Winchester 190, 290, and Sears Roebuck & Co. Ted Williams 3T/3T-A are still floating around. Production began Ted Williams 3T and 3T-A are basically the same rifle but may have slight variations between models, especially related to the stock. about 1964 and lasted until 1980. These rifles feature a semi-automatic blowback action.

The Model 190 featured here is chambered for .22 Long and .22 Long Rifle. While the 190 originally had a smooth stock, the Model 290 came checkered. These stocks were basically interchangeable and this 190 is wearing a 290 stock. The rear sight is adjustable but the receiver has the basic .22 scope mount cut. A search at your favorite Internet search engine will easily locate a PDF copy of the owner's manual for download. Basic takedown for cleaning is rather straightforward.

After checking to make sure the rifle is empty by cycling the bolt and putting it on safe, the first step involves removing the

magazine tube and punching out the trigger housing pin. The rear of the trigger housing is pulled down and the entire housing should be pulled backwards. There is a pin on the front of the housing that fits in the receiver. Flip the rifle over, move the bolt back a little while holding it in the receiver, and pull the bolt handle out.

When you take the bolt out of the receiver by moving it backwards and lifting up, make sure the spring doesn't escape. Inside the spring is a nylon guide rod. Clean any buildup off the bolt and trigger housing, lubricate them, and then reinstall. Sounds simple enough that you would be eager to take it apart for routine maintenance and have flawless performance for the life of the rifle. Your willingness and desire may soon be dashed upon the rock of reality known here as the bolt spring.

This brings up the first issue that people have with the rifle. Searching online will find a variety of methods to reinstall the bolt spring. One disassembly man-

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It is prone to loosening and should be checked if you have feed problems. I usually says to push the spring into its channel and hold it with a small screwdriver. Not having much success with that route, I removed the stock using a deep-well socket and an extension. Placing the rifle upside down in a cradle so it couldn't move, I set the bolt back in the receiver, got the spring in place, and started the stock bolt a couple turns.

Gradually pushing the spring into its channel, use something thin but very stiff to hold the spring in place while pushing the stock up against the receiver and tighten the bolt up. With practice and/or a couple extra hands, it becomes easier to do. Regular cleaning will minimize another any dirt buildup concerns. Dry lube might also help. Another issue is damage to the chamber from dry firing. This might be remedied by using a chamber tool, such as the Menck Chamber Ironing Tool.

Hopefully you have already purchased one because they are discontinued and no longer available. George Nonte's Pistolsmithing as well as a page on the website Ed's Metal Shop (EdsMetalShop.com/EdsMetalShop/Rim-fire.html) has instructions on how to make such a tool. Some people also use a tapered punch. To avoid damage, always use a proper snap cap. If you're inspected and cleared so far, check for another known problem.

If you have a rifle that intermittently shoots great and then jams, the first thing to confirm is that the barrel nut is tight. See if the barrel will move in and out when pulled on. For whatever reason, this model seems to be well known for the nut to loosen. In order to tighten it, follow the disassembly instructions above. After that, remove the pin that holds the magazine tube. Pull the magazine tube forward out of the forend. The forend should slide off the barrel.

The rear sight will need to be removed so the collar cover can be removed. There is a proper wrench to fit, but it can be difficult to find now that the rifle has been out of production for almost forty years. This should take care of known issues. Broken or worn out parts will require further disassembly. Parts might be found at the usual suspects such as Numrich, Jack First, and Bob's Gun Shop (Gun-Parts.com). Building Speedloaders The first step is to figure out the capacity of your magazine tube.

Measure the overall length of the .22 ammunition used. Some rifles are stamped that they are chambered for .22 Short, Long, and Long Rifle. To simplify things, I stick with .22 Long Rifle when possible. The length of the cartridge and the quantity will be the measurement of the tubing you need.

WINCHESTER .22 SPEEDLOADER CONTINUED

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The magazine tube can then be removed and then the forend. Visiting the hardware store produced a three foot section of aluminum tube to be cut down to the proper length. The inside diameter of the tube should be large enough for the .22 cartridge rim to fit but small enough that a bullet can't fit beside a rim and get jammed. Brass tubing will probably be too flexible. Thin-walled aluminum will also be too flexible; thicker walled is better. Steel tubing will be the least flexible.

After cutting the tube, I placed a plastic cap over one end and epoxied it in. After loading the tube, I sealed the end with a cork. At

least, that's my approach until I find a better method. To use, the easiest way is to remove the inner assembly from the magazine tube, line up the tube, and pour the cartridges in. You will probably need to flip the rifle so the cartridges don't fall out the regular loading port. Replace the inner assembly, chamber around, and shoot.

Possible improvements include turning the tube in a lathe so the loading end fits over the magazine tube. Another is to modify it to use the actual loading port. A potential problem concerning long-term storage is the possibility of two dissimilar metals reacting to each other under certain circumstances. I

haven't done any longterm testing and mainly load my tubes in free time shortly before going to the range.

They are especially nice in the wintertime when .22 rimfire cartridges are hard to pick up while wearing gloves. While it isn't as fast as changing a magazine, these speedloaders are a simple accessory that can speed up loading time at the range, especially on a cold day. With a good cleaning and replacement of worn out parts, the Winchester 190 and similar older rifles can still be a viable rifles and fun plinkers. Speedloaders make them even more enjoyable to shoot. AG

MEASUREMENT & INSPECTION

Inspecting Your Work

Once upon a time, there was a Glock G19 in my shop... Here's the story and what I learned about inspecting and documenting my gunsmith work.

BY MARK R. HOLLENSEN JUNE 2019

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Several months ago I took in a Glock Gen4 Model G19 with an MOS (Modular Optic System) slide for an aftermarket trigger and spring kit installation upgrade. During disassembly of the MOS slide to reach the firing pin, I quickly found that the extractor detent rod and spring assembly wouldn't withdraw as it was locked into the slide.

Removal of the MOS plate and both screws revealed that the plate had been installed with the long screw on the extractor side, a common mistake by Glock enthusiasts if not paying attention to the instructions. The screws were simply reversed and the aftermarket kits were subsequently inspected, installed, and dressed until the pistol worked smoothly and had a nice lockup and newly reduced trigger pull. Fast forward to the present date.

I took in what appeared to be another Glock G19 from the same customer for what he stated was a serious problem. During the initial telephone call he relayed to me that the gun at first shot well after I had done the work but then starting locking up and that the trigger would not reset after firing. He went on to say that sometimes the slide would lock fully to the rear during firing even with ammo still in the magazine. Other times it would stovepipe and/or jam.

My initial thought was somehow the earlier installation did not go as I had planned. I was no doubt curious about what had gone wrong. In my mind, I could not understand what had gone wrong and I was Be thorough in inspecting and documenting any work that you do. surprised at some of the answers to those questions that I ultimately found. When I received the pistol from him this time it looked different.

Back in the shop, I noticed that although the serial number on the frame matched that of the pistol I had previously worked on, it looked different somehow. I checked my records and then realized that the slide and barrel were different. Not only had the slide been finished with Cerokote, the gun now sported an aftermarket threaded barrel with a compensator attached. At first, I thought the slide was not from the same pistol that I had worked on previously.

After removing the compensator and slide assembly, I then noticed that it was sporting anew (different brand) trigger and sear block kit. All of this brought up more questions that I needed answers to. Going into a gun that has totally changed since the last time I had it made it very important for me to contact the owner and see if he could tell me about all of the changes that had been made. Trying not to offend, I began with a casual, "What type of ammunition were you using when the

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problems began?" I figured I would start there even though I didn't think that was the issue at all. But one never knows. Especially since the pistol was sporting anew compensator and it could have been that subsonic loads were used, which can create short stroking.

After he confirmed that he used standard 9mm ball ammunition, I went on to the really important questions of when was the barrel changed out, when was the trigger changed out, when was the compensator added, and whether or not he did the work/installations himself? He quickly stated that he had decided to put another aftermarket trigger in the pistol because he had that brand in one of his other Glock 19s.

And that he liked the threaded barrel and decided to order one and since it was threaded, he decided on getting the compensator. After all, "everybody is doing it—just check out the Internet." Now that I had most of my questions answered, I knew I would be starting all over on the pistol in order to try and ascertain what was creating the problem(s) he had while firing or the issues that he had relayed to me.

He had told me that the gun would not lock up after firing and that he would have to pull the slide to the rear by hand to get the sear to lock up so that he could fire it. I began by function testing the pistol just to see what it was, or was not, doing. The very first issue that I found was that the newly installed and threaded compensator was loose on the barrel muzzle and that the slide had a heavy "sticking point" when first trying to work it rearward.

One item found was that the loose compensator could turn just enough to pinch the barrel at the front of the slide and would

cause the slide to be very difficult to pull back but only at first. So, I removed the already-loose compensator and started function testing again, sans compensator. The slide was still hard to get started to pull to the rear but after a certain point, it would break free and slide back fine.

The "lock up" or trigger reset issue he had told me about was not found during these tests as the trigger was resetting each and every time as was the sear engagement. So I was not sure what he had been seeing or feeling when he worked the slide. Moving on, I removed the recoil operating rod assembly and then tested the slide again without it in place. And, again, the heavy (though not as much) sticking when first pulling the slide to the rear was still there.

I removed the slide and checked the barrel fit in the slide and there I found excess Cerokote material inside of the slide where the barrel locks up into the slide locking lug area. I also found the Cerokote material clogging (for lack of a better term) the firing pin block hole, among other areas that had the heavy build-up. My assumption here is that he had sent out the slide for the Cerokoting and then simply replaced it on the frame when it came back.

Knowing I had this issue to address now, I continued looking for other issues. I closely inspected the trigger kit, connector, springs, and everything looked to be OK other than this was not the same trigger kit, by brand, that I had installed previously. I did see some grind marks and burrs on the trigger bar where the upward protruding stem lifts the firing pin block up so that the firing pin can move fully forward when firing.

I also noticed that the protruding "tooth" on the top rear of the right side frame rail (polymer tooth) was bugged up and in need of a light filing to smooth and clean it up. I went ahead and removed the trigger assembly and sear block just to make certain I had inspected everything and found that the connector had not been correctly fitted to the sear block. This is another common issue with Glock enthusiasts (or that I have encountered anyway.) Everything from that point on appeared to be in good shape.

So I began the reassembly, one part at a time, while working them to make sure they operated properly and had no burrs or other abnormal issues. Once the "tooth" was dressed and smooth, the connector was fitted for proper operation and then the trigger bar stem was stoned, carefully reshaped, and smoothed out. Whether or not my customer ground on the stem, I may never know.

That said, I have never seen a trigger bar with this issue from any of the aftermarket trigger manufacturers, until now, therefore, I have to assume that it did not come from the manufacturer in that condition. Had he brought the gun to me for the installation(s) I could have found that issue (and any others) and addressed it with the manufacturer, at least if it was actually caused by them. And that leads me to a point here.

Often, I will hear customers or folks say that drop-in triggers only take a few minutes to do. Or, that you don't need a gunsmith to do it because you can watch it being done in videos online. And I agree with both of those statements or assumptions; however, not in their

INSPECTING YOUR WORK CONTINUED

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entirety. Certainly, it can take only a few minutes to install a drop-in aftermarket trigger—if you just pull it out of the carton and replace your trigger/sear block assembly. And it will more than likely just drop in, but consider this: Have you ever purchased a food product or any other product that came right off the shelf, or from a factory, and was either already spoiled, had glass or metal chips in it, arrived to you in the mail missing parts, or was improperly assembled at the factory? Yeah, me too.

And so this can happen with drop-in triggers or other parts. Not often, mind you, but when pulling the trigger on an explosive device, you really want to be sure it will work properly. In this case, I doubt that the ground portion of the trigger bar stem was an error from the factory. Nevertheless, you need to inspect these parts when they arrive or during installation. Moving on, I reassembled the trigger and sear block assembly and completed the assembly of the frame.

A quick check of the operating system went very well with no sticking moving parts or unusual trigger pull and sear release issues. It would lock up just fine. This had not changed from the beginning of the job as the gun was locking up for me just fine when first bench tested. The only time it would not was when the compensator would turn in such away as to pinch the barrel against the front of the slide when trying to pull the slide rearward.

With the frame assembled, inspected and ready to go, I turned my attention to the slide. Yes, I fully disassembled the slide and removed the MOS plate just to be sure it was installed properly with the correct screws being in the correct locations (again). The reason I disassembled the entire slide was to ascertain if the Cerokote build up had made its way into the firing pin tunnel, extractor seat area, and for

sure, I had to clean out the build up around the firing pin block hole that I had seen.

After some light abrasive work to clean up those internal areas, I found that the extractor seat had quite a bit of build up in that area and cleaned that up. Next, I test fitted the barrel to the slide (lockup) and found that someone had dressed the locking lug area on the slide to an extent, but not enough. The center area was free from excess Cerokoting material but both corners had heavy build up still in place.

I worked this area with a stone until the barrel would “click” into place when seated and locked and so that the full width of the barrel lug came into full contact with the slide lug opening. This area is what caused the slide to be stuck or so difficult to pull rearward at first when it came into the shop. The Cerokote was preventing the barrel locking lug from seating fully into the slide, and under spring pressure would compress the barrel locking lug into the Cerokote finish.

With the barrel now seating into the slide as it should, I went ahead and checked the front sight screw just on the chance that it wasn’t secure. Remember, I can only assume that the customer reassembled the slide upon receipt from the Cerokote job, if he indeed sent the slide out for the service. The screw was tight however, and with all areas inspected and cleaned up where needed, the slide assembly was reassembled.

Before re-installing the compensator, I re-assembled the pistol without it and began all function and safety checks. The slide no longer stuck (at all) when pulling it rearward, the sear was engaging each time the slide was worked, and the trigger was smooth and working properly. It passed all function and safety checks, even the firing pin strike tests. I inserted the magazine he had provided with the pistol and it worked as it should.

In other words, the slide lock was operational when pulling the slide to the rear with no ammo in the magazine. I then loaded 16 rounds of 9mm dummy ammo into the magazine and began feeding them manually to see how they fed, chambered, extracted, and ejected. No issues were found or noted. With the gun now functioning properly, I decided to install the compensator just to see how it fit up with the barrel muzzle and end of the slide.

The assembly was straight forward and the pistol function testing went well until the compensator was loosened as it was when I received the pistol. When slightly turned, the compensator would pinch the barrel when first pulling the slide rearward. Not permanently, but enough to see that the compensator would pinch the barrel muzzle against the barrel hole at the front of the slide. But when the compensator was turned back to where it should be, the action worked fine.

I had asked the customer when I first spoke with him (one of those many questions I had) if he had used any thread locker product(s) that either came with the compensator or was purchased afterwards and he told me that he had not. So, based on what I found, it needs to be used so that the compensator does not become loose when firing. And rather than do that now, I opted to range test the pistol first without the compensator.

This was so I could see how the pistol worked without it installed just in case I had overlooked something. The main goal being was to determine if the pistol would fire as it should, without any or all of the issues my customer had relayed to me previously. At the range, the pistol fed three full magazines of ammunition without any issues or previously reported problems. The pistol cycled perfectly, with no jams or other issues.

I then installed the compensator and fired three more magazines full of ammunition; and

INSPECTING YOUR WORK CONTINUED

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again, no issues were noted. Obviously the problems, all of them, were solved. Back at the shop, the pistol was given one final cleaning and the compensator was installed according to manufacturer's instructions. The use of thread locker should hold the compensator in the correct position now but I also left instructions for my customer to always keep an eye on it just to be sure that it doesn't spin during heavy shooting outings.

Now that I have covered all of that, it leads me to where I wanted to go from the beginning. This job came in after I had done work on the pistol a few months earlier, and based on the initial description by my customer, it sounded like the work that I did for him fell apart. And until I took the gun in to inspect for myself, I quite honestly thought the same thing. However, I quickly found that the pistol that I had worked on was not the same gun at all, really.

It is my shop practice to document all of the work that I do on each and every job taken in, and often, digital photographs are taken of that job along with "notable" pictures of areas of concern, previous damages or of just the areas that I performed the work on. Thank goodness that was the case here. Even if I had never worked on that pistol before, one really never knows what one is taking in at any time.

At a time when "drop in" is the "in thing" and more and more firearms than ever before are being manufactured to accept aftermarket goodies, the gunsmith (and even the customer buying a used firearm), needs to look at them closer than ever before.

Just like AR platform guns or the 1911 series pistols, I always begin by finding out if the firearm left the factory exactly as it appeared in my shop that day, or if it was a build gun, regardless of who built it; The good news here is that you can contact the firearm manufacturer and they will tell you

if the firearm you are inquiring about left the factory assembled completely as a firearm, as a frame only, or any other variation. And, they will tell you if they sold the frame only, and to whom it was sold.

They are very accommodating and reasonably quick these days with their responses. Pertaining to, let's say, a Glock, you can contact them and give them all of the numbers on the gun (frame, slide, etc.) in addition to the serial number and they can tell you if it left the factory as a fully functional firearm or if you have a build or semi-build gun. I think that is a good practice to do, especially as the platform guns continue to roll out.

In this case, I actually checked with Glock to ensure that the slide was the same one that originally came with the pistol when it was sold by them and it did. I realize that this can be time consuming but a little homework can save you many headaches when taking in a platform gun or firearms made from drop-in parts, as you can get a clearer starting point as to what it was when it was born and where to begin your inspection/assessment.

In closing, I want to add that I have no issues with platform or drop-in kit-type firearms manufactured. If it came across that way, I meant no disrespect. Firearms manufacturers have to stay alert to consumer trends and sales (what sells and what doesn't) just to survive these days of stamped or fully machined parts and firearms that need little or no human hands to assemble them.

Accordingly, you really need to be sure about what lands on your bench so that you can protect an unsuspecting new owner of a used firearm from costly repairs, or worse, improperly installed and fitted parts and accessories that could cause injury or death. Just remember that the firearm that had drop-in parts "dropped in" and dropped in incorrectly, now becomes your shop liability when you take it

in and perform any type of repairs on it. And that is why I keep detailed notes of each repair performed.

In fact, I record every identifying component serial number with that firearm repair so that I have it just in case. I want (am trying) to protect myself and my business from someone that comes in with a build gun, has me deep clean it, or simply install an accessory or part, only to later claim that the work that I performed caused his or her firearm malfunction or injury.

If I only install a scope and bore sight a rifle in the shop and it goes fullauto on the customer or some other major malfunction not related to the installation of the scope occurs, then I want to have that information available when the attorneys come knocking on the door claiming I did something wrong that caused the issue or incident. Finally, the good news here was that all issues associated with this Glock were reversible.

You will also notice that I did not accompany this article with photographs of the firearm and parts in question only because the intent of this was not to frame aftermarket drop-in parts and accessories negatively. It was about the sum of accessorizing a firearm with many different aftermarket parts and accessories, and can lead to disappointing results if not carefully installed and fully tested.

Therefore, I intentionally did not include the specific names of any parts or accessories used in this case, nor did I photograph any of those parts to protect the manufacturer's product lines because none of this was the fault of any manufacturer here. Just stay alert out there and make sure that you know what you have in front of you before working on it. A drop-in part here and an accessory there, over time and different gun owners, can create a myriad of issues you will ultimately have to sort through. AG

HISTORY

Rechambering .222 Remington to .224 Valkyrie

Rechambering a Model 700 Remington action from .222 Remington to .224 Valkyrie entails going to a shorter and larger diameter cartridge. We'll accomplish this by enlarging the chamber and utilizing the existing barrel threads while not giving up much barrel length.

BY NORMAN E. JOHNSON JUNE 2019

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The .222 Remington barrel used in this project came into the picture as a take-off barrel with a well-established history of accuracy. With its 1:14 standard twist, this barrel would be used primarily with lighter bullets up to 60 grains maximum when chambered for the .224 Valkyrie cartridge. Another premium barrel was on order with a 1:7 twist which would undergo comparative testing from the benchrest and in longer range shooting.

These cartridges would later be pitted against two barrels chambered for the .22 PPC with similar barrel twists. The .22 PPC has established an excellent reputation for extreme accuracy whereas the .224 Valkyrie is designed to be a smaller caliber, longrange round primarily with heavier bullets in a faster twist barrel. 222 Remington to .224 Valkyrie chamber conversion. The

Remington Model 700 stripped-down action chambered in .222 Remington, and a reamer and headspace gauge used to form the .224 Valkyrie chamber.

This Remington receiver has been converted to single shot with a loading ramp. Accurate measurement of both the .222 Remington and the .224 Valkyrie cartridges indicated that a chambering revision could be accomplished by cutting only 0.190" from 222 Remington to .224 Valkyrie, the barrel tenon was shortened to advance the chamber by 0.190" and enlarging existing chamber 0.056" at the shoulder and 0.238" at the base. Leade cleanup would be performed in the process. the barrel tenon.

The existing .222 Remington barrel was absent about three threads at the beveled, chambered end anyway, and was fully threaded beneath the recoil lug leaving a near fully threaded barrel shank to work with. Based on these findings, systems were all go.

RECHAMBERING .222 REMINGTON TO .224 VALKYRIE CONTINUED

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.222 Remington to .224 Valkyrie. Note the marked bevel at the base of the barrel, free of threads to be later used. 190". The bolt recess is not yet machined to depth. Lathe Work I used my trusty old Clausing lathe and set the barrel up in my own design of roller bearing steady rest jaws directly surrounding the chamber. I located true barrel center with alive tail stock centered in the chamber. This showed no barrel runout.

A calibrated carriage stop, set to cut precisely 0.190" from the barrel shoulder and the end of the barrel shank, did the trick. This involved deepening of the bolt recess into the barrel, 190" and the bolt recess cut to proper depth for the Remington Model 700 bolt, all ready for reaming, thereby extending the new

depth to the standard 0.150" common to a Model 700 Remington barrel. New Chamber Reaming Here I would be enlarging the existing chamber diameter 0.056" at the shoulder and 0.038" at the base.

Under the circumstances, the reamer live pilot would not come into play until well down the chamber. There was no chatter as the 30-degree shoulder of the Dave Manson Precision reamer (MansonReamers.com, was advanced into the 0.378" .222 Remington chamber base. Initial cuts revealed a perfectly centered, concentric chamber being formed. I used plenty of cutting fluid and cleaned the chips away often. The live pilot entered the leade smoothly until I removed the barrel from the lathe and finished reaming by hand.

Correct headspace was arrived at with the barrel shoulder/receiver at normal torque. Inspection of the chamber with a Hawkeye borescope (GradientLens.com, showed a perfect concentric, clean cut chamber with firing pin primer indentation at true center—something we don't always see in a firearm, including factory cut chambers. The chamber neck was even and smooth. I place a lot of trust in Dave Manson's reamers and this particular one had a special job to do.

Valkyrie Case Extraction The Valkyrie chambering would become the fifth barrel on a Model 700 Remington switch barrel rifle, with all cartridges they were chambered for sharing a .308 bolt face size. Not all such extractors in this bolt face

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It can be an awful feeling to carelessly ream a chamber too deeply. Far configuration (SAAMI 0.473) are going to reliably extract a case head with the smaller size of the new .224 Valkyrie at 0.422". This bolt face was no exception. The Federal Valkyrie cases I worked with measured an actual 0.415". I had installed a Sakostyle extractor milled just a few thousandths deeper so the claw would engage both the new .224 Valkyrie case rims and also the larger diameter .308-size cases on this switch barrel setup.

All went well here and both size cases extracted 190", completely removing the bevel and restoring full thread depth. Below center: Measurement of a .308-size case rim at 0.473" compared with the 0.415". 224 Valkyrie showed the need for an extractor that would go deeper into the case rim. 224 Valkyrie. Larger case rims continue to extract well too. perfectly. Just how other .224 Valkyrie owners may cope with case extraction will likely require some careful thought.

Valkyrie Performance This was my first evaluation of Federal's .224 Valkyrie cartridge, albeit in a 1:14 twist bore at this stage. I stayed with lighter bullets and compatible powders for this size case. The limited hand-loading information available to me was taken from the Sierra reloading tables posted on the Internet. This information was quite complete and comparable to the information published in the pages of the Sierra Rifle & Handgun Reloading Manual.

Some bullets grouped 0.300 MOA, including the Berger 52 grain, Sierra 52 grain and Shilen 52 grain. Of at least a half dozen suitable powders for this cartridge, I found Norma 201 appeared to perform very well. A charge of 27 grains generated 3,300 fps in the 23-inch barrel. The only 90 grain bullet I tried was one of the preloaded Match Kings sent to me by Federal Cartridge and it key-holed at (Continued on page 23)

RECHAMBERING .222 REMINGTON TO .224 VALKYRIE CONTINUED

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a perfect 90 degree angle. This was expected with a slow 1:14 twist. Of course, these are but a few of the Clockwise from top, 6PPC-USA, .270 Winchester, .224 Valkyrie, 5mm/35 SMc, and .30-06 Springfield Improved at center. The action is a Model 700 Remington with single shot revision. This barrel was rechambered to .224 Valkyrie

from .222 Remington. The rifle is capable of excellent accuracy with all barrels, including the newly chambered .224 Valkyrie.

Conclusions Here we see the practicality in the idea of converting a .222 Remington chamber to .224 Valkyrie while utilizing the existing barrel threads. A number of cartridge combinations can be used. For this action I'm using 6PPC-USA, .270 Winchester, .224

Valkyrie, 5mm/35 SMc, and .30-06 Springfield Improved. Making this chambering revision on select barrels of known accuracy can offer several interesting advantages at a modest cost to the shooter.

AG early loads produced for this new cartridge, with more to follow in other barrels and rifles, along with the PPC. It should prove to be most interesting.

FROM THE ARCHIVE

Fixed Power Scopes

Simple is good. Often, a more basic optic of good quality will be the best choice for your customers.

BY ROBERT KOLESAR JUNE 2019

ORIGINAL PP. 18-23

The KISS formula (“keep it simple, stupid”) is important in hunting equipment, especially guns and scopes. As I’ve grown older I’ve gone back to traditional calibers and fixed power optics. My choice for an upcoming hunt now is usually a .270 or .30-06 with a 4x or 6x on top in low-mounted rings. A good case can be made that low-powered hunting scopes are better for most shooters than what’s new and exciting.

Jack O’Connor did quite well with his .270s and 4x scopes; a 4-16x50mm with side focus looks out of place on a deer rifle. A couple of generations ago the 4x was the best-selling scope in America. Hunters went afield with a .30-06, a 4x scope, and killed stuff. Most shots at game in the U. S. are probably less than 150 yards; a 4x (or even a 2.5 or 3x) still works quite 5x that is an excellent, simple scope for a compact lever action.

Unfortunately, Weaver discontinued this model, but it can still be found on the used market. Below center: Leupold 3x “Big Bore.” One of Leupold’s best offerings, designed to go with a hard-kicking big-bore rifle. It also works well on a .30-30 lever gun, like this Marlin 336. Now offered through their custom shop, the 3x Leupold has excellent glass and precise 1/4" click adjustments. Below right and base, mounted on a .308 Marlin Express.

A great combination that matches the capabilities of the .308 Marlin cartridge. 30-06 with a 6x42mm Leupold in Talley steel rings. Leupold is still offering fixed power scopes in various sizes, finishes, and powers. 25-06 that has a Leupold 3-9x40mm variable mounted in Leupold rings. A 3-9x is now the most popular scope in the US; most hunters don’t need the extra power.

A quality fixed 4x or 6x will have longer, constant eye relief, cost less and actually have better resolution and clarity due to the simpler lens system (less number of lenses to look through is brighter, with more resolution) that fixed power scopes employ. well. And you can reach out easily to 2-300 yards with a lower powered scope. Glass quality, a good zero, and your own shooting ability are far more important than magnification and the reticle. I like to cruise the Internet shooting forums; most new shoot-

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Far 30-06. Still an excellent scope with clear, sharp optics. Scope is mounted in Redfield JR machined steel rings and base from the 1950s that compliments the older rifle. 270 in Talley steel rings. Paired with a German #4 reticle, a Meopta 6x is an excellent plains game scope that'll also work well on shorter-range timber shots or range duty where precision is needed. ers seem to be looking for really long-range glass to put on their recently purchased rifle.

And they want to do it cheaply, too... with plenty of magnification, a large, adjustable objective (50mm or more), and of course, a mil-dot reticle, all for somewhere under \$300. That puts optic choice into the "Made in China" category. And that's OK; several scopes from the Pacific Rim are pretty good and getting better. I'm a proponent, though, of spending as much as I can afford on sighting equipment. I was told long ago to economize on the rifle but not on the scope. I still think that's great advice.

Optical equipment is one of those areas where you really get what you pay for. And I have a thing about any of my gear saying

"Made in China". Sometimes un- An excellent, clear scope for the money. The current Weaver scopes are made in Japan and have good glass. The only problem is the relatively short eye relief, especially on the 6x, so Weaver fixed powers shouldn't be mounted on a heavy recoiling rifle. Below center: Remington 7600 in .30-06 wearing a Zeiss Conquest 4x32mm.

The Zeiss 4x was one of the finest fixed power scopes made, with beautiful glass, good eye relief, and precise click adjustments. Sadly, Zeiss discontinued the 4x Conquest a few years ago. It's now a highly sought-after scope on the used market. 30-06 in Talley lightweight mounts. A superb all-around combo that'll work on anything in the continental United States. avoidable but not so much in guns and accessories. Europe, Japan, and the U. S. still rule in the quality optics market.

Paying more up front is actually cheaper in the long run; a good telescopic sight will outlast the original owner. And the warranties are much better. Cheap glass has a habit of breaking at the worst of times, like on along-anticipated hunting trip. Quality

fixed-power scopes are better optically and more rugged than a comparable variable. While variables have come along way in quality and durability, so have fixed powers.

Fixed power optics are much simpler; fewer lenses in the scope (a variable has to have more lenses) mean less glass to look through. Fewer lenses equates to sharper resolution and brightness. Clarity and resolution can be just as good in a variable... but it will cost you. Nothing moves inside a fixed power scope once the adjustments are set. Simple is good. Simple is also cheaper. A quality fixed power scope is relatively inexpensive. A good example is the Schmidt & Bender 6x42mm.

Schmidt & Bender (Schmidt Und-Bender.de/en, makes very expensive scopes; the Germanmade "Klassik" 6x42mm is one of the finest optical sights you can buy. If you find anew one on sale for \$1200, buy it. That's a lot of coin for a scope. But a variable Schmidt & Bender will cost double or more than that. Both variable and fixed Schmidt & Bender scopes are superb optically and are considered

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1 single shot rifle with a Leupold 6x36mm in Ruger steel rings. Ruger No.1s sometimes need extended rings due to eye relief issues; the Leupold fixed 6x and its longer eye relief works fine, though. The older quality scopes work well if the glass is clear and the scope wasn't abused. "bomb proof" as far as reliability is concerned. I can justify a \$1200 for a 6x scope; a \$3000+ Schmidt & Bender variable, not so much.

Other features that make a fixed power scope attractive are ease of mounting, constant eye relief and holding zero. Because there's no power selection ring, a fixed power scope gives the rifleman wider latitude on mounting his scope, especially on long-actioned bolt rifles. Coupled with a constant, unchanging eye relief that is usually longer than a comparable variable, scope mounting problems aren't an issue. Something I've encountered more than once with variables is holding zero.

Usually it's an issue confined to the cheaper scopes but an older scope like this will still serve the user about as well as a newer fixed power if the glass is clear and the seals are good. One of the finest scopes made; beautiful glass, excellent eye relief, and a longer tube that made mounting a snap on long-ac-

tioned bolt rifles. Discontinued by Zeiss several years back. If you find one, buy it. I've had two expensive variables, one European and one American, change zeros.

Sometimes a variable will change point of impact when the power setting is changed. It's not that common now but it happens. Neither problem occurs with a fixed power scope. If your rings and base are attached properly, you can be confident that your fixed power scope will hold zero year to year. If your zero changes with a fixed power, it'll probably be a rifle bedding issue or your scope mount coming loose.

Scope Mounting I've noticed when examining many rifles that scope mounts and correct mounting tends to be an afterthought. There's a lot of misinformation out there, so let's take a look at how to properly mount our fixed power scope onto a rifle. The weakest link in the scope and rifle combo is the mount; the best scope and rifle are worthless if a substandard mount is chosen, or a mounting system is not put on the action correctly.

Buy quality bases and rings from a known manufacturer; I like contacting the maker directly. You learn interesting things like proper

ring height and screw torque that way. Most manufacturers are very happy to discuss their product and how to avoid mounting issues. It beats having to send stuff back because it didn't fit or wasn't correctly attached to your rifle.

In Europe, most scopes are mounted by a gunsmith; your average European shooter considers mounting a telescopic sight onto a rifle way beyond his capabilities. It's actually pretty easy if you have properly ground screwdrivers that fit the screws, patience, and the ability to follow a few simple rules in attaching the base and rings. Check the base(s) and make sure there is full contact with the receiver. Receivers and scope bases need to mate perfectly with each other.

Another issue could be the base mounting screw holes aren't centered on the receiver. Off-center receiver holes will result in a scope's windage adjustment cranked all the way east or west to get the rifle in zero. Not good. If by chance you get a rifle with off-centered base holes (it happens), use a base that's windage adjustable. That will keep the adjustments to

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This one is brand new and hasn't been mounted on any of the author's rifles but should be a good performer. Excellent glass, good eye relief, and Meopta's #4 German-style reticle are all you need for just about any big game you'll hunt. S.-made Lyman. The Euro-style scopes have a larger ocular lens/eyepiece that can make mounting the scope an issue. American scopes tend to be slimmer and less obtrusive.

A set of medium height rings will usually fix the problem on a bolt-action rifle. a minimum on your scope; use the scope adjustments for fine tuning your zero after making your initial rough windage corrections on the base. Set your base screws into the receiver with purple Loctite 222 after cleaning the screw threads completely of oil. The purple stuff seals the threads in place but is still removable without stripping if you need to take the base off.

Also Meoptas have large eyepieces and sometimes require higher (medium or high) rings if mounted on a bolt rifle. This one has low rings and barely clears the eyepiece. Talley rings tend to be higher than

other manufacturers. make sure your screws aren't too long and bottom out in the receiver. I like to lap most rings (only the bottom ring half) slightly, mostly to assure the rings have full contact with the scope.

Light lapping on inexpensive or cast rings will keep the rings from putting excessive pressure on the scope tube. Vertical split rings shouldn't be lapped. Quality steel rings, like Warne (Warne Scope Mounts. com, or Talley (Talley Manufacturing. com, usually don't need lapping; both manufacturers recommend against it. I try to use the lowest height rings available; the lower the scope is mounted over the bore the better.

The problem with some lowmounted scopes though, is that sometimes the bolt handle won't clear the scope eyepiece. The usual cure here is purchasing a set of taller rings. A call to the ring manufacturer will ensure you order the proper ring height. Lastly, be careful on over-tightening your rings and base. Base screws should be torqued to about 25 pounds; ring screws

somewhat less, probably 15-18 pounds. Again, the manufacturer will have the proper weight/poundage.

Obviously, you'll need a good torque wrench; Warne makes a neat one that doesn't cost a lot. Overtightening your ring screws will over-stress the scope tube, make unsightly ring marks and possibly damage your expensive scope. Do your scope mounting right and you won't have to worry about your scope coming loose or changing zero.

Choices When scopes were becoming popular with hunters in the 1950s, 4x magnification was recommended for an "all-around" big game scope. 6x was about right for most varmints; a 2.5 or 3x worked well on a brush gun. 10 or 12 power was considered a target scope; Lyman was the preferred glass for scoping a .22 prone target rifle or a heavy-barreled varmint. The Marine Corps liked 10x Unertls on their sniper rifles early in the Viet Nam War. What hunters thought worked "back in the day" still applies now.

A QUALITY 4 OR 6X WILL GET THE JOB DONE, SAME AS IN 1960. ONLY DIFFER-

FIXED POWER SCOPES CONTINUED

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Scope is mounted as low as possible; objective bell barely clears the barrel. Lower is always better when mounting a scope. If the bolt handle clears the scope, you're good to go. An excellent set of rings that lock directly onto the receiver without utilizing a base. Very strong and simple. On these, some light lapping before scope mounting would be a good idea to insure perfect alignment. Hence is that the fixed power scope of today is more rugged, has much better lens coatings and more accurate adjustments.

Older scopes aren't to be discounted, though. If you find a Lyman (LymanProducts.com, or Redfield (Redfield.com, scope on a rifle you've just acquired, give it a shot before discarding it. A scope, after all, is just a sighting device. Many older scopes were purchased because of the simplicity, fixed power glass of high power makes sense on a target or long-range varmint rifle. Clarity and resolution are better on a good fixed power due to fewer lenses to look through.

Prices tend to be cheaper than a comparable quality variable. A very rugged and simple combination that works well from the bench.

223 with a Weaver 24x mounted in factory CZ rings. Simple, rugged, with excellent glass, ready for precision range work. Chased, mounted, and only used on an occasional hunt. If your vintage scope is clear and bright and wasn't abused, it might be all you need. I have several Lyman scopes from the 1960s and '70s; they perform as well as when they were manufactured 40 or more years ago.

They also look appropriate on a classic Winchester M70 or FN bolt rifle. It's very satisfying to whack a deer or hog with an outfit that your dad (or granddad) would have used. Choices for fixed power scopes with one-inch tubes are somewhat slim now but there are still some good scopes available. My current favorite is the Meopta 6x42mm. It's a big scope but the weight is reasonable at 15 ounces. Brightness and resolution is off the charts.

Meopta (Meopta.com/en, has a reputation for making some of the best glass in the business; they produce lenses for many other high-end European scope manufacturers. The 6x42 eye relief is excellent; adjustments are crisp, positive, and repeatable. Leupold (Le-

upold.com, 800-LE-UPOLD) still makes several fixed power models; my favorites are the FX II 3x, 4x and the FX III 6x42mm. I have several Leupold fixed powers. What's nice about Leupold are their clean lines, compact size, light weight, and long eye relief.

You'll see many a custom rifle with a Leupold on top. There's a reason for that; they work. And if something happens, Leupold will fix it or replace it, no questions asked. Leupold has traditionally had the best warranty in the optics business. I've been using their 3x FX II a lot lately; it's become my favorite Leupold.

Honorable mention goes to the new Japanese-made Weaver (WeaverOptics.com, and their K-series fixed power scopes... excellent glass, easy to mount on most rifles, and a most reasonable price, considering what you're getting. About the only issue I have with the Weaver K4 and K6 (four and six power, respectively) is their somewhat short eye relief. The K4 is better than the K6 but it still could be longer on a high-powered rifle. I'd recommend not using one on anything that recoils more than a .308 or .30-06. On a

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A great idea that simplifies the shooter's scope mounting. These are Weaver style that most manufacturers make rings for. Warne rings are beautifully made from machined steel in all heights that will work with whatever sized scope you might have. .243 or 7mm-08 it'll make for a fine, lightweight scope and rifle combo that'll get the job done. I'm now in the process of downsizing

my big-game arsenal and changing out my scopes based on the hunting and shooting I've done and will be doing in the future.

I don't see myself shooting an elk across a canyon at a distance of 500 yards or more, so a mildot reticle or the ability to count clicks to dial in the range isn't needed. If I'm shooting at a distance of over 250 yards (most unusual for me), I'll hold over. Not a difficult

proposition if I have a good zero and know the range. I still have a few variables and there'll always be a use for them on a couple of my rifles.

But my transition to fixed power scopes is slowly occurring for the majority of my shooting and I'm not seeing any loss in capability or effectiveness. Simple is still good.

AG

READER FORUM

Reader Forum

BY AMERICAN GUNSMITH EDITORS JUNE 2019

ORIGINAL PP. 24

Siamese Mauser Conversion Has American Gunsmith ever done an article on converting a Siamese Mauser action to .45-70? The barrel conversion seems pretty standard being basically a Mauser 98 along with opening up the bolt face. The biggest problem seems to lie with altering the feed rails and altering the extractor. Any idea where I could get a suitable extractor for a Siamese Mauser? Numrich no longer has any in stock.

Stockton, NJ Siam (now Thailand) was among the few independent south Asian nations around the turn of the 20th Century. In an effort to upgrade its military armament with then-modern equipment in 1903, they adopted a version of the Mauser 98. Lacking the needed manufacturing base to accomplish this, the country contracted with Koishikawa, a Japanese arsenal in Tokyo.

From 1903 to 1908, roughly 400,000 of the contracted Type 46 rifles were produced, chambered in an old-style 8x50mm rimmed cartridge with around-nosed projectile. Upon improving its issued machine guns some twenty years later, the Siamese military revised their issue cartridge to a slightly longer 8x52mm rimmed case with a spitzer bullet. All existing Type 46 rifles were rechambered for the new cartridge, making it rare to find an unmodified Type 56 in the original 8x50mm cartridge today.

In addition to the rechambering, the conversion also included grinding down the rear sight ramp to match the new car-

tridge's flatter trajectory. The rear sight originally had range markings stamped on the side and the converted rifles partially removed these markings. Henry Fischetti As with all pre-World War Two Japanese-made rifles, the Siam Mausers were excellent quality builds.

What condition a current specimen has is dependent on how it has been treated in the interim and many surviving rifles have been used and stored in rough conditions. While they make an interesting historical addition to a rifle collection, Siam Mausers are also popular for conversion to .45-70 as the bolt and magazine are already designed for large rimmed cases, making them unique among issue Mausers. If suppliers like Numrich don't have parts, we suspect you're going to have to alter an existing extractor.

It should be possible to grind one without destroying the heat treat. Or reheat-treat it if that's easier. You will likely have feeding issues with the issue box magazine as the .45-70 has a quite different taper than the 8x52R Siamese, even after the action is altered. While we don't have an article on this in our inventory, George Nonte wrote ".45-70 Bolt Gun Rivals The .458!" in the November-December 1970 issue of The Rifle Magazine.

Wolfe Publishing Company has back issues going back that far available in digital format. Wolfe Outdoor Sports. com/magazine-back-issues. Percy For Sheri My new book Percy for Sheriff is now available on

Amazon (amzn. to/2XXdr UM) in both Paperback and Kindle format. This is the follow up to Chicago Rhapsody that many have been asking for. Dick Dzik and Percy are off on two different investigations this time. Both stories are full of surprises and a bit of humor.

My editor thinks this is the best thing I've written and I do hope you agree. "Book two in the adventures of a cop with a smart mouth and a smarter K-9. When an armored car robbery goes bad in Des Moines, the two surviving crooks end up hold up in Dick Dzik's county. They think they have everyone outsmarted without realizing that every move they make in rural Iowa is giving them away.

Conflict erupts between the Des Moines Police Chief and Dick but, impressed with the quick solution to the Armored Car Robbery, the Mayor insists the Chief bring in Dick and Percy to investigate a case of police corruption that they have not been able to solve. Two characters from book one including Dick's former girlfriend show up and causes tension between Dick and his new girlfriend.

Late one lonely night, Dick and Percy crack the case and the race is on to see if Dick can get the evidence to the Attorney General before the bad cops find him." Paul Mazan "The Old Singing Gunsmith" AG

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