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INSIDE THE ARCHIVE

CORRECTING FEEDING PROBLEMS IN A REBARRELED 96 MAUSER

TIME FOR NATIONAL CARRY LAWS • CENTURY ARMS RIMFIRE ENIGMA • REMINGTON MODEL 700 TRIGGER REMOVAL, I...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 114

DIGITAL ARCHIVE EDITION

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FROM THE ARCHIVE

Time For National Carry Laws

BY AMERICAN GUNSMITH EDITORS JUNE 2013

ORIGINAL PP. 2

Editor's note: This editorial was written by Alan Korwin, author of Gun Laws of America (gun-laws.com). Recent events have made it painfully obvious that murderous trouble can erupt at any time and in any place. It is a clear and present danger. We can no longer afford to pretend such dangers do not exist. It is irresponsible to continue to imagine that police can be everywhere, or that they can respond with sufficient speed to prevent a homicidal rampage. Police are second responders.

The first responders are always we, the people, on the scene as events unfold. The time has come to insist upon robust restoration of our right to defend ourselves, to keep and bear arms when and where arms might be needed in public places, to forestall these serious known threats to our safety. It is time to press forward for nationally recognized right to carry. The forces aligned against our civil right to arms are disgracefully using an assassin's heinous crime to foment hatred and attack us.

They are plotting in secret to diminish and impair our cherished rights. Now is not the time to simply rebut their power-hungry vitriol and ignorance. Now is the time to advance a vigorous pro-rights agenda, because it is the righteous response to the problems their anti-freedom efforts have helped to create. We must at last

free people from the governmental chains that bind them, and replace those chains with the fullest expression of rights that are so fundamental to the American way of life.

An unfringed right to keep and bear arms is the moral high ground. Efforts to ban or infringe on these precious rights in any way is both immoral and dangerously reckless, putting innocent people in harm's way. Remove the obstacles to the constitutionally guaranteed right to defend innocent life against whatever evil may confront us. It is time to secure national carry rights for all law-abiding adult Americans.

National carry must be accompanied by a reinvigorated private effort to educate our children and ourselves in the social utility of firearms, and their safe and legal uses. The purposes and constitutional roots of this most fundamental right must be reintroduced into the nation's classrooms. Incentives must be brought forth to rebirth a culture of marksmanship, and to once again become the nation of marksmen the Founders envisioned.

It is not enough to simply argue back against those who would deny or restrict our rights with their many and nefarious schemes. It is time for national carry rights for all law-abiding adult Americans.

HISTORY

Century Arms Rimfire Enigma

what makes it tick?

BY CHICK BLOOD JUNE 2013

ORIGINAL PP. 3-6

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The shipping papers identify it as “Rifle, Zastava CZ99 Precision .22 LR, 22” BBL, Serbia.” The parts list, received separately, tag it “MKP CZ99 Precizion .22 LR.” The mystery began to unfold like a large onion. Now I knew the rifle had been made in the town of Zastava by Serbians. That was good news. Civilian and military firearms produced by Serb workers have a worldwide reputation for quality and have been imported into the United States for decades. A brief pause for some historical fact about Serbia.

It’s where World War I got started. In 1914, the Austro-Hungarian empire’s Arch Duke Ferdinand was assassinated in Serbia by an act-alone nationalist fanatic. Doubting the man was flying solo, the empire took great umbrage and struck back. The Serbs fought them to a standstill until Bulgaria and the Germans decided to reinforce the Austrians. The Serbians were soon overrun.

Much later, during World War II, the Serbs allied themselves with the guerilla forces of Draza Mihailovic and delivered serious hurts to their Nazi occupiers. My problem was the profile this rifle. I had done an article on the Remington Model 5 several years ago. This rifle from Century Arms looked very much the same. Comparing it to materials in my files convinced me it was not a CZ99 but a freshly manufactured Model 5.

Why hadn’t Remington made a clone of their own rifle? The answer to that are import levies.

Fat ones. They make it impossible to bring complete guns to these shores and still be able to sell them at reasonable cost. That being the case, industry practice is to bring in all While it may not be in the same ballpark as a collector’s treasure, I expect that failed rifle’s newest form will achieve far greater longevity. the parts required, then assemble the finished gun stateside.

When Remington decided they wanted to resurrect their Model 5 to fill an important, growing niche in their rimfire market, they turned to Zastava and the Serbian work ethic. The original Remington Number 5 rifle bears no resemblance to the Model 5. Old Number 5 was a rolling block sporting and target rifle adapted for smokeless powder use, introduced in 1898 and initially chambered for .30-30 Winchester, 7mm Mauser and .30-40 Krag with .303 British added three years later. Unfortunately, the Number 5 flopped.

Only 198 were sold before it went out of production in 1903. I don’t think the Model 5 will suffer the same fate as Number 5, which is a magazine fed .22 LR bolt action. I have few doubts that in the future it will be able to handle one or more of the .17

caliber rounds gaining popularity. Well, if the price is so right how is the quality of the Model 5?

Evidently, Century Arms discovered there were plenty of parts remaining in Zastava and cut a deal to import, assemble and offer a low cost., high quality .22 LR rimfire that faithfully duplicates the Model 5. Field Stripping When it comes to simple, the Model 5 could arguably lay claim to being simplest. First, however, make sure the gun is unloaded. Depress the magazine button and remove the magazine. Two things hold the trigger guard to the stock.

The forward one is a machine screw (59) and the rearmost a wood screw (57). You only have to back out the machine screw in order to lift out the barreled action. Unless you turn the stock upside down or completely remove the trigger guard, the parts identified as a distance bushing and wood screw will remain in place. The bolt is removed with the safety in its fire, or forward, position. Raise the bolt handle, hold back the trigger and pull the bolt from the receiver.

The rifle can be cleaned of any accumulation of fouling at this point and you can give it a close visual inspection for quality. I believe you will be, as I was, favorably impressed.

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Detailed Disassembly You'll need medium hollow ground and very small screwdrivers, a nylon bench block, an assortment of Starrett drift punches or an acceptable substitute for them, a magnifying glass and considerable patience. When you removed the bolt from the receiver you uncocked the bolt and relieved tension on the firing pin spring (14). Rotate the cover (13) to align the holes on both sides with a pin indicated but not numbered in the diagram.

Push out the pin with a suitable diameter punch, withdraw the spring carrier, firing pin spring and move the bolt handle all the way to the rear. Push the firing pin (11) back in its slot until you can tilt up its end and remove it from the bolt body (4). Take note of the lug on the bottom of the firing pin. This is the only portion of the pin that contacts the trigger (25). The Model 5 is striker fired. When the trigger is pulled it drops away from and releases the pin, under tension from its spring.

The spring expands to push the pin forward and impact with a chambered cartridge. Any work you perform to smooth up the

pull would involve stoning and polishing trigger/firing pin contact points without altering their engagement angles. Additional smoothing, along with slightly faster lock time, can be achieved by polishing the inside of the bolt body, sides of the firing pin and sides of the trigger that contact the receiver.

The left and right extractors (5 & 8) are held in the bolt head by two pins, both identified as the extractor pins (6). These pins drift from the flat on the underside of the bolt to its top. Not so fast, please. There are two extractor springs (7), one for each extractor. Be careful not to lose them when they're taken out and don't get the extractors mixed up. It is shown here taken down one step further by including the trigger guard. Note the wood screw and spacer at the rear of the guard.

To remove the extractors once their pins have been drifted out of the way, insert a probe between the rear of the extractor and its spring. Push the spring to the rear and lift upward on the extreme front end of the extractor. Better place a finger over the bolt

face when you let up on the springs to prevent a loss. You should be able to tap out the springs on your bench, except if the parts are fouled in place. If that is the case, you'll have to go fishing.

This brings me back to the receiver and things attached to it. There is a screw (18) that secures the front of the magazine well (17) to the receiver. Choose a hollow ground screwdriver fitting that screw and back it out. A second screw (also a #18) is hidden beneath the magazine catch spring (19) and magazine catch (20). The catch is attached by a pin (21). A very small pin, it requires an equally small diameter punch to start it out left to right.

Once the pin protrudes about 1/8" from the right side of the work piece, grab it with smooth jaw pliers and pull it out. The catch and spring can then

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be lifted away to reveal the second screw. Use the same screwdriver used on the front screw in removing it. The trigger and safety lever can now be pivoted upward for further study. They are held together by the safety screw (35) which is a 0.154 diameter pin reduced and threaded to 0.118 at one end. It's in relation to the safety lever the safety washer (34) in the drawing becomes a factor. What it does is position the tab of the safety lever to slide into its cut out in the receiver without binding.

At the same time, the oblong slot in the tab of the safety must engage the nipple on the safety (30) to enable locking of the trigger. With these last elements in plain sight, I call to your attention two very small set screws in the upper body of the trigger body and the

adjusting adjustment screw (31). The latter retains the safety and can be B A It can be drifted out in either direction. turned in or backed out to stiffen or ease movement of the safety.

Note: It is possible to freeze the safety solid by over tightening this screw. Don't. Immediately under the adjustment screw is one of the small set screws. Never make a turn in any direction on the adjustment screw without first loosening the set screw. Once you've made an adjustment to assure smooth travel of the safety and an audible "click" into engagement with the safety detent ball (29) beneath The retaining pins which must be drifted out from this aspect are indicated (A).

Tightening the safety adjustment screw (B) excessively will prevent the safety from moving forward to block the trigger. it, turn in the set screw to hold your setting. Again, do not over tighten. Alternately, you may decide a modification to the over travel adjustment screw located under the safety in the trigger body is needed. The rearmost of the set screws must be backed off first. After the adjustment is made, secure it with the set screw as you did for the safety adjustment screw.

BE CAREFUL WITH THOSE BABY SET SCREWS. DON'T BACK THEM OUT ALL THE A

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way. So far, I haven't located a magnetic screwdriver small enough to engage their slots.

The translation here is that getting them started 1 Receiver 2 Barrel 3 Barrel retaining pin 4 Bolt body 5 Extractor left 6 Extractor pin 7 Extractor spring 8 Extractor right 9 Ejector 10 Ejector screw 11 Firing pin 12 Bolt handle 13 Cover 14 Firing pin spring 15 Firing pin spring guide 16 Firing pin spring guide pin 17 Magazine well back in the trigger body creates significant pain, located below and to the rear of the belly button.

Reassembly is in reverse order with no 18 Magazine well screw 19 Magazine catch spring 20 Magazine catch 21 Magazine catch pin 22 Magazine release arm 23 Magazine release arm pin 24 Trigger yoke 25 Trigger 26 Trigger spring 27 Trigger spring screw 28 Sear spring 29 Sear spring ball 30 Safety 31 Adjusting adjustment

screw 32 Trigger travel adjustment screw 33 Safety button 34 Safety washer 35 Safety screw 36 Rear sight base 37 Rear sight base screw (2) 38 Rear sight carrier 39 Rear sight spring 40 Rear sight blade pin 41 Rear sight 42 Rear sight blade 43 Rear sight base screw (2) 44 Front sight base 45 Front sight base escutcheon 46 Front sight screw 47 Front sight 48 Front sight guard 49 Stock 50 Stock plug 51 Front sling swivel stud problems encountered compressing springs.

This is, after all, only a .22 caliber that has been stripped of its enigma. AG Century Arms CZ99 (Specifications subject to change without notice) 52 Front sling swivel stud nut 53 Rear sling swivel stud 54 Buttpad 55 Buttpad screw (2) 56 Triggerguard 57 Rear trigger guard screw 58 Stock spacer 59 Front trigger guard screw 60 Magazine release button 61 Magazine body 62 Magazine floor plate 63 Magazine floor plate retainer 64 Follower spring 65 Follower

RIFLES

Correcting Feeding Problems In A Rebarreled 96 Mauser

Ever have one of those rifles you've worked on for awhile and just can't seem to come up with any solutions?

BY WENDELL DEANER JUNE 2013

ORIGINAL PP. 7-11

For the last few years I've been fooling around with some old military-issue Mausers, specifically 96s and 98s. The reason I am such a fan of these guns is they are positively basic. By working the Mausers I have come to better understand how bolt action rifles work and what's needed to keep them functioning properly.

This style of action is the basis of many modern actions and the knowledge I've gained by working on the basics has carried over to such actions as the Model 70 Winchester, Remington 700, Ruger 77 variants and others, all of which are offshoots of the original Mausers. Although many of these guns are still available, albeit at premium prices, I was able to obtain mine at a time when they were relatively abundant and cheap. I guess we'll never see those days again.

While I have been chastised for altering guns that may have some collector value, I counter that if a weapon originally beat up on the battlefield is purchased for one hundred dollars and years later is worth no more than four hundred dollars at inflated prices, exactly how valuable is that?

I converted some of the 96s to .35 Remington as I am a fan of that cartridge and know it can be handloaded for such a rifle to give better performance than the factory loads available for the lever and pump action rifles it is usually chambered for it. Yes, I know it was once chambered in the fabulous Model 70 Winchester and other makes.

The .35 has been chambered in such diverse platforms as the Remington XP-100 and T/C Contender, but I am referring to the Remington pumps and semi-autos that are still floating around as well as the Model 336 Marlin, which is the only factory rifle currently so chambered that I know of. A 200 grain bullet traveling at 1900 feet per second is no slouch, as many deer and black bear hunters will attest, but I wanted a little more.

I didn't expect to match such rounds as the .358 Winchester or .35 Whelen but I knew I could step up the velocity of this round to increase its killing power. I think I got it right with the converted 96 actions. I've chronographed Remington 200 grain Core-Lokt bullets under loads of H335 and H4895. I won't publish the loads because this is a unique situation where, unless you have one of the aforementioned Model 70s or XPs, only custom bolt guns are available and not too many of them at that.

One of the potential problems with this combination is the case rather than the action it's used in. I think any sane hand-loader must take this "weak" case problem seriously and not try to hot rod a case designed for low pressures. If the brass was manufactured with the same relative strength as a .308 Winchester, which is rated for at least 50,000 CUP, the 96 actions could easily handle more pressure than most lever actions.

I have spoken with gunsmiths who claim they've converted many 96 Mausers to .308 Winchester with no problems. Some have added the caveat to "just keep the

pressures down and there should be no trouble." Of course, after the gun is out of your hands how do you stop your customers from using factory rounds that are loaded to the max? A .308 is a .308, isn't it? That's what is stamped on the barrel.

I will go out on a limb and say that although most reloading manuals max out on the 6.5 x 55mm Swede (which these actions are originally chambered for) at around 45,000 CUP and the .35 Remington at 35,000 CUP, I think both of these figures are slightly on the lower end of what's possible. I now have a rifle that will send a .35 caliber 200 grain projectile over the sky screens at 2150 - 2200 fps without any danger signs.

I think it could be stepped up a little more, but I am conservative by nature and like my face arranged as it is. So, I am well pleased by the performance of my rifles—you could almost call them .35 Remington Magnums—but I was having some trouble with feeding. At first I thought the problem was with the magazine spring.

After all, these rifles are 100 years old and old springs can get weaker and take a "set." Loaded rounds of the .35 Remington weigh more than the 6.5 x 55 Swedish rounds that the springs were originally made to function with. Maybe the springs were doing all that reasonably could be asked of them. When Peter Paul Mauser and his company's engineers designed a rifle for cartridges such as the 6.5x55mm, the 8x57mm, the 7x57mm, and the others they paid close attention to the

CORRECTING FEEDING PROBLEMS IN A REBARRELED 96 MAUSER CONTINUED

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In this case I came up with 1.605 inches for my .35 Remingtons. Using that figure I added 0.030" for clearance and placed the inside of the strips at that mark. In this case, I cleaned them up with a small file but abrasive paper can be used. I also went over everything with a little acetone for good measure. Specs of the feed ramps and springs for each individual chambering. By changing the cartridge in such a rifle we are working without a net as far as feeding issues are concerned.

I do not like to fool with the actual dimensions of the action's feeding rails and would rather pick a cartridge that closely approximates the original, such as the .30-06 and rounds based on it for conversions of the 8mm Mauser. The case head diameter is nominally 0.473 inches, the same as the .30-06, .270 Winchester, etc.

Here the difference is slight and the finished gun can reasonably be expected to feed properly with no extractor work and possibly no more modifications than lengthening the inside dimensions of the magazine box, if that. I have used replacement magazine boxes with hinged floor plates from Numrich Arms that have needed no modification for the .35 Whelen conversion in a 98 and I have used stock magazine boxes for that round without any problems, too.

For those of you contemplating the sporterizing of a 98 Mauser I submit that the performance of the 8 x 57mm on deer-sized game is impressive and should be considered. From what I've seen in the field, the cartridge is every bit the equal of the .30-06 with the same weight bullets, maybe even a little more. The deer will never know the difference. Of course, that is one more campfire ar-

gument like the merits of the .270 versus the .30-06 or the .30-30 against the .32 Winchester Special.

What fun! 25 inches wide, 0.020 inches thick and 1.5 inches long. Note they have been sanded to remove any bluing which may interfere with the soldering process. 030" for clearance. As for those who want to chamber the 98s for rounds like the .300 Winchester or 7mm Remington Magnums by enlarging the bolt faces and grinding the feed rails, if you are skilled, have the necessary lathes and such, and are experienced, or want to be, why not?

The 98 Mauser is considered to be much stronger than the 96s and 95s, as proven in many tests. Truckloads of these 98 actions have been rechambered as magnums with success. At one time it was considered safe to actually cut the 98 action and weld it to another to make the length

CORRECTING FEEDING PROBLEMS IN A REBARRELED 96 MAUSER CONTINUED

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The heat needed for Silvaloy to work properly is around 1200 F. 5 x 55 Swedish cartridge using a 140 grain Remington Core-Lokt bullet. Total weight is 364.8 grains. necessary to chamber the .375 H&H. This is now frowned upon but in the heyday of sporterizing the old guns anything was possible! For those that wish to modify the Mausers for the new so-called short magnums, may the force be with you.

My problem was that with anymore than three .35 Remington cartridges loaded in the magazine (the 96 will accept five) feeding was an iffy proposition. At first, I blamed the spring and have documented that fact in this magazine. When the loaded 6.5s and .35s were weighed and compared it seemed obvious that the magazine spring was overloaded. That is not a fault of the rifle since it uses a flat "scissor" spring made to the exact specifications to feed the original round.

I don't know if anyone makes aftermarket springs for these rifles, at least I haven't found any yet, but I still think a stronger spring would help. One thing I couldn't understand was that in the shop five rounds fed as well as three. At the range the feeding problem cropped up after the first three rounds were fired. It didn't take a genius to realize the bottom rounds in the magazine were moving forward under recoil, disrupting the geometry necessary for proper function.

One thing that is a necessity when converting these Model 96 rifles to a different cartridge is to alter the extractor to accept the dimensions of the new case head. The case head diameter of the Swedish 6.5 round is an unusual The .35 Remington is 0.460 inch, a difference of almost 0.20 inches. As I have stated, the 98 Mauser's case head specs for the 8 x 57 mm is the 35 Remington with a 200 grain Remington Core-Lokt bullet and an appropriate charge of powder is thirty grains heavier than the 6.5.

The weight of a full magazine loaded with five rounds taxes the original magazine spring. 35 Remington, the 6.5 Swede, and a .30-06 for comparison. It's easy to see how the short .35 can slip around in the magazine and cause feeding problems. same (0.473") as that of a .30-06 and no extractor work is needed when chambering to such like rounds. Brownells offers blank extractors for both the 96 and 98 Mausers.

Some folks have offered that the feed lip of the original extractor can be built up by welding and then fitted. I think that this thin piece of metal would more likely be burned up and ruined. A better welder than I am might prove me wrong, but to my way of thinking to go if you have to change it. Not only does the rather thin feed lip have to be beveled and altered just so, but the whole replacement

CORRECTING FEEDING PROBLEMS IN A REBARRELED 96 MAUSER CONTINUED

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This combo works at temperatures that can be controlled with a common propane torch and is plenty strong enough for this application. extractor body must be thinned as to enter the action easily and allow the bolt to close. I accomplish this job by hand and eye, along with careful trying and fitting. I use a Dremel cutting tool and a small belt sander. I don't claim to be an expert on this process but I have gained some expertise by trial and error.

Yes, I have burned up an extractor because I got in a hurry and wanted the damn job done! A 96 Mauser altered to .35 Remington in this manner will feed reasonably well, provided only three rounds are loaded. But, in the field and on the range feeding was sporadic when five rounds were loaded. Now, I am the first to say that when hunting shooting three rounds at an animal leaves a small chance to recover it. If you need more than three shots, forget it, but I want the rifles I put together to work well.

I just wasn't sure how to fix the problem. I think I found the answer while looking back in some of my old gunsmithing books. Winchester had one-size-only actions for many of the early years of their manufacture. It was easily large enough to accommodate such biggies as the .375 H&H and the .300 H&H.

When short action rounds such as the .308 Winchester became available, instead of shortening the action—which would come later—they simply boxed off the magazine to make it shorter and stop the cartridges from moving forward under recoil. It worked fine. A loaded round of 6.5 x 55 has

an overall length of a nominal 3.150 inch. A .35 Remington measures 2.525, a difference of 0.625 inches.

The light went on and it seemed obvious that the first three rounds in the rifle were able to hold their alignment in the magazine box well enough to feed before the last two were jumbled around by recoil like pieces of a jigsaw puzzle. The controlled-round feeding of the Mauser couldn't pick up those cartridges and they ended up jamming. For the fix, I could have boxed the magazine like Winchester but fabricating anew front for my magazine seemed like a daunting chore.

All I needed was to stop the rounds from moving too far forward under recoil so they could be picked up by the bolt and extractor they way they were supposed to work. Instead, I came up with a method that seems to work well. I've tested it for a time it has held up well so far. I do not claim to have invented this fix. It may have been a more common practice in the 50s and 60s when all these military surplus rifles were being sporterized as most modern rifles can be had with short and standard and long actions.

Also, another reason for blocking these actions in those days was to prevent bullet deformation with the then universally-common lead tipped spitzers as they banged into the end of the magazine under recoil. Lots of interesting articles were written testing intentionally-deformed leadtipped bullets and the effect on accuracy. In the end it was agreed that the bullet base had more of an effect than the tip.

All copper or homogenous bullets and the plastic-tipped numbers such as Nosler Ballistic Tips, Hornady A-Max, and Swift Siroccos, along with the new actions have lessened the perceived need for such an alteration. Enfields and Mausers were prime candidates for this practice since their actions are one size. I have yet to run across one altered in this manner, but I haven't inspected all the sporterized Mausers and Enfields of the world.

If this type of old-time gunsmithing comes into your shop you will instantly understand the purpose of what you are looking at. For the fix, instead of blocking the front, I soldered two small strips of sheet metal in place on the inside of the magazine box so that the shoulders of the cartridges contact the edges of the strips and are held in place under recoil while allowing the gun to feed normally. The strips are secured by silver soldering.

This is really the only way to do it unless you want to try to fool around with Acraglas or similar. Silver soldering makes a neat job and will place the strips permanently. For my 96 Mauser project I started with two small strips of metal about 1.5 inches long, 0.25 inches wide and 0.20 inches thick. This allows the magazine follower to ride up and down easily without binding when they are placed on either side of it.

Start by measuring the distance from the base of your cartridge to the junction of the neck and shoulder. On my .35 Remingtons this was about

CORRECTING FEEDING PROBLEMS IN A REBARRELED 96 MAUSER CONTINUED

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1.605 inches. Measure this distance from the rear of the magazine and add about 0.030 inches for clearance or 1.635 inches all together. This is distance the strips should be placed from the rear of the magazine to their leading edges. There is a lip on the bottom of the magazine box. Place the strip to be flush with this lip so the magazine follower cannot bind underneath the strip. Also, the tops of the strips must be above the top of the magazine box.

Clamp the strips at the measured place on the box and check for clearance. If everything looks OK, go ahead and apply the solder. Most of you are probably familiar with the silver soldering process. Remove the bluing from inside the magazine box where the strip is to be replaced with a file or coarse abrasive paper. Clean the surface of the strips also so the flux can do its work. I also go over these areas with acetone to make sure there is absolutely no oil or anything else to interfere with the process.

I used Brownells Hi-Force 44 solder and Kapp Comet Flux to complete this job. This allowed me to use a common propane torch as a heat source. If you have access to an oxyacetylene setup, you can use Silvaloy 355 which needs a temperature of around 1200 degrees F to work properly. It's your choice depending on what you have on

hand in the shop. After the strips are soldered in place it will be necessary to shorten them with a file until the magazine box fits back into the receiver.

This is a trial and error process that shouldn't be hurried. Use the illustrations provided to guide you. What we are looking for is the first cartridge to feed and the strips to hold back the second until its turn. Also, in the case of short cartridges like the .35 Remington, we want the whole stack of five to remain in place so the feeding process can work. Visualize the relationship of the strips to the magazine housing as just creating a smaller square box to house the shorter cartridges.

The second cartridge to feed as well as the fourth, which is held on the same side (left) of the magazine follower, slightly hesitated when the bolt was pushed home and a small bright spot on the case shoulder was evident. The strip on the left side of the receiver was just a little too long and a little too sharp on the corner. It prevented perfect feeding, but a small amount of stoning cured the problem. This is something to work carefully on as there is no sense in ruining a good job with a heavy hand.

Do not bevel the edges of the strips on the bolt-head side. These surfaces should be left square so the The case was partly

pushed into the chamber by the bolt. The first case on top the follower must feed and the second is halted by the strip until it's on top. cartridge does not have a tendency to ride over it and defeat the whole purpose. A little bit of cleanup may be needed to remove any solder from the inside edge of the strip.

I run the solder along the outside edge when applying it to minimize this problem, but the stuff goes where the flux is so be careful. It will clean up with the gentle use of a hand held end mill such as the Dremel and a small grinding bit. My rifle now feeds very well when fully loaded with five rounds, even with the "weak" magazine spring. When fitting a rifle to feed not only must rim diameter and width (fatness) of the cartridge be considered but also the overall length of the round.

Failure to do so will definitely produce some screwy results. I was perusing a recent gun magazine featuring a write up of the CZ 455 Switch-Barrel Rimfire in .22, .22 WMR, and .17 HMR. I noted that CZ uses a filler or magazine spacer in this little bolt action since the length of these cartridges varies considerably. After all these years, this fix is just the ticket to handle cartridges of varying lengths. AG

MAINTENANCE & REPAIR

Remington Model 700 Trigger Removal, Installation And Adjustment

Removing, installing and adjustment of a Remington 700 trigger can be easy. It's all about correct procedure and having the right tools.

BY NORMAN E. JOHNSON JUNE 2013

ORIGINAL PP. 12-14

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Among the more troublesome tasks attempted by the average gunowner is the removal, installation and adjustment of the Remington Model 700 trigger. There are many replacement triggers on the market which are quite easily installed, but I get quite a few of these in my shop half way through installation with the owner wondering what to do next.

Some trigger manufacturers provide fairly good trigger installation or removal instructions, but the customer simply doesn't understand them or is equipped with the wrong tools to perform the work. The following paragraphs and pictures should help simplify the job. A few notes on the Remington trigger. The Remington 700 trigger consists of about 20 parts housed in two laterally opposing stampedout and formed steel walls.

Among the major parts that make up the trigger are the sear assembly, safety assembly, trigger with connector, along with a number of pins, washers, springs, screws and related parts. The bolt stop and spring are involved

with the trigger removal and installation. Most other replacement triggers consist of essentially the same parts in one form or other.

These triggers are fully assembled and should not be. These triggers show the bolt release slide attached to the outer trigger housing operated by a thumb tab from below. Note the through holes in the upper trigger body where sear trigger interaction occurs. The Remington trigger on left shows slave pins in position ready to fit into the trigger well on the rifle.

Slave pins are shown in position at the rear holding the spring loaded sear from popping upward. disassembled unless repair or major cleaning is required and then only by those experienced in this area. Removing The Trigger Trigger removal and replacement is made much easier with the use of two 1/8th inch diameter slave pins which span the thickness of the trigger housing. Along with these slave pins, a slightly undersized 1/8th inch punch, lightly beveled at one end, is used. The punch is used to remove

REMINGTON MODEL 700 TRIGGER REMOVAL, INSTALLATION AND ADJUSTMENT CONTINUED

ORIGINAL PAGE 13

the sear pins (trigger mount pins) that also hold the trigger housing in position. The rear pin also retains the bolt stop and bolt stop spring in place. These slave pins hold the sear assembly together under the light pressure of the sear spring and keep the trigger assembled as it is removed or reinstalled. These two pins make the job a lot easier for the gunsmith or firearms owner working with the Remington Model 700 series trigger.

The rear sear pin is removed first which will allow the trigger housing to pivot downward. The rear pin is driven out from right to left. With slave pins in position, the trigger will remain intact when removed. This also frees the bolt release lever and spring. Next, drift front pin left to align slave pin in trigger body. Trigger can then be removed from trigger well. Installing A New Trigger Installation of new trigger is essentially reverse order of trigger removal.

Be sure slave pins are in place on the new trigger before attempting to install it. With the trigger housing in position in the receiver well, align and repin the front pin first. The slave pin is driven out as it is replaced by the main pin, falling free of the action. Then, reinstall the rear pin from left, securing bolt release lever and spring. Replacing this pin is a bit tricky as the bolt release lever and spring must be properly positioned and aligned as the punch is manipulated.

An extra pair of hands may come in handy here. The slave pin is driven out and should be placed in the trigger removed. Slave pins are held in place by sear spring pressure, keeping the sear and spring intact. New Trigger Testing For those testing a newly installed trigger, follow any instructions that accompany the trigger. Be sure the safety and the bolt release are working properly with any newly installed trigger. The malleable tab that pushes the bolt release sometimes needs re-aligning for proper contact.

Sometimes, stock wood removal is required to accommodate different trigger body configurations for proper fit. With a few variations, Remington triggers can be safely adjusted down to about two pounds. For my own use I have adjusted a few down to just over a pound. The Remington 700 Series trigger is easy to adjust. Get a well fitted screw driver to fit the adjusting screws, which may be sealed with resin or the like. The resin must be removed to expose a clean screw slot.

Trigger over travel is adjusted via a screw positioned at the front of the trigger housing. This screw interfaces the top of the trigger connector, limiting over travel as it is adjusted. Below this screw is the trigger pull weight, which controls spring compression. The factory spring is pretty stiff and some parts outlets offer replacement springs. The third screw is positioned at the rear of the housing and controls trigger sear engagement.

With the rifle cocked, slowly turning this screw inward will reduce sear-trigger engagement and cause the rifle to fire. At this point, turning the screw outward will set the degree of sear-trigger engagement. As little as a fraction of a turn will allow the trigger to be cocked with only a few thousandths of an inch of engagement. Trigger sear engagement can be viewed through a small hole at the top of the housing. This allows the user to set the trigger quite softly but should not be set below safe limits.

As the trigger is adjusted it must be tested for safety. Some may advise the slam-fire maneuver by opening and closing the bolt repeatedly and quite forcefully. More tests should be routinely implemented to test the trigger function. First, test the trigger for pull weight using a scale or with your finger. Test for creep, smoothness and over travel. Then, lift the bolt handle fully upward and slowly lower it. A too soft trigger may not cock as

REMINGTON MODEL 700 TRIGGER REMOVAL, INSTALLATION AND ADJUSTMENT CONTINUED

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it should with this test and require more sear-trigger engagement and/ or spring pressure. Another test the trigger must pass involves pulling the trigger with the safety in the safe position, followed by moving the safety to the fire position. Some rifles will fire following this maneuver, indicating far too little sear-trigger engagement and/ or spring pressure. A trigger must never be set this lightly.

The reason factory triggers are set quite firmly is to avoid the problems encountered by too soft a trigger pull. Always exercise caution when adjusting a trigger or have a gunsmith or someone thoroughly experienced in trigger function do the job. As for lubrication, do so very sparingly and with a synthet-

ic, noncongealing lubricant. Oil soaks up dirt and abrasives that can markedly alter lubrication.

Poor bore cleaning practices allow all sorts of crud to enter the trigger mechanism from the top past the sear where a cleaning rod guide isn't used. Cleanliness is key here. The rear pin serves to hold the bolt stop in place as the thumb operated bolt stop release opens it. The bolt stop release spring is sandwiched just inside the inner wall of the bolt stop also held by the rear trigger pin. 7 ounces on a Remington Model 40X rifle.

Such a light trigger pull is not advised using a stock Model 700 Remington trigger even though it may be possible. Far The two short

pins shown at left are slave pins used to hold the sear and spring in place while installing it. At center are two different 1/8th inch punches used to drift the pins. A needle nose pliers, small screwdriver and/ or special wrenches are used to adjust the trigger. Were the slave pin not in position, the sear could swing freely, releasing the sear spring.

Conclusions Trigger replacement and/ or adjustment can be performed by following instructions carefully. I would strongly advise having an experienced technician or gunsmith assist anyone in doing the job until such time they are fully capable of doing it, or just leave this work to a qualified gunsmith. AG

MAINTENANCE & REPAIR

Antique Shotgun Buttplate Repair

There was no replacement buttplate to be had for this 130 year old shotgun, so a repair was the best option. Here's how I repaired a Wm. R. Burkhard shotgun sent in for major stock repair.

BY NORMAN E. JOHNSON JUNE 2013

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When an ancient Wm. R. Burkhard double barreled 10 gauge shotgun came in for major stock repair, it also needed anew buttplate. The 130 year old shotgun had a big chunk missing at the upper right corner of its plastic buttplate. Unfortunately, a diligent search failed to find a replacement part and all I could offer was an attempt at repairing it. My customer gave

me the nod. The missing piece of buttplate included about a square inch of surface with the upper screw still intact.

There were no anti-slip horizontal lines involved in the repair. My mode of repair was to apply a form around the side of the stock to include the damaged area. I used two layers of common electrical tape for this. As repair material I used Brownells Steel Bed epoxy colored with the coal-black dye in the

kit. The black stock required about three full drops per cubic centimeter of epoxy. I stirred the material in the bottom of a soda can until thoroughly mixed.

A cut down tongue blade was used to fill the form, making sure it filled completely in without voids, includ- R. Burkhard shotgun. Finding a replacement part was out of the question. Below left and The prepared mixture is being put into the form.

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It is ready for final finish after this. ing the upper triangular depression commonly seen in many of the older buttplates. After 24 hours of drying, the stock surface was refinished, including the buttplate. Conclusions Sometimes unusual repair methods must be

resorted to when replacement parts can't be found during the restoration process of an old gun. It can mean the difference in saving the old gun or setting it aside as a broken down relic.

AG Despite its 130 year old age, the stock is restored to alike-new appearance. R. Burkhard shotgun stock is now totally repaired, restoring a fine old antique shotgun to a thing of beauty.

HISTORY

Working The Beretta 92

The work horse handgun of the Department of Defense and winning choice of Production Division competition champions, here's how to maintain the Beretta 92.

BY ROBERT K. CAMPBELL JUNE 2013

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One of the most reliable and well distributed handguns of the century is the Beretta Model 92. Despite the introduction of the polymer frame 90two and the excellent A1 model, the original 92FS remains one of the most popular handguns in worldwide service. While the pistol has much to recommend there are also problems that can show up on high round count pistols. The Beretta is a reliable and reasonably rugged pistol but there are concerns. Among the common concerns is the loading block.

This design was first used with the Mauser 1896 pistol. Few pistols still use the oscillating wedge but it has worked well, provided the piece is inspected for wear on a regular basis. Wear isn't always obvious and a close examination for hair line cracks is needed. For some reason best explained by an engineer, the left wing of the Beretta wedge usually breaks first.

The forces loaded onto this wedge with every firing are pretty heavy and it is important that the pistol be kept both clean and well lubricated in order to preserve the operating system. Keep a check for cracks near the indent in the L-shaped wedge and check the wedge every five hundred to one thousand rounds, replacing if there is any sign of cracks, damage or other wear. The wedge is pinned in and replacement simplicity itself.

A considerable argument may be made that the design was intended to allow replacement of the wedge often, although no set round count is generally recommended. Trouble seems to start at around 7,500 rounds. If the wedge does break while firing the slide may be difficult to remove. Never attempt to force the slide off of the frame when the wedge is broken. Some preliminary work must be accomplished first.

By slipping a dental pick or small object into the slide recess, shoring up and supporting the broken wedge, you will be able to run the slide forward and remove the slide. Sometimes it is necessary to use a brass hammer to budge the slide as the broken part may be wedged tighter than normal, as long as the broken piece is supported the slide may be removed from the frame. The broken wedge may impede movement. Usually it will be trapped in the slide rails and not completely stop the slide, only hinder movement.

It is interesting to note that a consensus among gunsmiths and police armorers is that pistols in police service fired with 115 and 124 grain +P and +P+ loads typically fare well in long term service while pistols fired to a high round count with 147 grain subsonic loads often show eccentric

WORKING THE BERETTA 92 CONTINUED

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wear on the oscillating wedge much sooner. Military armorers report Beretta pistols fitted with a silencer and using the 147 grain bullet load have the same situation. Best advice is pistols fired extensively with 147 grain loads should be trouble checked more often. A number of months ago we illustrated a broken Walther P 38 slide. The Walther was the primogenitor of the Beretta 92. In some ways, the Beretta 92 is simply a highly developed Walther P 38.

The slide is prone to crack in the same place on the Beretta as the Walther, but this is a rare occurrence. Just the same, when checking the wedge it would be good to also check the slide for incipient slide cracks. One trick passed on from an Army armorer involves using sound to check the slide, using a brass rod to tap the slide. If the slide has a sound

similar to that heard with a tuning fork, the slide is fine. If the slide reverberates with a dull thud, the slide is cracked.

This technique requires a deft hand and ear, and in the end a visual inspection under magnification is most recommended. If the slide is cracked it cannot be welded and must be replaced. Cracked slides are not so rare they are never seen but they remain uncommon. There are few handguns with reciprocating slides that do not occasionally break a slide, including the Browning High Power and the Colt 1911. Barrel cracks are most often the result of a pistol fired with large amounts of heavy loads.

These loads may be NATO specification or police type +P loads. The problem isn't the design of the pistol but the recoil spring becoming worn and tired. The recoil spring

should be replaced. There is no eccentric wear and the locking wedge remains in good condition. It is not battered or eccentric. every five thousand rounds. If this is done the eccentric wear generated by long firing sessions is mitigated to a great degree.

A warning sign that sometimes comes up is a bit of metal raised in the extractor relief cut of the barrel. This is a sure fire sign that the pistol is being battered and that the recoil spring needs to be replaced. If the barrel is cracked it must be replaced, however, if the routine inspection catches the first signs of wear there is a good chance that the barrel will be saved. Replacing the recoil spring often will eliminate many of the battering problems that occur with the Beretta pistol.

REPLACING THE RECOIL SPRING EVERY 3,500 ROUNDS OR SO IS

WORKING THE BERETTA 92 CONTINUED

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The barrel, locking wedge and the slide are all areas of concern for the Beretta, but they are easily addressed during inspection. the cheapest single program to insure along service life. The extractor is pinned in and isn't very difficult to replace if needed, however, the Beretta 92 extractor seems to never give trouble. Despite this reliability, in police armorer circles it has been recommended to tear this part out annually to remove loose grit, debris and brass shavings building up behind the extractor.

Removing the extractor and cleaning the extractor groove may help the extractor to last longer. This is apart of the Beretta mainte-

nance cycle that will benefit the pistol in the long run. As long as the wedge is inspected regularly, the recoil spring is changed often and attention paid to the extractor once a year, chances are high the Beretta will prove reliable and long lived in service. Among the criticisms of the Beretta is the heavy double action first shot.

Considering the nature of the beast there is little that can be done, however, due to the stock spring rate a slightly lighter trigger can be obtained while maintaining complete reliability. A trick often used by Beretta shooters is to remove the stock mainspring and replace it with a mainspring from the double

action only Beretta 92D and DS models. A stock Beretta 92FS mainspring has a This is the Elite version. Below center: These recoil springs should be in stock.

Be ready to replace the current spring if you deal with the Beretta on a regular basis. This is an early Beretta with a frame mounted safety, preload spring rate of 9 pounds and compression to fire of 12 pounds. A Beretta 92D mainspring has a preload spring rate of 6 pounds and compression to fire of out the pin that holds the lanyard ring/ mainspring housing in place, allowing it to fall out. Assemble the mainspring cover in reverse, driving the pin back in. Another trick

is to replace the Beretta mainspring with one from a Colt 1911, but the Beretta D/DS mainspring seems to work better. The Wolff #16 spring (gunsprings.com) is similar but not quite as light as the Dspring and may require that two coils be cut off in order to achieve a similar let off. A logical concern may arise about ignition reliability being compromised by the lighter hammer spring.

There are different geometric designs at work between a double action only pistol and a double action first shot pistol, but the double action only pistol is designed for police duty so reliability is foremost. After fitting the Dspring to a personal Beretta 92 FS used extensively for training, ignition reliability seems unaffected. The spring was left in for several months and remains in place after firing hundreds of rounds of ammunition training many students.

The pistol has been tested with a variety of commercial Complete your American Gunsmith collection. Or read up on a special subject! A limited number of the following

ORIGINAL SOURCE PAGE

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FINISHING

Small Parts Plating

Whether it is touching up the nickel plating, gold plating shotgun triggers or plating an entire gun, this is a job that can be done in your shop.

BY PAUL MAZAN JUNE 2013

ORIGINAL PP. 21-22

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From nickel plating as a standard finish to custom gold plated guns made for royalty, plating has been around almost as long as firearms themselves. Most of us think of plating as something that must be performed in a large shop full of tanks and hazardous chemicals. For some types of plating this would be correct, however, there are many types of plating that can be done on firearms parts at home with only a modest outlay of cash and no special tools.

Texas Platers Supply has been offering easy to use plating kits for many years. Kits are offered in Nickel, Pure Silver and 24 karat Gold with prices ranging from just under \$30 for Nickel to just under \$80 for Gold. The chemicals are poisonous if taken internally so keep them out of the reach of children. The only supplies you will have to provide are abrasives for polishing the metal, batteries to provide the direct current to plate with and a degreaser to clean the parts so the plating will adhere.

I recently bought a well used and tired Smith & Wesson revolver and thought I'd see just how hard it was to plate and what

the results would be. I found the disassembly, polishing and reassembly harder than the plating process. The results were spectacular. Along with the S&W revolver I thought I'd gold plate the triggers on my much modified Stevens 311. That poor Stevens 311 has been a test bed for so many projects it's actually starting to look pretty good.

I've owned the old beast since 1961 when it became the first gun I bought with my own money and I well remember the day I walked out of Hildebrand's Sporting Goods in Broadview, Illinois. I thought I had purchased the finest gun in the world. Ah, the delusions of youth! My project S&W revolver has had a hard life. It has ridden on the hip of a cop for many years as evidenced by the wear to the grips.

It was also reblued, badly, at least once and the sideplates have been rusted and buffed to the point that the S&W logo is nearly gone. Its saving grace is that it shoots superbly and the action is smooth as a baby's cheek. There are two pages of instruction including tips on replating worn spots on old plating. For comparison sake they are

shown here before being removed for plating. The plating process is the same no matter what metal you are applying.

As always, before you start any firearms project be absolutely certain the gun is unloaded. Check it yourself and KNOW it is empty. Then proceed to disassemble the gun until you have every part to be plated detached and laying in front of you on the bench. In the case of the S&W that meant total disassembly. With the Stevens only the triggers had to be removed. For larger parts, commercial rust and blue remover works well for the initial stripping.

For smaller parts, hand polish using finer and finer grits of paper to a mirror polish. Even if rust and blue remover is used the parts still must be polished to a bright finish before plating. After polishing, the parts must be degreased. Every trace of oil, including the oils you left on the part by touching it, has to be removed. I do this wearing latex gloves and use Birchwood Casey Gun Scrubber. Now the parts are ready to plate.

SMALL PARTS PLATING CONTINUED

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This job is much faster with a Dremel-type tool but can be done by hand. Be sure to remove all scratches and blemishes or they will appear in the finished work. Clean and degrease thoroughly. Make sure the bristles and underside of the plate are well covered with the chemical. The chemical is the consistency of heavy cream so there is little chance of dripping or running. The plating process requires a three volt DC power source.

The instructions recommend batteries but I used a power pack from an old electric train. This is not a transformer but a power pack that some of the model railroad trains used in the 70's. You must use direct current. One pole is attached to the work and the other is attached to the brush used to apply the plating chemical. The brush is loaded just like a paintbrush, dipping it in the bottle of plating solution.

The plating chemical is applied in a slow sweep of the brush across the part, making sure the bristles of the brush contact the large metal plate on the top of the brush. As the current flows from the plate through the plating solution it leaves a deposit of metal on the surface. Like most every other metal working proposition, the higher the polish put on the metal the brighter the finish. Anyone that thinks any operation is foolproof doesn't have a high enough regard for fools, but this one is pretty simple.

If you can follow directions and use a paintbrush you can achieve excellent results as long as you remember that the parts must be kept free of grease and oil and are polished to a bright, mirror-like finish. After plating the parts they can be brightened further with 0000 steel wool. The only problem I've ever experienced with the product has been when I tried to increase the voltage to see if I could get a thicker plate. See my remarks above regarding fools.

The higher voltage caused the nickel to discolor and I ended up with a finish that looked more like old bare steel. That turned out to be a good thing considering I was nickel plating a brass framed cap and ball. The trigger is connected to the negative terminal of the battery and the brush is connected to the positive terminal. The circuit must be completed so it will deposit the plating on the work. revolver. The result was a gun that looked old and weathered rather than a shiny nickel.

Sometimes it's better to be lucky than good. Immediately after plating, wash the parts in clean water, wipe them dry and you are ready to reassemble. Reseal the compound, wash out your brush well with soap and water and start looking for other things around the shop that can be plated. How about nickel plating the trigger guard to really set off those gold triggers, the bolt on that old .22 or the hammer on your revolver? Once you get started it is kind of addictive. AG

MAINTENANCE & REPAIR

Reader Forum

BY AMERICAN GUNSMITH EDITORS JUNE 2013

ORIGINAL PP. 23-24

Winchester M97 And Crack Shot I have a Winchester Model 1897, serial number 625XXX. The corner of the hammer is broken. Are these available and where can I buy one? I also need a schematic as well for disassembly as I don't think this one has ever been cleaned. I also have a Crack Shot made by J. Stevens Arms & Tool Co., serial number 47X. The bore is pretty much worn out, the rifling is rough and parts are missing.

I believe it is missing a nut on the receiver's left side as the lever on the right side just rotates. No casing, ejector or firing pin moves. Are there parts available? I'd also need a schematic on this one as well. Richard Vandenberg Spokane Valley, WA On the M1897 see the Numrich Gun Parts Corporation (gunpartscorp.com, and Jack First Gunshop (jackfirstgun.com, catalogs. The old Stevens could be beyond help if intended to serve as more than a wall decoration.

In our opinion, the best way to approach its revival for any purpose would be via the American Single Shot Rifle Association (assra.com, Its membership is composed of deeply dedicated lovers of single shot rifles, part providers and those who specialize in servicing them. Further, try to glom on to a copy of Single Shot Rifles and Actions by the late Frank de Haas. It contains a schematic and a couple of pages dedicated to your side lever Crack Shot.

We understand copies might still be available from de Haas Barrels, Ridgeway, MO If that is no longer the case, a member of the ASSRA can borrow a copy from the organization's extensive archives. Parts Sources I own a Luger P08 1916 Exfurst 9mm. Can you tell me where I can buy

parts? I only need a couple small parts like springs and grip screws. Any info you can provide would be much appreciated.

Herbert Duncan If Numrich Gun Parts Corporation (gunpartscorp.com), Armory Parts Exchange (apexgunparts.com) or Jack First Gunshop (jackfirstgun.com, don't list them, contact Brownells (brownells.com) for a free copy of their Parts Source List for out of production firearms. Warm up your fingers to do a lot of walking. Budget Sporter Building A Custom Sporter On A Budget by Paul Mazan in your April 2013 issue was a spot on report. I have built two rifles on Mauser actions and two on 1903 Springfield actions.

I used Timney triggers and Weaver ring and base sets. All shoot great. The point of writing this note was to tell you of a good find I made several years ago. This would be the use of refurbished Nikon scopes. Three of my builds were varminters, so I mounted one 5x20 and two 8x32 scopes, all the \$450 range. The .220 Swift first group was 0.69 inches and the .270 was 1.36. Both Natchez and Midway sell refurbished optics. Hope this will someone to find good glass without taking out a mortgage.

Author Paul Mazan responds: Thank you so much for the kind words on my recent article. It is always wonderful to know that something I've said or done has been of interest to another shooter. I honestly had not considered using refurbished scopes but that is a great solution to keeping the cost of a custom rifle in check while still getting atop notch scope. That is one piece of information I will not only pass on in the future but will take advantage of when I'm in the market for anew scope.

Barrel Extension I have two questions after reading The Relationship Of Barrel Extension Diameter To Accuracy In The AR-15 in your March and April 2013 issues. Aurora, OR Can you explain what you mean by "barrel extension timing?" I was going to put a recoil buffer on my M1A rifle but was told by other shooters that it would affect rifle timing. Can you comment on this?

George Bruno Author Joe Carlos responds: I know that a lot of hobbyists and just general shooters who don't even work on guns read this publication, so I am trying to tailor my style to accommodate that audience as well as the professional gunsmith, like myself, who work on these things every day. The gunsmiths may be wishing that I would eliminate much of the supporting text designed to make the material understandable to those who don't do this stuff for a living.

Obviously in this case I wasn't specific enough, however. My bad! Your question about timing is a good one and I should have covered it better. I believe that came up with regard to taking one barrel extension off and substituting another in its place. I think I said that if you do that with garden varieties of extensions your chances of getting it to "time up right" is usually pretty poor.

I recall saying that if I substitute one BAT Machine extension for another BAT, however, that timing has been real good even though I have them from several runs. Bill Vickerman "Timing" an extension back up to a barrel that has the gas port already drilled is just a matter of getting them to line up the same at what is called "Top Dead Center" on the barrel. In other words, the barrel extension locator pin needs to line up

READER FORUM CONTINUED

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with the gas port right at the top of the barrel. If that fails to happen the gas port will be to the left of center, as you look down the barrel, in a barrel that is “over timed” and to the right of center on a barrel that is “under timed.” Intuitively, a lot of folks say, “Well, if you ‘under time’ the thing just put on more torque and it will finally move into alignment.

Or if it is ‘over timed’, just back off on the amount of torque and things will line up.” Unfortunately, there are limits on both the low end and top end of allowable torque that prevent this kind of repair unless misalignment of the barrel extension and gas port are very minor. Too little torque and the barrel can actually start to unscrew from the extension in the completed firearm. Not something you want happening!

The problem with a mistimed extension is that when you put the front sight on you may have function issues with insufficient gas. There is a hole in the front sight housing that captures the gas from the gas port and feeds it thru the gas tube. Obviously, if the gas port is off to either the right or left of center with regard to the front sight you run the risk that the gas hole in the front sight housing will fail to line up with the gas port in the barrel and the gun will not get enough gas to function right.

Fortunately, when Stoner designed the gun he took minor misalignments into consideration and he made the hole in the front sight housing a little fatter than the gas port hole to catch small alignment problems. I perform some further minor modifications to improve this even more. As far as using recoil buffers in the M1A, I go way back with that gun and got all my President’s Hundred tabs as well as my Distinguished Rifleman badge with it. I used the mercury recoil reducers and never had a lick of function issues.

I like to see them stabilized in the stock so they can’t shift back and forth, however. If you push the buffer all the way forward you can cut a wooden dowel rod to fill the extra space at the back. A more permanent solution is to run hot glue from a hot glue gun down to fill the void if you are absolutely sure you aren’t going to want to remove the buffer. The stock of the M1A has two of those holes drilled and I always ran two of the mercury units.

If I didn’t make this timing business clear, I have a follow up article in queue where I show some pictures of how to check timing in extensions that have been taken off and then put back on that might make it more clear. Swivels And Scope Mounting I was always taught to drill for a onepiece mount, which is two holes in the front ring and one in the rear.

These three holes can always be used later if someone instead wants to use two piece bases as the two screws in the front base and one in the rear will hold any scope without drilling additional holes in the receiver. Also, a comment on Installing Sling Swivels On A Hunting Rifle (February 2013.) I have had several rifles come in where someone had used screws in the forearm instead of the screw with the nut that goes inside the barrel channel. Sooner or later the screw will tear out and the rifle will fall.

You can sell them anew scope or stock or barrel, depending on how hard the rifle falls. Gary Kruger Author Wendell Deaner responds: Thank you for reading my articles and taking the time to respond. However, I must stand my ground on this scope mount issue and say that, as far as I am concerned, if amount has two holes that is what I will use. I do not believe that the scope will be mounted as strong as it could be if amount (such as a Weaver) is mounted with only one hole.

Of course, the scope mounts will look as though they are strong but that is not the case. Also, I never advocated using a wood screw in the forend of a stock. I think if you Acraglas it in this method could work. I agree with you that it will fail eventually. I think you have come up with a novel approach to drumming up new business, but I’ll stick with the tried and true. AG

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