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PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

01

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

SPORTERIZING MODEL 1896 SWEDISH MAUSERS

GUNSMITH POLL · MAB PISTOL · MAINTAINING MILITARY BOLT ACTION RIFLES · HUNTING TACTICAL SUPER SIXTY

ORIGINAL METHODS. MODERN ACCESS.

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DIGITAL ARCHIVE EDITION

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A complete guide to the searchable editorial work preserved from January 2020.

FROM THE ARCHIVE

Gunsmith Poll

BY AMERICAN GUNSMITH EDITORS JANUARY 2020 ORIGINAL PP. 2

An idea for our target audience of gunsmiths from reader and contributor, John Tate. “Some gunsmiths live in jurisdictions and states where they can receive and return a firearm with no hassle. This is the case in my native New Mexico. Other gunsmiths live in more restrictive areas, like those in New York, where they must effectively re-sell the repaired gun to its owner. Gunsmith Poll I’m curious what a poll of gunsmiths would produce if asked the following about how laws impact their profession: 1.

What “return to owner” regulations exist in your state? 2. How onerous those regulations in restrictive locations like New York have turned out to be for you, your business, and your customers? 3. For any gunsmiths operating in such restrictive locations, has anyone found any benefit of any type to such restrictions?” For any readers that would like to weigh in, please send your response to the Editor. New Subscriber Premium Looking for ideas for our target audience of gunsmiths.

We currently offer all new subscribers a premium by sending them a copy of our Learn Gunsmithing: The Troubleshooting Method book. See AmericanGunsmith.info/subscribe for details. We’ve been offering Learn Gunsmithing for some time now and are considering a different (or additional) premium. One idea considered was “American Gunsmith’s MOST WANTED” which was “10 Projects, Fixes, and Upgrades Every Gunsmith Should Know”. What gunsmithing topics would be of more interest to you and add value to your subscription?

For any readers that would like to weigh in, please send your response to me. Other Promotional Events To kick off the new year, I’d like to host a promotional event that involves as many of you as possible but can be done without significant travel. I have ideas but would first like to hear from you. What sort of pro-gun event of benefit to gunsmiths and other firearm enthusiasts that you can host or participate in locally would interest you most?

What sort of events would have the most appeal to you and to other subscribers? What would beaway to tie in with your fellow subscribers? What sort of prizes or other incentives would create the most motivation to participate? Finally, what sort of event would likely create the most pro-gun publicity or image in your local community? I’m open to all ideas. Please contact me with yours!

ORIGINAL SOURCE PAGE 2

MAINTENANCE & REPAIR

MAB Pistol

Working the MAB Model D, Type II, 7.65mm pistol.

BY MARK R. HOLLENSEN JANUARY 2020 ORIGINAL PP. 3-7

I had the opportunity to inspect and repair a MAB Model D, Type II semi-automatic pistol that was not functioning. The customer told me he had searched for anew mainspring as the one in his pistol was broken, without any luck in finding an original or newly-manufactured replacement. I told him that I had quite a number of parts companies I could check with, so he gave me the green light to try and repair this old specimen.

It was in fairly decent shape, other than the sear spring—also known as the mechanism spring—was broken. I began by removing what was left of the sear/mechanism spring and taking photos of it, then checking with nearly 20 different parts companies to find if they had an original or replacement in stock. I was able to locate one for the Type I pistols, listed as "the wavy spring", but not one spring (new or original) was located for this Type II model.

I did some research on MAB pistols and was not able to find detailed disassembly instructions for it, other than the routine disassembly instructions for cleaning and maintenance. No owner's manual was found, either, though I found some historical information. It seems that a gentleman by the name of Leon Barthe, born in Saint-Vincent-de-Tyrosse, France, began making MAB pistols in 1921. It has been written that the initials MAB were taken from his business named " Manufactured Armes de Bayonne ".

He later died in 1937. MAB pistol models made over the years included the Model A, B, C, D, E, F, G, and R, and all were categorized as inexpensive personal protection guns. Research found that there were two versions of the MAB Model D pistols made; the Type I and the Type II. The MAB Model D, Type I pistols were reportedly manufactured between 1933 and 1945. The Type I had a muzzle bushing release latch located in front of the trigger guard.

The Type II has a bushing with two lugs on it that can be removed by pushing in on the barrel bushing and rotating it counterclockwise about a quarter of a turn to release and remove it from the slide. Production of the MAB Model D, Type II pistols reportedly began in mid 1945. Based on my research, the pistol in my shop for repairs was produced during or after 1950, due to the serial number stamped on the pistol (SR# 83,xxx).

The MABs, depending upon the particular model, came with a blued or nickel plated finish, and in .22 Long Rifle, 6.35mm (.25ACP), 7.65mm (.32ACP), .380 ACP (9mm Kurtz), and 9mm ACP calibers. It seems that there is a book about these guns but written in French. I found one detailed schematic for the MAB Model Dlocated on the Numrich Gun Parts website. Therefore, I used the naming conventions listed on their website when identifying each of the pistol parts covered in this article. 65mm caliber.

This pistol was purportedly produced after March of 1950 according to limited information found. Since this particular pistol still had half of the sear/mechanism spring still in the receiver, I was able to identify it as being for a Model D, Type II pistol. Unfortunately, a mechanism spring specifically for the Type II pistols could not be located for this repair job—new or otherwise.

While inspecting the spring removed from the gun, I decided to take photos and measurements of it, mainly so I would have a starting point if I needed to make a replacement spring or had to send specific measurements or photos to a parts company to verify the size and characteristics of the spring they might have on hand. The mechanism spring removed was missing one leg that applies pressure directly to the rear of the connector.

The other leg of the spring that applies pressure to the tumbler assembly (sear side) was

MAB PISTOL CONTINUED ORIGINAL PAGE 4

The barrel bushing is removed by pushing inward and turning counterclockwise a quarter of a turn, then pulling the bushing and recoil spring out of the slide. Far The similarities between the two enabled the author to create a spring from the Wilson Combat Number 417 Bullet Proof Spring. found unbroken and in good shape, therefore, I was able to measure it fully.

Measurements taken found that the flat-styled spring had an overall width of 0.421" and the tumbler assembly or sear leg side of the spring had an overall length of 2.665" long (measured from the base of the spring to the tip of the leg). That same leg was measured for width and found to be 0.135" wide at the base and 0.100" wide at the top and bent forward some at the very top. Since the left side of the spring leg was completely broken off and missing from the pistol, I wasn't able to take those measurements.

The overall thick- This side view shows the overall length, the curve of the spring, and the reverse bend at the top of the spring leg that applies pressure to the rear of the connector. ness of the entire spring was found to be 0.020" thick. Knowing these measurements, and looking at the broken spring, I quickly realized that it closely resembled a 1911 sear spring with two legs instead of three. Looking over my inventory of 1911 sear springs, I found one would fit fairly well.

It was a brand new Wilson Combat Number 417 Bullet Proof Sear Spring. The reason it would work was due to the overall size of the pre-made spring (length of the legs, thickness, etc). Not wanting to waste any more time looking for a replacement, I began making anew spring from the Wilson Combat product. I began by coating the 1911 spring with layout dye and then tracing the outline of the broken spring I had onto the Wilson spring with ascribe.

After tracing, I clamped the Wilson combat spring to a small board with a small C-Clamp. Using my Dremel tool equipped with a cutting blade, I carefully cut away the excess areas of the spring that would not be needed. I say carefully because I wanted straight lines and had to keep water on the spring so as not to overheat it during the process. Essentially, you will need to remove the short or grip safety spring leg completely to get the spring down to an overall width of about 0.421.

Then, use a Dremel equipped with a cut-off blade to carefully remove about a third of the full length of the two inside legs (trigger spring and sear spring). What this does is create two spring legs that are spaced apart wider than the stock Wilson trigger and sear

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This type of firing pin, or striker, is becoming very difficult to find for replacement. The firing pin spring guide is held in place by a post at the rear of the receiver. There is a small pin or post attached to the far left side of the connector and this post retains the trigger in the frame when reinstalled. spring legs.

The sear spring leg is left full length (only cleaned up and bent forward) and the trigger spring (used to be the middle spring) is shortened enough to bend, creating a rearward angle bend on the tip that fits snug up against the angled rear leg of the connector on the pistol. Back to working the spring. Once all the material not used was removed from the spring body, I began sanding and polishing the It just lifts up and off of the pin shown inside the receiver at the top.

Photo also shows the safety catch assembly to the right and the magazine release button. This assembly is held in place by the two pins shown. Note the newly-made mechanism spring that fits into the frame and is held in place by the backstrap and grip safety assembly. spring, the two arms, and all lines so that it resembled the broken spring and remaining sear leg. I left the other side just as long as the sear leg side because I wasn't sure how long or wide the other leg needed to be at this point.

Once I had it worked down and looking similar to the original spring, I used a belt sander to remove some of the thickness of the Wilson Combat spring as it was 0.014" thicker. You will want to keep the 90 degree The newly-made spring was then test fitted into the receiver. During my research, I had come across a crude drawing of how the spring legs were supposed to look in the receiver (side view), so I used that drawing as my guide when shortening the leg that fits up against the back of the connector.

After shortening that leg, I carefully bent the end to shape based on the drawing and then shaped the entire spring and legs according to that same drawing. Since I could not get permission to reproduce that drawing for this article, I have omitted it. I then installed the newly-made spring into the receiver. After making a couple of small adjustments, the gun was reassembled and the pistol worked like it was new. The spring was doing the job and the gun functioned flawlessly.

I removed the spring, sanded and polished it completely, cold blued it, and then made final spring tension and alignment adjustments before installing it into the assembled pistol. I then function tested it and it passed all operating and safety tests. And so the pistol was lip formed at the base of the 1911 spring as this pistol has a slot for it to sit in when assembled in the receiver. You may need to make it thinner to fit the slot. operating again.

The most tedious part of the spring leg adjustments were found to be on the connector side (short leg). The spring must be bent backwards at the point just below the angled lower back leg of the connector bar and it should be at the very same angle as the back of the con-

Far The plunger is protruding upwards where the plate was and is under coil spring pressure. The plunger secures the safety catch when turned by popping up into the two pictured holes in the catch. Go easy when installing this screw as the post of it is very short, small in diameter, and fragile! The magazine release button simply unscrews from the retainer plate located on the right side of the receiver. nector.

This is because the spring under tension should push forward and upward against the back of the connector leg at all times. If when working the slide (making it ready to fire) and pulling the trigger the gun won't fire (or drop the striker) it is due to the connector. When the connector is pushed downward by the slide when pulling the slide back, it needs to come back up into position to fire. The connector must come back upward each time and align the rear of itself to the sear to ensure the gun will fire.

You can perform function tests while making your necessary adjustments with the left side grip panel removed from the receiver during final fitting. Just know that you will need to have the empty magazine inserted into the receiver so that you can pull the trigger during your testing. To aid in the connector doing its job, polish the back side where it rides against the receiver, removing sharp edges and factory burrs.

Then polish the rear angled leg where the leg of the mechanism spring rides up against it and the end of the spring itself. During reassembly, lightly grease the entire backside of the connector, the post that fits into the trigger, the rear disconnector leg, and the tip of the spring where they meet each other. This will ensure a smoother movement from the connector when operating the slide because the slide actually moves the round top of the disconnector downward with every pull of the slide.

The connector has to move back up into position when the slide is closed and the leg of the mechanism spring does this job. Total time spent making this spring was about 30 minutes and the cost of the spring was reasonable, so it wasn't too cost prohibitive to accomplish this repair. And the customer has a fully operational pistol, made many years ago, now back in working condition.

Since there seems to be a lack of parts available for the MAB product line, I recommended to the customer that he not use the pistol much anymore, if at all. Plus, current production .32ACP ammunition develops pressures much higher today than the 7.65mm ammunition did back in the 1940s and 50s. My opinion is that it is a safer bet not to shoot these old historical guns anymore but it is nice to have one that fully functions.

Since I had this pistol in for that repair and in need of a deep cleaning, I decided to detail strip the pistol for future reference; along with taking specific parts measurements in case another one shows up missing parts or in a plastic baggie after "a brother-inlaw" took it apart for cleaning and couldn't get it back together! Detailed Disassembly The MAB pistols have a fairly simple design and disassembly of them is a fairly straightforward operation.

No doubt there will be some differences between the models, but for the most part, the pistol will be disassembled similarly. If you have a Model D, Type II in front of you, begin by removing the magazine, making sure it is not loaded. Work the slide back and forth a few times, visually inspecting the chamber to ensure the pistol is indeed unloaded. If it is, reinsert the empty magazine into the receiver and pull the trigger to release the striker, then remove the magazine and set aside.

Holding the pistol in your weak hand, grasp the grips. With your strong hand, push in on the muzzle bushing some and rotate the bushing a quarter turn counter-clockwise to free the two lugs from inside of the slide. Holding onto the bushing, remove it from the face of the slide and pull the recoil spring out and off the barrel.

Still holding the receiver in your weak hand, position that hand so that you can pull the slide back approximately 1.300" rearward so that the barrel lugs can align with the lugs cut into the left side of the slide. Use your strong hand to wiggle the barrel back and forth while using your weak hand to move the slide incrementally back and forth until the lugs in the barrel free them-

selves from the receiver lugs and the barrel can be turned a quarter turn counterclockwise. What will happen is that the barrel lugs will move into the lugs cut into the inside of the slide. Once that is achieved, you can simply pull the slide and barrel forward and off the receiver. With the slide removed, turn the barrel clockwise a quarter turn to free the barrel lugs from the lugs in the slide and pull the barrel forward and out of the slide.

Turning your attention to the rear of the slide, if the striker (firing pin) assembly has not already fallen out, tip the slide so that they can be removed. The striker assembly consists of the firing pin, firing pin spring, and firing pin spring guide. The last assembly to remove from the slide is the extractor. Drift the extractor pin that holds it in place, starting on the top outside the slide and drift the pin downward into the bottom of the slide, releasing the extractor and extractor coil spring.

Finally, if you need to remove the rear sight, drift it out of its dovetail from left to right. This completes disassembly of the slide. Moving back to the receiver, begin by removing the right side grip panel first, then remove the left side grip panel second because the left panel contains the connector. Once the grip panel is removed, lift the connector out of the receiver.

You will notice that the front or leading leg of the connector has a pin attached to it and this pin retains the stamped trigger in the frame. With the connector removed, pull the trigger forward and out of the receiver. Note that during reassembly of the trigger, the side of the trigger with the connector retaining hole on it will face upward when the receiver is laying left side up on the bench. Insert the pin on the connector into the hole/stud on the trigger to reassemble them.

Continuing on, lift the sear assembly (tumbler) off the receiver pin that holds it in place. The sear assembly consists of two parts pinned together: the sear and the magazine safety. The pin that retains them together was staked in place on this pistol so they could not easily be separated. With the receiver lying on the bench left side up, use a drift punch to remove the grip safety pin that holds the lower portion of the backstrap/grip safety assembly to the frame.

The grip safety pin is drifted out from left to right. Using your punch, push out the takedown pin midway up the back of the receiver by pushing in on the grip safety while pushing the takedown pin towards the left in the receiver. This takedown pin has ahead on it, so it must be removed from right to left and reinstalled in the same fashion during reassembly.

With those two pins out, remove the grip safety/backstrap assembly by rotating the top of the grip safety up and inward towards the frame, then pull downward until the grip safety comes out. Once removed, separate the grip safety from the lower back strap that had been held in place by a pivot point. Pull the sear/mechanism spring out of the receiver. With the receiver laying left side up on the bench, turn your attention to the safety catch and remove the safety catch screw that secures it to the receiver.

Once the safety catch screw is removed, lift the safety catch plate off the receiver and under it. You will find a safety (coil) spring and plunger still in the frame. Pull these two parts out now. Note, when replacing this assembly do not over-tighten the safety catch screw as it will prevent the safety catch from pivoting properly. Just screw it down enough to make sure the assembly operates as it should.

Adding some red thread locker to this screw to ensure it doesn't back out or overtighten during use is prudent. Unscrew the release button to remove the magazine release button and assembly. Use your fingers or soft-jawed pliers here, unscrewing the serrated end of the magazine release button on the left side of the receiver.

The magazine release button and the associated magazine release coil spring will come out from the left side of the receiver and the magazine release catch will fall out from the right side of the receiver. To complete the receiver disassembly, remove the lanyard loop. It is held in place with a small pin. Drift this pin out from left to right. You may need to move or re-position the lanyard so the pin can clear the receiver on the way out as this pin serves as a retaining pin only and is not attached to the frame.

Reassemble in reverse. Other than already mentioned above, the reassembly is goes pretty straight forward. I took a few additional measurements while the pistol was disassembled. The magazine release button coil spring was found to be 0.570" long, had an outside diameter of 0.205", and a wire diameter of 0.020". The safety catch coil spring measured 0.335" long, had an outside diameter of 0.100", and a wire diameter of 0.014".

Finally, the safety catch detent was found to be 0.360" long, have a diameter of 0.100", and one end was rounded over. This repair went fairly well. The cost of a Wilson Combat 1911 sear spring and a little labor restored this pistol to operating condition once again. I actually think the heavier Wilson-made spring makes the pistol function even better than the original mechanism spring did or would have, being more heavy duty and pressing harder against the connector.

Hopefully the information shared in this article will be helpful to a fellow 'smith if or when one of these MAB pistols crosses your bench with a broken Model D, Type II mechanism spring! AG

RIFLES

Sporterizing Model 1896 Swedish Mausers

Finding anew life for an old Swedish military arm developed over a century ago and chambered for the 6.5x55mm Swedish cartridge would represent a formidable gunsmithing challenge.

BY NORMAN E. JOHNSON JANUARY 2020 ORIGINAL PP. 8-12

Here I will show how an old military rifle was transformed to a cherished beauty that looks and shoots with the best of them. The rifle was purchased with plans to convert it to a customized version for hunting and target shooting. This would include sporterizing the old, burled hardwood stock, shortening the forend and adding a fancy tip, precision bedding the receiver, free-floating, shortening and crowning the barrel, altering the bolt, mounting a scope, and installing anew trigger.

Attempting to convert a badly worn, old relic wouldn't have fit my plan, but this was quite a different story. The odds of finding such a vintage rifle that appeared to be in virtually unused condition is rare indeed. I was determined to see what this transformed rifle would do from a performance standpoint. The original stock would be used, albeit much modified. There would be alterations of the barreled action.

These would include cutting 2 1/2 inches of the nasty looking, threaded muzzle and front sight from the 29-inch barrel, recrowning it, and turning down the rear sight housing. The factory trigger would be used awhile but with some adjustment and then replaced. The bolt handle would be shaped to conform to scope mounting and the receiver would be drilled and tapped for a pair of bases and rings.

Seems like a major Bolt, trigger guard, and magazine assembly are pictured at center with refinished stock and original buttplate below. face lifting just to bring out the latent potential from an old rifle, but I've worked harder on many a rifle with no guarantees of success… we would see. Let's have a closer look at this remarkable old rifle. As I disassembled it I saw a very well-built action with evidence of very sound and precision machining throughout.

The integral magazine and trigger guard assembly alone showed incredible machining. This unit was all one piece, aside from a removable floor plate. The action displayed a good-looking bolt and receiver with good bedding support. There was a steel tang pillar that appeared to match perfectly at the tang surrounding the rear action screw. This extended completely through the stock from the tang to the trigger guard.

Lock time would be long with the inch-long striker travel, the sear and cocking piece were square and smooth but would be dependent on a good bedding job to dampen most of the vibration on firing. The functional dynamics of anew trigger would also help things here. The original 29-inch stepped barrel begins at 28.2mm diameter just forward of the receiver face for a short length of only 5.7mm. Reduced diameter at the chamber area is 24.6mm for a length of 41mm.

The next step is 11 inches in length with a diameter of 20mm. The remaining barrel diameter is 17.5mm with no taper for the remaining 13 inches to where I cut and crowned the barrel to 26 3/8 inches total length. This is actually a four-diameter stepped barrel with a muzzle diameter very near a standard weight Model 70 Winchester or Model 700 Remington. When I finished there was 13 3/4 inches of barrel in front of the later-shortened forend.

It was evident an extraordinary amount of work and precision had gone into this rifle barrel. Initial bore inspection revealed a near-perfect bore. The Hawkeye bore scope showed four deep, equally spaced lands and grooves with defined sharpness, with no sign of

This included removal of the front sight and short threaded section of the muzzle. This provided a solid bearing surface placed behind the front guard screw blending into the recoil lug surface. Two laterally opposing pillars were placed immediately behind the magazine cutout as a solid central action support. rust, pitting, or erosion. In fact, it looked every bit as good as most of the factory barrels I've examined right out of the box. The rifling pitch is about 1:8 right hand with a fairly lengthy 10mm leade.

I am not aware of the process involved in making such barrels more than a century past, but this one showed most excellent workmanship, commensurate with many of today's better barrels. An Accuracy Edge The barrel was lapped using a process that has produced excellent results for me for several years now. This involves the use of a jag and special abrasive papers as a lapping medium. On a bore like this I normally begin the lapping procedure with 30 micron grade (400 U. S. Mesh) aluminum oxide or silicon carbide patches and finish lapping with 15 micron grade (600 U. S. Mesh) patches. I monitor the bore closely during lapping with a feel for optimal conditioning. I've had bores shoot extremely well after this lapping process and also have used it to restore ailing bores or those with stubborn fouling or even erosion. My lapping process was published in the February 2000 issue of American Rifleman entitled, "Barrel Breakin and Restoration".

Glass bedding the action had gone very well using Brownells Steel Bed. The rear tang already had the pillar bedding, which held the tang firmly in place. All I did at this juncture was surround the existing pillar with a ring of bedding, including the flattened, stepped surface immediately forward of the tang screw-hole. This surface provides most excellent action support. There is a full square inch of bedding surface behind the front guard screw that blends into the recoil lug surface. This is a very strong support. I also bedded a quarter inch of the receiver ring and 3/16 inch of the shoulder where it butts against the receiver shoulder. I provided two laterally opposing pillars just behind the magazine cutout with the extra sturdy magazine/trigger guard assembly for added support. Following the bedding, I cut a full 18 inches from the forend and installed a laminated forend tip. This really stood out, generating quite a few comments.

I would later finish the stock with Birchwood Casey Tru-Oil which further brought out its inherent beauty. Good Scope and Mount I chose a Leupold two-piece base mounting system with high scope rings. This came with 6-48 base screws. The receiver is quite hard so quality drill bits and taps area must when doing this work. I used drills and taps from the Brownells Far An inch long portion of the larger barrel step is seen immediately forward of the reverse forend slant.

The whole stock was finally refinished with Birchwood Casey Tru-Oil.

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Far This moved the former nearly-centered trigger well back into the loop where it belongs. This is particularly helpful where a glove is worn. The Timney trigger is fully and safely adjustable. Screw Conversion Kit. It is of utmost importance to properly align the scope bases with the bore. Here I aligned the receiver in the milling/drilling machine to aid in perfect screw alignment. When finished, I tested the rings for true coaxial alignment with a Brownells Sleeved Scope Alignment Rods and all was well.

I tried a couple different scopes and ended up using a 6.5-20X Sightron for much of the testing. The Perfect Trigger Initially I worked with the Mauser factory trigger. I've adjusted several of these old single-stage triggers before and they ended up safe and quite smooth. Trigger travel is plenty long, but it works. Pull was four pounds before I made any changes.

Initial trigger tuning was performed by reducing sear spring pressure a bit, and also polishing It is shocking to discover the number of scope mounting systems that fail to pass this test. the sear/striker mating surfaces to a mirror shine. There is a very simple, yet effective leverage built into the trigger/sear mechanism. This resulted in a safe and workable trigger for most needs, particularly combat. Though I had the factory trigger down to 2 1/2 pounds, I decided to consult with the folks at Timney Triggers.

They sent me one of their Featherweight models to fit the 96 Swedish Mauser that adjusts crisply to just under two pounds. The Timney trigger required some special fitting, but it was worth every minute spent on it. The Swedes had the trigger almost centered in the trigger guard which makes it difficult to get a gloved finger into the loop. This all changed with the well-engineered Timney model. It now sets well back into the trigger guard.

This involved opening the slot in the trigger guard and inletting the stock rearward to make room for the trigger. The trigger housing on the Timney Featherweight is much larger than the original Mauser versions. The trigger is adjustable for creep and overtravel as well as pull weight. Of course, the original striker lock safety is used as provided on the Model 96 Mauser rifle. On firing, the original trigger actually caused the bolt to move slightly downward as the sear pulled down on it.

Such movement most likely wouldn't be conducive to best accuracy. Now there is not a hint of bolt body movement as the Timney trigger fires the rifle. Timney really comes to the rescue with a fine trigger. I've never had one fail. I took a careful look at the finished rifle with the scope in place, and the new forend and shortened barrel. The white-black, laminated

forend with its "Weatherby" slant was quite easy on the eye. The Birchwood Casey Tru-Oil stock finish brought out the dark blond wood grain to a burled beauty I haven't seen before. The finished rifle with scope weighed 9 1/2 pounds, at a total length of 46 1/2 inches and displayed good balance. The gun really took on a presentable non-military appearance and appeared ready for action. Testing Next up is working the newly customized rifle.

I had several boxes of PMC 139 grain factory loads to use, so I shot some of these at 100 yards as a shoot-clean bore break-in regimen before turning to more serious handloading following my lapping procedure. I was down to denuded bore metal so at least some break-in was in order to obviate copper fouling. Following this I thoroughly monitored the bore for fouling and cleaned after each five shots. The old bore really didn't show excessive copper or fouling buildup as I progressed to handloads.

As closely as I could determine, the groove diameter is 0.265 inches or 6.73mm. I don't know how closely these old guns ran to our modern day bore tolerance, but a thousandth of an inch over standard didn't seem out of the picture. I know some of my real shooters have had bores that were a bit over size, but they were uniform as this old Swedish Mauser bore appeared to be. A bullet tends to obturate the bore on firing as tests have proved, thereby forming a uniform contact to the bore wall.

Starting back in 1959 when I was using the Model 70 Winchester chambered for the .264 Winchester Magnum there were only a few bullets available in 6.5mm. This enigma no longer remained once the American shooters finally recognized the merits of the 6.5mm bore and bullet. The varmint hunter, big game hunter, and target shooter now have an excellent variety of 6.5mm bullets to satisfy their every need, and new ones keep on appearing.

I have included a picture showing but a few of the different 6.5mm bullets by several manufacturers, including Sierra, Hornady, Speer, Berger, Nosler, Lapua, and Barnes to serve a variety of shooting needs.

I have used these bullets selectively in Few shooters would feel deprived if this were the only rifle they ever owned. a number of my 6.5mm chamberings, including such cartridges as the 6.5x47 Lapua, 6.5 Creedmoor, .260 Remington, 6.5-284 Norma, 6.5-'06, and the 6.5x42 NEJ Wildcat of my own design—a descendant of the reworked Winchester Super Short Magnum cartridge. So, my anticipation ran pretty high as I embarked on handloading the 6.5x55mm Swede.

I used a Redding Type Sbushing sizing die along with their competition seater for the 6.5x55 Swede. The PMC cases were very uniform in weight and volume with very uniform case neck wall thickness. Neck turning was not indicated. I prepped the PMC cases with routine case mouth chamfering. The chamber neck measured 0.299" for a respectably close tolerance. Neck turning would not be in the plan at this time. I used Redding Series A neck sizing and seating dies which produced a very concentric loaded round.

The PMC neck wall thickness ran quite uniform at 0.016", just right for the 0.299" chamber neck. Initial testing involved some additional bore break-in to obviate fouling. I wanted to be sure the rifle had everything going for it given all the time and effort put into it at this stage. I pretty much followed the Berger, Sierra, Hornady, Nosler, and

5x55 Swedish Mauser, a fairly wide selection of bullets were chosen. Bullets ranging in weight from 85 grains to 142 grains by Sierra, Hornady, Speer, Berger, Barnes, Nosler, and Lapua were evaluated, yielding a surprisingly good outcome. It took far too long for American shooters to recognize the merits of the 6.5mm cartridges. 5x55 Swedish Mauser using select handloads with Hornady, Berger, and Sierra bullets. Upper row, 95 Hornady V-Max. Lower left two groups, 140 Berger. Lower right two groups, 142 Sierra.

Overall, the seven groups average is 0.541 MOA. The 142 grain Sierra Match King came through with a 0.270 MOA five-shot group. Hodgdon manuals and kept things quite mellow—but not sissy loads either. With some measure of caution, I did not exceed 45,000 psi as is suggested in both the Speer and Sierra reloading manuals. Speer mentioned the Model 94 Swedish Mauser here, but Sierra included the Swedish Model 96 as well in a caveat for use of too high a pressure loads.

I had noted fairly flat primers with the PMC 139 grain factory load and didn't push things. Some of my first loads displayed remarkable accuracy, even as I was lapping the bore and breaking it in. I was very encouraged.

I was par- Rifle Specifications Make & Model Model '96 Swedish Mauser Caliber 6.5x55mm Swedish Date of Manufacture 1896 Action Type Bolt action Barrel Factory, stepped, four groove 26 3/8", 1:8 twist Magazine Capacity Five/staggered removable floor plate Trigger Timney (set at 1.5 pounds) Safety Firing Pin Lock Stock Burled hardwood/sporterized Length 46.5" Weight 9.5 lbs. with scope Sights & Mount Sightron/Leupold ticularly interested in the accuracy potential of this old arm following its transformation as a sporter/target rifle.

We gunsmiths don't even mind seeing our efforts turn out better than expected. Loads for the old cartridge closely paralleled the 6.5 Creedmoor, not far behind the 260 Remington. But as I said earlier, prudent velocity along with good accuracy was my goal, and this goal was reached. Sub minute-of-angle accuracy was in the realm with most of the bullets shown here, with a few of the match bullets by Berger, Nosler, Lapua, Hornady, Barnes, and Sierra approaching the half-minute accuracy level.

Two back-to-back groups with the 142 grain Sierra bullet were 0.270 and 0.324 MOA at 100 yards. The 95 grain Hornady V- Max was also in this category. As a most excellent varmint bullet, I have included for comparison purposes the Hornady 95 grain V- Max bullet along with several of the 6.5mm cartridges. Several loads were taken from the Hornady 8th Edition Reloading Manual.

As I stop to review the remarkable performance of this old rifle and cartridge developed more than 125 years ago, I see a rifle and cartridge transformed into an arm that can compete with many modern cartridges and rifles. As a ballistic-oriented gunsmith I'm pleased to have the opportunity to work with this fine rifle and cartridge. AG 5x55mm sporterized 1896 Mauser using 95 grain Hornady V-Max bullets. Sometimes pleasure and satisfaction comes at a lesser cost to the hunter.

MAINTENANCE & REPAIR

Maintaining Military Bolt Action Rifles

Military bolt action rifles are decades old but can continue giving many more years of service if cared for properly. Here's how.

BY ROBERT K. CAMPBELL JANUARY 2020 ORIGINAL PP. 13-16

Many bolt action rifles have crossed my bench over the years. The first rifle I repaired was a Mosin-Nagant rifle. I was dismayed when I fired the rifle and the cartridge would not eject. To my fourteen year old mind, the rifle was worthless. The problem was that the extractor was broken. At the time, parts were a bit difficult to find in my area but I was able to purchase an entire bolt assembly and get the rifle up and running. Since then I have encountered quite a few military rifles.

Despite the millions manufactured I have not seen a constant flood. Most are well made of good material and work as designed with minimal maintenance. Others would benefit from more care than the users are willing to give, a situation common with many firearms. Many military bolt action rifles that have been in service for over Shooter's Choice solvent has performed well. one hundred years. Even World War Two rifles are nearing eighty years of service.

Many enjoy firing Yugo and Ishapore rifles with more than fifty years of service. It is in our interest that these rifles are maintained and kept shooting properly. There are things we should and should not do. As an example, I have noted that shooters will modify the trigger action attempting to get a better trigger press along with other modifications, yet they clean the rifle improperly. This may lead to degrading the rifle's accuracy over time.

We all want the rifle to keep shooting and last even longer than it already has. This means parts replacement occasionally and particularly means cleaning the fouling left by firing regularly. Accuracy and smooth operation is the goal of recreational shooting. And these rifles were built to last. I am aware of more than a few shooters that hunt with their Lee- Enfield, Mauser, and Springfield rifles. I know at least one Lee-Enfield No. 5 carbine is in use with a shooter as his emergency and truck rifle.

These rifles will not let you down if you do your part. The first thing we need do is to learn the manual of arms. Learn to properly load, fire, and cycle the rifle. Next up is learning how to disassemble the rifle. There are small parts that demand care. For example, the screw holding the front sight shroud on the Lee-Enfield seldom works loose and may have taken a set, demanding a soaking before being able to disassemble the rifle. Another concern

Above center: Note small screws in the front sight shroud. They may be stuck and are easy to damage. Be extra careful working something like this! is removing bolts from the action. The Mauser/Springfield type is easily removed and the field strip sequence to replace an extractor or firing pin spring is easy enough. The Lee-Enfield fits the raceway a little differently. Headspace is a concern and all rifles should be checked for proper headspace.

Headspace is simply the difference between the front of the bolt and the back of the barrel. This is the space where the cartridge case rim fits when the rifle is loaded. One reason military cartridge primers were crimped in place versus the usual civilian pressure fit is to prevent tying up a gun with excess headspace as this would allow the primer to back out. Brass stretches quite a bit with the Lee-Enfield rifle being a prime example. Below center: When you clean, do so closely. Note powder in this rifle's extractor groove. Be certain it is tight before firing. It wasn't intended to be used with reloaded cartridges. As the piece fires the forward neck expands and fits into the chamber tightly. The solid case head moves to the rear slightly, sealing the primer and backing against the bolt head. With Mauser rifles check to be certain the rifle you are using is the caliber and chambering you think it is.

Quite a few military bolt action rifles have been converted to .308 Winchester and a host of other cartridges. Some are not properly re-marked. The result is often a rifle of questionable safety and almost universally poor accuracy. The French MAS rifle, as an example, is ruined by this conversion in my opinion. I have fired several MAS rifles converted to .308 Winchester. One fired an eight inch group at 50 yards, another was even worse!

On another occasion a particularly dangerous find was a Mauser 98 with a stock marked 7.62. At first glance it appeared to be one of the many Israeli Mauser rifles converted to 7.62 NATO. Everything looked right but when checking the headspace the rifle was still an original 8mm Mauser. I do not know how the Israeli stock ended up on an original rifle. This illustrates that a little knowledge can be dangerous. I have enough knowledge to be certain that the Mauser chambering was known beyond any question before use.

The rifle was also restocked. Learning to remove the bolt properly and to disassemble and clean the assembly is important. Debris, powder ash, and old lubricant must be removed from time to time. Disassembly is important and must be undertaken with care and respect for the mechanism. We know that a tight rifle with all of the furniture secure is more accurate, yet I have seen shooters and retailers field strip the rifle and then pry handguards and stocks away from the action.

EVEN THOUGH WOOD SWELLS AND CHANGES FORM OVER TIME,

Original caption: Bottom: The sear usually directly contacts the bolt.

never pry a stock loose. Instead, remove the wood by tapping on the side of the stock, perhaps with a wooden mallet, and then the handguard, forend, and stock to get it to move. To avoid trouble and to keep things clean and operating, learn the location of the sear and how the trigger action works. I would avoid any type of modification to the trigger action. The dual bumps on the trigger that give the rifle its Most function problems spring from the bolt.

This contact may be polished for a smoother let off. But be careful! for military rifles. There is no need to modify an original action; it isn't very wise, particularly if the rifle is used for hunting or any type of use other than target practice. For more information on disassembly, my book Commando Gunsmithing (Amzn.to/2Xumqv W) provides more tips in detail. Some rifles require tools for detail strip. Be careful as screws that have been two stage operation might be polished but only lightly.

The engagement of the Lee- Enfield sear to the bolt may be polished. Today we have the excellent Huber trigger from Huber Concepts (HuberConcepts.com,

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Original caption: Bottom: Brownells offers special tools for bolt action rifles. primed ammunition—and the supply seems endless—then you need to add cleaning with window cleaner or even pure ammonia to the mix. The rifle's bore and the bolt as well should be cleaned thoroughly after use with corrosive primed ammunition. Corrosive priming compounds area strong attractant for moisture. Normal build up in the bore may destroy accuracy potential over time and also may instigate corrosion.

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in place for many years simply do not like to come lose and overnight soaking in a penetrating oil may be needed. In my lifetime I have seen a big change in cleaning. While the procedure is similar modern cleaning is tuned toward the use of chemicals while it was once pure elbow grease. The problem is that copper jacket material is left in the barrel upon firing and hot powder gases burn the copper into the bore. Powder fouling also builds up.

IF YOU USE CORROSIVE

I use a superior bore cleaner originally developed for bench rest compet it ion: Shooter's Choice MC #7 (Shooters-Choice.com, This compound creates a chemical reaction that attacks build up and changes it to a sludge that is more easily removed from the barrel. A quick check of bore solvent effectiveness is to place a small amount on a common penny. Give it a few moments to begin to attack the copper and the best solvents become obvious. Always clean from the chamber end, never from the muzzle end.

I use a solid, one-piece rod for most work, although I also have a sectioned rod cleaning kit primarily for different barrel lengths. A rigid and strong rod is good. I use a jag-type cleaning tip with a square inch of cotton patch for 7mm-8mm rifles. This covers the common calibers. The bore brush should be bronze. It is obvious that if you use a copper brush the chemicals intended to remove copper from the bore will eventually eat into a copper bore brush.

While we protect the barrel crown when cleaning we also must protect the chamber throat. Be careful when cleaning from the chamber. A damaged throat may have a detrimental effect on accuracy just as a damaged barrel crown may. Remember, while cleaning is a chore few of us enjoy it must be performed and done correctly. It is a good idea to clean the rifle as soon as you return from the range. Carbon deposits are relatively soft when fresh.

After they have taken a set you will find that they are more difficult to remove. Military bolt action rifles area joy to fire, use, and collect. With minimal maintenance done correctly, they will give you many years of shooting pleasure. AG

RIFLES

Hunting Tactical Super Sixty

Hunting Tactical, maker of the HT60 stock, now offers an upgraded Marlin 60: The Super Sixty.

BY ROBERT K. CAMPBELL JANUARY 2020 ORIGINAL PP. 17-19

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Original caption: Top: Hunting Tactical lays claim to releasing their Super Sixty as the rifle with the greatest adjustment for the user. The author tends to agree.

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Some time ago, Hunting Tactical (HuntingTactical.com) introduced the HT60 rifle stock. Makers seem to concentrate on other rifles while the humble but reliable Marlin 60 was a wallflower. This has changed and in a big way. The Hunting Tactical HT60 stock we previously covered (May 2019) is useful for the Marlin 60 and also any Marlin/Glenfield Model 60, 70, or 795 rifle. The existing Marlin 60 or similar rifle may be combined with the HT60 for a modern rifle that is able to deploy rail-mounted lasers or lights.

This makes for many interesting applications. While the Marlin 60 is an inexpensive plinker and small game hunter, it is also a reliable and accurate rifle. Twice during my police service I became aware of instances in which the Marlin 60 .22 was put to use against our criminal element, each time with good effect. The HT60equipped rifle handles even better

The stock is an excellent design, complimented by a good trigger. and has more stretch for different chores. The HT60 stock is manufactured from mil-spec polymer. The modular stock conversion features a telescoping and pivoting stock, a neat trick not possible with the AR-15s. The rake of the pistol grip may be adjusted for maximum fit and comfort. Even the grip system may be adjusted. In short, the rifle will fit all ages and sizes given a user that takes time to adapt the stock to the shooter's physique. The

result is a means of getting more performance and versatility from the Marlin action. The grip even has built in storage. The stock itself is a kind of ultra-customization of the well-regarded Marlin/Glenfield Model 60 .22 Long Rifle plinker. An adjustable fore-end with Picatinny rail on three sides is provided with the kit for attaching accessories.

While these accessories are good for handling and fit, making the Marlin 60 useful for an adult-size hunting rifle or as a youth model in the same rifle, you still have the original trigger action. Hunting Tactical also offers a trigger spring kit. This consists of four custom springs, the hammer spring, sear spring, disconnect spring, and trigger return spring. These springs will bring the Marlin 60 action to a smooth 3.75 pounds. This is an average improvement across the board of two pounds or more.

The springs are manufactured from ASTM 228 music wire and 302 stainless This is a good set up. steel spring wire. The guarantee is lifetime. Also, for the tubular magazine Marlin 60 rifles, there is a 6061 billet cut and anodized into a trigger guard assembly with a specially adjustable trigger action. Threaded pins allow the shooter to do away with the old-style plastic Marlin 60 trigger guard assembly. The target-grade aluminum flat face trigger is 3/8" wide.

This allows a trained shooter to spread the trigger weight around a larger area. The adjustment screw allows removing almost all pre-travel. While I have respect for the Marlin 60 I never considered it a particularly accurate rifle. The accuracy potential of the Marlin 60 is greatly enhanced by this trigger upgrade with or without the HT60 stock. A note on installing the new trigger springs, they are identical in general appearance to the factory springs.

Be careful not to mix them up with the original factory springs. The big news is the introduction of the Super Sixty rifle. The Super Sixty is claimed to be the industry's most adjustable rifle. The author has used many rifles and after some thought and research, the claims by Hunting Tactical seem to hold true. The shooter's body type and shooting style need not adapt to the stock, the stock adapts to the shooter.

Marlin's Microgroove rifling is inherently accurate and the enhancements by Hunting Tactical aid in practical accuracy potential. The average Marlin 60 rifle exhibits a trigger compression of 5.5 to 7.0 pounds, with most somewhere in this ratio. The Hunting Tactical Super Sixty trigger breaks very clean at just under four pounds on the Lyman Registering Trigger Pull Gauge. The trigger may be adjusted for both pre and post travel. The trigger is free of creep or backlash.

Another enhancement I did not add to my personal HT60 stock and Marlin rifle combination is an enlarged charging/bolt racking handle. This is a great aid for younger and older shooters. The Super Sixty is delivered standard with this racking handle. The bolt stop is very Ruger like, located right in front of the trigger guard. It is quite easy to use quickly.

Specifications The Hunting Tactical Super Sixty weighs 5.11 pounds and has a length of 36.25-39.25" with a sixpoint telescoping stock. Chambered in .22LR, is has a 14-shot tubular magazine with patented closure system. It is autoloading with side ejection and an automatic last-shot bolt hold open. The 19" barrel has Micro-Groove rifling (16 grooves) with a 1:16 twist rate and adjustable open rear sight and ramp front sight. The receiver is grooved with an industry-standard dovetail for optics mounting.

The trigger pull weighs 3.8 pounds in my example and has adjustable pre and post travel with a 3/8" wide, flat faced, 6061 billet anodized trigger for a fantastic looking finish. The trigger guard is made of the same material and there is an improved cross-bolt safety, ergonomic, modern, extended charging handle to reduce bolt drag and allow for ease of operation regardless of sighting system. The improved action allows for a crisp trigger break, lighter trigger pull, and smoother cycling.

The receiver top has a serrated, non-glare finish. The Super Sixty is a very nice looking rifle. Fit and finish cannot be faulted. While many of us tend to build our own rifles, and that is certainly the track I took in putting together my original HT60-stocked Marlin, the Super Sixty has much appeal. I would say that if you have a Marlin or similar rifle already on hand perhaps the stock and trigger parts added to the rifle might add up to more pride of ownership with something you have done by hand.

On the other hand, for those looking for an extraordinary factory rifle the Super Sixty has much to recommend. Accuracy Potential I have not yet fitted the Super Sixty with an optical sight. Most of the firing has been undertaken in order to confirm the rifle's reliability. Remington .22 Long Rifle, American Eagle .22 Long Rifle, and Winchester M22 loads have been the break in ammunition. All are 40 grain High Velocity loads.

There have been no malfunctions of any type as we approach 1,000 rounds, with the rifle oiled every 200 cartridges and cleaned at the 500 round mark. This is as expected with the proven Marlin 60 action. It wasn't unusual to fire five shots into an inch at 25 yards. At fifty yards shooting glasses and attention to detail helped the author deliver a number of two-inch groups, along with some smaller. The Hunting Tactical Super Sixty is a rifle worth its price and a super custom rifle we may be proud to own. AG

MAINTENANCE & REPAIR

Increasing Trigger Pull

Gunsmithing usually reduces trigger pull weight but there are times when an increase is called for, especially when restoring handguns.

BY ROBERT K. CAMPBELL JANUARY 2020 ORIGINAL PP. 20-22

Unless the piece is broken, when a firearm comes into the shop the customer has some improvement in mind. Often the improvement centers upon the trigger and its smoothness and trigger pull weight. While the majority of shooters will be looking for a clean and relatively lighter trigger, not all do. Some have butchered the firearm or purchased a handgun with an existing problem and need the firearm adjusted for a heavier trigger action. Others need it returned to original specifications.

This is where knowledge and study comes in. I cannot cover every handgun here but there are a number that consistently come into the shop. Some of the knowledge is common, some more arcane, and it all is proven in years of work. Colt Revolvers I sometimes wonder if the gunsmiths today have it easier with the majority of modern handguns. After all, most modern automatics feature drop-in parts and easy fitting.

Even the 1911, which typically demands some type of custom fitting, isn't that difficult once you have mastered the basics and have a bit of experience with it. This is mostly because of quality aftermarket parts. Of course, this applies primarily to parts replacement. The custom gunsmith is in a strata well above what I am able to do and earns his pay. For those that remember or still work with them, the revolver is a bit more trouble. The revolvers of the previous century were more complex.

This is especially true when it comes to older Colt revolvers. Every part was hand fitted, resulting in a very smooth action. It was also quite expensive even in the days when skilled labor was less costly. This is ultimately the reason Colt lost ground in the market. The reliable Smith & Wesson was less expensive and Colt's simplified actions came too late to be competitive. A thing that wins the low bid isn't always a cheaper option but often a workman-like and economical part or firearm.

As the great gunsmith Jimson Dunbar told me more than once, most revolver parts have dual function. This is especially true with the Colt Python. You may tune one trigger pull—the double action or the single action—and the result is often that the other trigger press suffers. Colts sometimes came into his shop and folks wanted a lighter trigger action. They might be shooting competitively in PPC or, as Jim noted, they may not be good shots at all.

A once common modification of the Colt was to insert a block or rod in between the action arms of the V-shaped Colt mainspring. With the mainspring thus blocked, cock the hammer. This bent the Vspring and as a result decreased trigger pull weight. This is much neater than re- Be careful with the parts. moving and attempting to bend the that spring. The results of the spring contacting the rod is a Vspring bent near the top.

Back in the day—and I mean back as far as 1920 according to my research—gunsmiths began using a 1/16th rod for this and most often the result was a smoother trigger action. But I have worked with revolvers in which the technique was taken too far. One such problem was found when I examined a fourinch barrel nickel-plated Python that did not consistently break the primers. Someone went too far in lightening the action.

Predictably, the revolver had been traded into a pawn shop rather than the customer attempting to repair the revolver. My job was to make the revolver reliable. This was back when a decent Python was about $500, so the sky wasn't the limit on expense.

As with many things, the right thing is often harder than the wrong thing. The previous action job, if you're generous enough to call it that, had been accomplished without any real work save for removing the grips. To increase the strength of the mainspring, start by removing the side plate with a proper hollow ground screwdriver. Remove the grips, then the sideplate, and carefully separate the sideplate screws.

Note, these screws are not all the same and I usually lay them in order as they come out beside the sideplate. Be careful not to let the cylinder release fall off of the sideplate. Get a good look at it just in case. Use padded needle nose pliers to grip the two arms of the Vspring and then press them together. Take the tip of the upper section of the Vspring from the hammer stirrup. This is all that is needed to remove the Colt V Spring.

The spring is padded and placed in a vise to work it, being bent upward very little. For comparison, look at how the spring is bent with the rod in place to lighten the action by bending the Vspring. The motion to tighten the spring is the opposite. That's it. Reinstall the sideplate and be certain the most rearward latch pin is straight and up. This part fits into a small hole in the back of the revolver cylinder release. This is more or less an expedient to return the spring to proper function and it works well.

If the mainspring is worked too much it will be weakened and break. I have not had this happen. At last check, Numrich has both new and used Colt mainsprings of most types in stock for around $15 to $24. Just the same, the labor involved in changing the spring is the biggest expense and if the Vspring may be restored to its previous strength that is the most economical way to accomplish restoring reliability.

Smith & Wesson Revolvers While Smith & Wesson revolvers are usually very reliable handguns, the revolver comes in often for repair after an enthusiastic over lightening of the handgun's action. With the Colt a simple re-bending of the spring may restore the action. With the Smith Far & Wesson mainspring, simply bending the spring does not work to lower the action weight; it must be thinned or modified. As a result, the modified spring must be replaced to restore function. An elementary check should be done first.

If a Smith & Wesson revolver comes into the shop failing to strike primers hard enough for reliable ignition, first check the mainspring tension screw. This screw maintains pressure on the mainspring. Some will back the screw out to make for a lighter trigger pull. Gone too far, the result may be a failure to fire. Return the screw to a tight fit before you examine the mainspring.

The trigger return spring may need to be replaced as well as the mainspring. 1911 Adjustments The 1911 is a rewarding handgun to work with but may be frustrating when someone has butchered the springs. In this case the recoil spring and hammer spring must be matched. Many amateurs do not realize the effect that the hammer spring has on cycling. A light hammer spring and a light recoil spring may be OK if light loads are used but may well result in battering with standard loads.

One of the most common means of adjusting the trigger is by bending the mainspring. Not long ago a fellow brought a nice Citadel 1911 to my desk. The pistol was generally reliable but the trigger action was so light the user actually suffered a kind of spring back on firing and often doubled, Far

discharging two rounds when only one shot was desired. I checked the trigger pull on a Lyman trigger pull gauge and found the trigger compression at 2.9 pounds, which is too light for most shooters in a general purpose firearm. The owner wasn't forthcoming with much information on any modifications, although I got the impression modifications had been made by a young fellow in a gun shop that tried his best. That's OK, and I simply fixed the problem.

As best as I could determine, the pistol had a standard #23 hammer spring. Move to the mainspring and trigger compression may be adjusted by bending the far left lever toward the shooter away from the muzzle. Be careful with this as the middle lever affects the disconnect. Most of the time when a 1911 trigger is butchered you cannot repair the job but must chuck the parts and start with new ones. If the primary angle on the sear is ruined there is no other choice.

A shiny sear is a clue someone of unknown skill has worked on it. The only way to get the pistol back in spec is to dump those parts and start again. If the action is too light and the hammer does not fall when the slide is dropped on an empty chamber, simple adjustment may work. If the hammer falls the internals need to be junked or the job turned away. Safety is too important. Glock Adjustments Glocks are generally delivered with a 5.5 pound trigger. However, this isn't a constant.

I have examined a number of Glock handguns with triggers closer to or just over six pounds. The easiest way to modify the Glock trigger is to purchase a proper coil spring and snap it in. It doesn't get any easier. I have had a few Glock pistols come across the desk with 3.5 pound triggers. The Chief or an administrator would not allow the light trigger and for very good reasons most agencies do not allow aftermarket triggers. I don't allow them on my own carry Glock handguns, either.

There are very good reasons for this. The factory trigger spring is balanced with the firing pin spring. The situation to be avoided is when the trigger spring is 50% stronger than the firing pin spring, which can result in light trigger strikes. This is a bad thing in competition and has even more finality attached in personal defense. Reset issues may also occur.

It isn't well understood but the 4.5# Wolff firing pin spring will actually reduce the felt trigger action more so than reducing the trigger spring while also being more reliable. In my opinion there is absolutely no margin for error in handling the Glock with its factory 5.5 pound trigger action and no manual safety. Folks leave their keys in the car, lock themselves out of the house, and forget to zip their trousers. This isn't

MAINTENANCE & REPAIR

Reader Forum

BY AMERICAN GUNSMITH EDITORS JANUARY 2020 ORIGINAL PP. 23-24

Springfield Model 511 I have a Springfield Model 511 side-by-side shotgun with 3" 12 gauge chambers built by Savage. I would like to field strip it for a thorough cleaning but it's unlike any other side-by-side in my experience. Upon removing the forend and operating the top lever, most shotguns of this type will simply separate at the pivot point between the barrels and receiver. This gun instead has its mainspring located at this pivot point and it must be removed to be separated.

Other then purchasing a mainspring tool from Brownells, is there any other way to break down this shotgun? From Sergey Lyalko. Your 511 is similar to the Stevens 311 with only one major distinction: The ejector rod shown at 28-31. To disassemble, move the plunger (29) to the side of part 28. No special tool These are factory Glock parts. six pounds. The distinct advantage is the break is more similar to revolvers and a trigger break that some find attractive.

Glocks are primarily personal defense and service weapons. If they are carried in the manis needed and a screwdriver works well. What you are referring to as a "mainspring" is in fact an ejector spring. Winchester 490 Soft Fire Referencing "Winchester Model 490 Disassembly and Assembly Procedures" by David W. Manney in the July 2012 issue, I used that article as a guide to disassembly but ran into a problem with the bolt. I could not pull the striker rod out of the bolt after removing the rod pin.

I even tried a bit of heat with a hot air gun. Joseph Murano The striker looks different but moves freely. I replaced both inner and outer striker springs and the 490 fires every time with all cartridge types when the gun is ner they were designed, anyone that has worked with it should be able to verify the pistol is in a safe operating condition. AG pointing down. However, when the gun is pointing slightly up (say 10 degrees above horizontal) it frequently misfires.

Does this indicate that either the inner or outer striker spring is too weak? Why are there two springs in this design? Barry Severne Author Dave Manney replies. The striker rod head may be mushroomed making it hard to remove. With the firing pin out of the way, I would use a flat brass stock that fits into the firing pin slot and tap it out. Dress up the end with a file

and sand smooth, checking fit back into the bolt. The bolt is hardened steel and should not be damaged. I would check the hole after removing the rod and if needed ream round again with a drill bit the same diameter as the striker. It may be time for anew striker rod. I just check Numrich and they have Striker, Striker Retainer, and Striker Rod parts in stock. As stated in the article, the firing pin sticks in the bolt. With gravity helping to drop the firing pin you must be getting enough energy to crush the rim.

Lifting the gun up, there is no longer an assist from gravity. I am assuming ammo was the same. I would first polish the firing fin as I stated the article. The reason for two springs was to ensure enough force was transferred to the firing pin to fire the round. If the springs are rusty, clean them up to make sure that they slide easily back and forth and do not drag, taking away needed energy.

Stock Crack Regarding the October 2019 Reader Forum on handling a Stock Crack, I understand the answers given are from gunsmiths more qualified than I but I think they missed the point. If I have this problem, I take the buttstock off the shotgun, brush inletting black on the metal, reassemble and then take it apart again to see where the part is that is making extra contact judging by the black spots on the wood. File that spot down and try again until all metal is touching the wood evenly.

From author Sergey Lyalko. I did miss the point in my previous answer. Repeating breakage on the right top of the inlet means that this spot receives more stress/pressure during recoil than the other spots of inlet. Normally, it may be explained by a high point on the wood where pressure concentrates. In the case of the original question, since three consecutive stocks broke at the same place the high point may be on the metal and wood would have to be relieved (removed) at this spot.

The piece of the wood that split has some marks of pressure on it, which may give the idea of where the force was applied. The other concern may be a low quality, dry wood which is prone to cracks. In any case, the effort should be made to ensure that the metal has a strong and even support all around the inlet. The best way to create this support and eliminate high points is with glass bedding. I use Brownells Acraglas Gel (081-014-007WB). Degrease the metal part of the inlet and cover with release agent.

Use a Dremel or similar tool to the thin the portion of the wood all around the inlet where it contacts metal There is no need to remove the external (visible) outside stock wood around the inlet; the fix should be invisible outside. Mix Acraglas and put an excessive layer on all places where wood was removed. Install the action and tighten all screws and bolts that hold the stock and action. Coat screws with release prior to assembly.

Remove the excess Acraglas that popped up during tightening, then let it solidify. Carefully remove the action from the stock. This creates a stock inlet with a hard layer an exact mirror reflection of the metal with no high points and guarantees even distribution of the stress around the wood. Gary Kruger AR-15 Barrel Nut What if they made a extended fluted barrel nut that could brace up against the cut in the barrel? That way the entire chamber and throat of the barrel is supported?

Robert Bogan Author Joe Carlos responds. I am having difficulty visualizing what you are suggesting. You speak about a “cut in the barrel” but I am unaware of any cuts in an AR barrel. The only ways that I know to combat carrier tilt are to build support the back end of the carrier like antitilt pads I describe in “Combating AR-15 Bolt Carrier Tilt” (May 2017) You may contact me directly at AG

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