



DEC 2013

DIGITAL ARCHIVE
EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

12

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

A SAVAGE ATTACK ON AN OLD SHOTGUN, PART TWO

NEW BOOKS • MAINTAINING THE RUGER GP100 • REVISITING GAIN TWIST, PART TWO • THE RAVEN'S CONSEQUENCES

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 120

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AMERICAN GUNSMITH

DIGITAL ARCHIVE EDITION • DECEMBER 2013

ISSUE RECORD

ORIGINAL DATE	December 2013
VOLUME	Archive volume not stated
ISSUE NUMBER	12
SOURCE ID	ag-6d8a67e898a8f95cbc159d72

DIGITAL EDITION

PUBLICATION	American Gunsmith
EDITION	Digital Archive Edition
ARCHIVE STEWARD	Innovation Network LLC
CONTACT	editor@gunsmithmag.com

Editorial fidelity. Article titles, author attribution, issue relationships, source-page references, and article text remain bound to the archive corpus. Layout, covers, navigation, and conversion notes are newly produced for this edition. Historical statements remain part of the original editorial record.

IN THIS ISSUE

Contents

A complete guide to the searchable editorial work preserved from December 2013.

2**New Books**

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 2

3**Maintaining The Ruger GP100**

DAVID W. MANNEY • ORIGINAL PAGES 3-7

8**Revisiting Gain Twist, Part Two**

JOE CARLOS • ORIGINAL PAGES 8-9

10**A Savage Attack On An Old Shotgun, Part Two**

PAUL MAZAN • ORIGINAL PAGES 10-14

15**The Raven's Consequences**

WENDELL DEANER • ORIGINAL PAGES 15-19

20**Model K10 High Standard Shotgun Open Rear Sight**

NORMAN E. JOHNSON • ORIGINAL PAGES 20-21

23**Reader Forum**

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 23-24

MACHINING

New Books

BY AMERICAN GUNSMITH EDITORS DECEMBER 2013

ORIGINAL PP. 2

Charles J. Moore, owner of The Appalachian Rifle Shop, manufactures custom, large-bore muzzle-loader barrels. He found that few of his customers really understood the process that goes into the machining operations required to create a rifle barrel. To address this he compiled his knowledge of the art of barrel making into a comprehensive book on the subject.

Steel Helix: A Gunsmith Machinist's Answer to the Question of the Rifled Barrel was written to fill the void in practical information available to the home shop machinist who has an interest in rifled barrels. This book is not a treatise on machining theory, nor is it a catalog of industrial machines used by major manufacturers to fabricate rifle barrels as the reader is assumed to already have this background and information. Moore provides ten recommended references in the bibliography to brush up on if needed.

New Books Steel Helix details what the components of a machine capable of gundrilling, reaming and rifling must be able to do and how these components can be fabricated and assembled in the home shop. The book then goes on to describe how to fabricate the necessary cutting tools and use them to actually make rifle barrels. Choosing the proper barrel steel alloy and proof-firing the completed rifle supplements the reader's knowledge with the final pieces of needed information.

Steel Helix provides a practical how-to on the subject of rifle barrel making for interested home and small shop machinists who cannot afford to buy commercially manufactured machines capable of doing the job. For

more information, visit steelhelixrifle.com. Sky Horse Publishing (skyhorsepublishing.com) has two updated references available. The first is *Gun Trader's Guide, Thirty-Fifth Edition, A Comprehensive, Fully Illustrated Guide to Modern Firearms with Current Market Values*.

The book is a wide-ranging reference of gun values for collectors, curators, dealers, and gun enthusiasts, having remained ago-to standard for decades. Listings provide current values for up-to-date information of thousands of firearms, as well as classic and discontinued models, with new-in-box, excellent, and good condition prices. This edition has been updated since the previous edition and includes a guide on how to properly determine fair market value on nearly any firearm.

Shooter's Bible 105th Edition, billed as "The World's Bestselling Firearms Reference," complements the *Trader's Guide*. Originally available in 1924 as the mail order catalog of the Stoen Arms Corporation, more than seven trillion copies have been sold. Having been in publication for nearly nine decades, *Shooter's Bible* covers new firearm models as well as thousands of guns that have been in production and that are currently on the market.

Every firearms manufacturer in the world is included in this edition, along with sections on ammunition, optics, accessories, handgun and rifle ballistic tables, as well as extensive charts of currently available bullets for hand-loading. Also of note is coverage of the 50th anniversary of the Remington Model 1100 and 140th anniversary of the Winchester Model 1873.

MAINTENANCE & REPAIR

Maintaining The Ruger GP100

The design of this revolver makes it probably one of the strongest medium frame revolvers ever made.

BY DAVID W. MANNEY DECEMBER 2013

ORIGINAL PP. 3-7

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In creating the GP100, Ruger took the very popular Security Six and added advancements from the Redhawk .44 Magnum to give this .357 Magnum line a locking crane both front and rear. This idea was later used in the small frame SP101. The design of this frame allows for a wrap around grip to be used as there is no grip frame to limit the shape. A rectangular housing which is an extension of the frame holds the hammer strut and spring.

Due to this design, the normal revolver sideplate has been eliminated, resulting in a stronger frame. Along with the beefier frame, the barrel has a heavy underlug. This revolver can withstand punishment of the heaviest loads commercially available. The GP100 is chambered for the .357 Magnum, .38 Special and .327 Federal Magnum and is available in either blued finish or stainless steel with either a full or partial underlug. There are four available barrels lengths of 3, 4.2, 5 and 6 inches.

Earlier models had rubber grips with Goncalo Alves (Tigerwood) insert panels. With the popularity of the Hogue grips, the GP100 now ships standard with them instead, however, Goncalo Alves panels are

again available in special edition models. “Three Modules” Disassembly Ruger states the GP100 can be disassembled into three major modules with limited use of tools, allowing the user to easily clean gun after shooting. Always open the cylinder and check to make sure the revolver is unloaded.

Safety glasses are highly recommended as you are dealing with springs under pressure. For guns with the earlier grips, remove the grip screw and screw it into the other side so there is a handle to pull off the panel. Push the round grip panel locator in, so that the other panel will pop out. There should be a disassembly pin inside the grip and might fall out when the panel is removed. Finishing pushing the grip panel locator out and the grip can now be pulled down and off.

For guns with the Hogue grips, unscrew the grip screw and pull the grip off. Unhook the stirrup from the grip panel locator and remove the locator. Cock the hammer and insert the disassembly pin into the hole that is in the mainspring strut. If there is no disassembly pin, use a paperclip instead. Keeping a thumb on the

hammer spur, pull the trigger and let the hammer fall all the way forward. The mainspring assembly can now be lifted out of the frame.

Do not let the pin out of the strut because the spring is under tremendous tension and could fly off and cause injury. Pull the trigger and remove the hammer pivot. The trigger must be pulled completely to the rear to allow the pivot to come out. The hammer will now come out the of top of the frame. Ruger recommends using the mainspring housing to release the trigger guard assembly. Personally, I prefer to use a number 10 Torx screwdriver, inserted through the hole in the frame to depress the trigger guard plunger.

The trigger guard assembly will rotate down and forward. The trigger may need to be pulled while removing the trigger guard as the pawl can hang up inside the frame. While holding the revolver in your left hand, press in on the cylinder release, swing out the cylinder assembly, then remove it out the front of the frame. Detailed Disassembly Starting with the Crane, the Brownells Magna-Tip bit for the Ruger ejector (part number 080-432-

MAINTAINING THE RUGER GP100 CONTINUED

ORIGINAL PAGE 4

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001) will make this job easier. Start with removing the front latch pivot pin by pushing down on the front latch pivot lock with a 1/16" punch. This will allow the front latch pivot pin to be pushed out to the left. The front latch, front latch spring and plunger can now be removed from the crane. The ejector rod is loose and can be pulled out the front of the cylinder. Using a non-marring hammer, tap on the crane several times to release the crane from the cylinder.

There are two steel balls that lock the crane on to the cylinder. If this is the first time the gun has been taken apart it may take quite a few taps. Looking into the cylinder, you will see the center rod that sticks up through the

ejector retainer. This is where the Brownells bit will make this job easy. The hole in the bit is where the center rod goes into and the screwdriver tip can engage the slot on the ejector retainer. This ejector retainer has left hand threads, so to loosen it by turning clockwise.

Once this becomes loose, the ejector retainer, ejector spring, center pin spring, center pin rod and center pin lock will come out the front of the cylinder. The ejector can now be taken off the back of the cylinder. Sometimes the front latch pivot lock and spring can be very difficult to remove. There are some that I have not been able to get out of the crane. Do not remove the steel balls in the crane as

these are supposedly, there are three modules. staked in place and should not have to be removed.

Next, the Trigger Assembly. Pull back on the trigger and remove the transfer bar. With the trigger still pulled, remove the pawl, and catch the spring and plunger that is under the pawl. Push the cylinder latch off to the right. Using a 1/16" punch, push out the trigger pivot. Pull on the trigger and lift it out of the top of the trigger guard, then remove the trigger plunger out of trigger. The cylinder latch plunger and spring can now be removed. Drift the trigger guard latch pin out. If the

MAINTAINING THE RUGER GP100 CONTINUED

ORIGINAL PAGE 5

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gun has not been taken apart, the trigger guard latch will be in tight. You can use a pair of pliers to gently rotate it out of the rear of the trigger guard. The spring will fall out if the trigger guard is tipped down. The trigger link plunger might also be stuck. Push on it with a pipe cleaner or something similar so it can be grabbed with pliers and pulled out.

I do not recommend any further disassembly because the crane pivot lock plunger and trigger link pins are swaged at the factory and are difficult to remove. Now, the Frame. Above the bore, in the front of the barrel, is a hole that has a pin which keeps the front sight on. Pushing the pin in will release the front sight, so that it can be rotated off by lifting up on the rear of it. The front sight plunger and spring can be removed by using a pick to push them out the front.

The rear sight is held in place by across pin and elevation screw. Remove the screw first and the two springs under the rear sight can be taken out. Then the cross pin is driven out to the right. The crane latch is held in place by a screw with a slot 0.100" wide and 0.020" thick. Unscrew the crane latch pivot and push in on the crane latch from inside of the bolt face. Rotate the crane latch out to the left side of the frame.

If you look closely, there is across pin that holds the recoil plate in place on the frame. This pin is in very tight and does not like to be move. Unless there are problems with the firing pin, do not remove this. If the pin is removed, the gun will have to be reblued or at least touched up in this area. Finally, the Hammer and Mainspring Assembly. Push the hammer dog pivot pin out using a 1/16" punch. The hammer dog, hammer dog spring and plunger will be released to come out of the front of the hammer.

If the mainspring needs to be removed, put the hammer strut tightly into a vise and using two punches push down on the mainspring seat and remove the disassembly pin. This spring has a lot of pressure, so be sure to control the mainspring seat as it comes off the strut. Safety glasses area must with this spring. Reassembly for the hammer and mainspring is in reverse. The hammer dog long end is to the bottom. Reassembly Again, we'll start with the Crane.

With the ejector pointing up on the bench, insert the center pin lock, control rod and center pin spring on to the ejector. Lower the cylinder down onto the ejector. Now take the ejector retainer and put a drop of blue thread lock on the threads. Drop the ejector spring into place and screw the ejector retainer back on, making sure to turn it counter clockwise. Put the crane back on the cylinder and insert the ejector rod to lock the balls into the cylinder.

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The front latch spring and plunger are then put into position on the crane. Insert the front latch in the slot of the ejector rod and slide into the cylinder with the long slot to the bottom. Using the front latch pivot, capture the front latch. Push down on the pivot lock and finish inserting the pivot. Test the function of the ejector to make everything has been reassembled correctly. Now, Trigger Assembly. Of the two plungers, the longer plunger is for the cylinder latch.

Reassemble the trigger guard latch components into the trigger guard. Put the cylinder latch plunger and spring into the trigger guard. Insert the trigger, making sure the trigger link is seated on the trigger link plunger. Using a punch to line up the trigger to the hole for the trigger pivot pin, insert the pin from the left side. Put the pin in far enough to hold the trigger in place and place the trigger plunger into the trigger with the square cut up and to the front.

Finish inserting the pin to lock these pieces into place. Reinstall the cylinder latch by rotating it to recapture it on the plunger. While pulling the trigger, insert the transfer bar between the trigger and cylinder latch. This will hold the trigger back for the next step. Replace the pawl plunger and spring and, with a screwdriver tip, hold the

plunger down. Insert the pawl into its hole and while rotating counter clockwise. Pull on the trigger to release the transfer bar and reinstall in its proper location.

Release the trigger to keep the pawl and transfer bar in place. Reassembling The "Modules" Make sure the inside of the frame and modules are cleaned, especially the tongue on the front of the trigger guard and where it mates up to inside the frame. Install the cylinder assembly back into the frame and close the cylinder. Hook the trigger guard into the frame, align the pawl and transfer bar into the proper positions and swing into place.

Using a screwdriver tip, push down on the trigger guard plunger and lock the trigger guard back into the frame. If any solid resistance is felt or it will not lock into place, recheck the positions of the transfer bar and pawl. Pull the trigger and while holding it back, reinstall the hammer. While the hammer is forward, insert the hammer pivot and then release the trigger. Insert the mainspring assembly into the frame. Position the ends of the notch to match projections of the grip frame.

The large notch goes forward, in order to allow clearance for the grip screw. While holding the mainspring assembly in position, slowly cock the hammer. You may

have to jiggle the mainspring assembly to get it to rest in the recess of the hammer. Once the hammer is fully cocked, the disassembly pin should fall out or be easily removed. Pull the trigger while easing the hammer down. Install the grips in reverse order of removal. Final Safety Checks Cock the hammer and then try to release the cylinder.

It should not open. While holding the hammer, pull the trigger and release, then slowly let down the hammer. Watch the transfer bar. It should drop down and clear the firing pin. Recock the hammer. While holding the hammer again, pull the trigger and hold. Slowly drop the hammer. This time the transfer bar should not move. Open the cylinder and try to cock the hammer. The hammer should only move a half inch and stop. While resting a thumb on the cylinder, cock the hammer.

The cylinder should lock into place before the hammer locks into the cocked position. Once cocked, pull back on the hammer. There should be some play. Drop the hammer once again. With a thumb on the cylinder, slowly pull the trigger in double action. The cylinder should lock into place before the hammer falls. Failure of any of these checks will require repairs to be done before shooting the gun. AG



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1 Cylinder 2 Frame 3 Trigger Guard 4 Mainspring 5 Mainspring Seat 6 Barrel 7 Pawl 8 Crane Latch 9 Grip Panels 10 Panel Inserts 11 Grip Ferrule, Right 12 Grip Ferrule, Left 13 Grip Panel Screw 14 Cylinder Latch Pivot 15 Hammer Strut 16 Hammer Pivot Assembly 17 Transfer Bar 18 Ejector 19 Hammer Dog 20 Recoil Plate 21 Firing Pin 22 Hammer Dog/Trigger Guard Latch Pivot 23 Ejector Rod 24 Ejector Retainer 25 Ejector Spring 26 Crane Latch Pivot 27 Trigger Pivot Pin 28 Cylinder Retaining Balls 29 Front Latch 30 Trigger Plunger 31 Grip Panel Locator 32 Center Pin Spring 33 Ejector Alignment Pins 34 Front Sight 35 Trigger Link Plunger 36 Trigger Guard Latch Spring 37 Trigger 38 Hammer 39 Cylinder Latch 40 Trigger Guard Latch 41 Crane and Crane Pivot Assembly 42 Firing Pin Rebound Spring 43 Recoil Plate Cross Pin 44 Cylinder Latch

Spring 45 Pawl Plunger Spring 46 Cylinder Latch Plunger 47 Crane Latch Spring Plunger 48 Pawl Plunger 49 Hammer Dog Spring 50 Hammer Dog Spring Plunger 51 Crane Latch Spring 52 Crane Pin Lock 53 Center Pin Rod 54 Rear Sight Cross Pin Ruger GP100 (Specifications subject to change without notice) 55 Front Latch Pivot Pin 56 Rear Sight Base 57 Rear Sight Elevation Screw 58 Rear Sight Elevation Springs 59 Rear Sight Windage Spring 60 Rear Sight Windage Adjustment 61 Front Latch Pin 62 Disassembly Pin 63 Trigger Link Pin 64 Crane Pivot Lock Plunger 65 Front Latch Spring Plunger 66 Trigger Link 67 Rear Sight Blade 68 Front Latch Pivot Lock 69 Crane Pivot Lock Spring 70 Front Latch Pivot Lock Spring 71 Front Sight Plunger 72 Front Sight Plunger Spring

HISTORY

Revisiting Gain Twist, Part Two

Historical precedents for gain twist barrels and more urban legends.

BY JOE CARLOS DECEMBER 2013

ORIGINAL PP. 8-9

Let's fast forward from Pope's barrel making era about a century ago to the "modern" rifling methods. Most hunting rifle barrels and a fair number of military and custom barrels are rifled using the button method. As you know, the button method does not cut the grooves out but simply displaces metal in a swaging process. Button rifling is much faster to accomplish and that helps reduce costs as compared to cut rifling methods.

One of the criticisms of the button method, however, alleges that the twist rates of some barrels can vary just a little, adversely impacting on accuracy. While the average hunter trying to bag a deer or a Soldier shooting similar sized two legged targets, both at similar modest distances, might not notice any accuracy degradation, some high end snipers and all competition shooters involved in Bench Rest, High Power and all the long range disciplines have greater accuracy standards.

As the legend was told to me, someone made up a "twist rate checker" of some sort. Button rifled barrels were subjected to testing and some were found to vary a little in twist rate. A high correlation was found between accuracy and how the twist rate varied. Remember, these are uniform twist barrels that are supposed to have a uniform twist rate from back to front and not gain twists.

Allegedly, barrels whose twist rate became a little faster toward the muzzle were more accurate than ones whose twist rate became slower from back to front (really undesirable) or barrels whose twist rate didn't vary at all. Bartlein Barrels makes their barrels by the cut rifling method, not the button method. Frank Green at the Bartlein shop tells me that a fair number

of the early orders for gain twists came from Bench Rest and Palma competitors who had heard of the twist rate study.

The bench rest guys are ordering barrels with the most modest rates of gain just to capitalize on the potential for improved accuracy. Remember, my AR barrels are going from 1:13" at the back to 1:6.5" at the muzzle, doubling in less than 20" of rifling. The Match Rifle guys, whose barrels are probably longer, are only going from 1:12.25" at the breech to about 1:12.00" at the muzzle, only a quarter inch gain in twist. We are seeing two different camps at work here.

My Service Rifle camp is looking at a more aggressive gain to reduce pressure and soften the obduration of the rear of the bullet. The Bench Rest and Palma shooters are hoping to harvest a little more accuracy and are less worried about pressure or bullet obduration. Military Applications We have all seen pictures of Gatling Guns used around the time of the Civil War. These were multiple barreled guns firing a high volume of fire for the time.

Today's military has multibarreled weapons in some aircraft that bear quite a resemblance to the old Gatlings, usually chambered in 20 or 30mm calibers and firing much higher volumes. Many of them are used as tank killers. The specifications for the guns state that the rifling must be "progressive". I have not been able to determine the rate of gain used in the rifling of these guns, however, barrel heating in guns such extremely high rates of fire is a major concern.

I have had a number of conventional slow twist 1:12", 1:13", and 1:14" barrels used for shooting 55 grain military ball ammo in my ARs. Accuracy was much better in

such barrels than with military barrels having 1:7" twist rates. I also noticed that barrel heating was much less with the slower twist barrels.

By starting the bullet spinning at a modest rate at the back of the barrel and then speeding it up at the muzzle I suspect that the military, in part, may be trying to deal with barrel heating in their rotary cannons. Gain twist is also said to work well with projectiles that have "driving bands" such as ammo fired in the cannons.

Barrel heating can be a real concern in some competitive shooting events such as the Infantry Trophy Team Match ("Rattle Battle") where shooters routinely fire a full 30 round magazine from an AR-15 in under 50 seconds. I would think that the right gain twist, something in the neighborhood of 1:16" x 1:8", would be optimal in reducing barrel heat. Hot barrels can trick the shooter's vision by excessive barrel mirage. Hot barrels can also cause groups to shift location and get fatter.

Not long after the American Civil War, the Italian military adopted the Carcano rifle which had again twist barrel. Smith & Wesson's Views Gain twist has seldom been used in factory guns. A few years ago S&W broke with that tradition and introduced the .460 XVR Magnum Revolver, a heavy hunting revolver with a factory gain twist barrel that starts at 1:20" at the back and finishes up at 1:10" twist at the muzzle. That is an aggressive gain.

Like my AR barrels, the pistol doubles its twist but in a shorter (just a shade over 8") distance. The stated reason that S&W gave for use of the gain twist barrel had to do with what they call "bullet skid." They believe that any bullet entering a "fast twist" barrel won't imme-

REVISITING GAIN TWIST, PART TWO CONTINUED

ORIGINAL PAGE 9

diately begin to rotate. Instead, they allege, the bullet will skid along the lands for a little way before the lands engrave into the bullet (either lead or jacketed) and begin to rotate it. As the bullet is skidding it becomes deformed resulting in degraded accuracy. Note that this S&W revolver has a terminal 1:10" twist at the muzzle so the manufacturer has determined that 1:10" is the optimal twist rate to stabilize the bullets anticipated to be shot in the gun.

If S&W had determined that bullets will skid in conventional barrels of that modest twist we can only imagine how much worse rifle bullets accelerating more rapidly will skid in faster twist barrels like 1:8" or 1:6.5" twist used by Service Rifle shooters. More skid, more deformation. Rotational Torque A couple of factors disturb the lay of the firearm as the bullet is traveling down the bore. The first is recoil and we are all familiar with that. It is a reaction to accelerating the bullet forward.

Generally speaking heavier bullets result in more recoil and accelerating them faster exacerbates recoil even further. Rotational torque, on the other hand, is a response to rotating the bullet. The firearm wants to "unscrew" in the opposite direction that the bullet is being forced to rotate. Right hand twists make the bullet rotate to the right and the firearm reacts to the left. Rotational torque is affected by twist rate, velocity, and bullet diameter.

Fatter bullets have more circumference and more surface area. So they resist rotation more than skinny bullets. That means that, all other factors being equal, guns like the .45 ACP will have more rotational torque than guns shooting a skinnier bullet with less bearing surface area like a 9mm. Again, keeping all other factors equal, slow twist barrels result in less rotational torque than faster twist barrels.

If you look at pictures or watch a one handed .45 hard ball National Match bullseye shooter in recoil you will notice that the pistol not only goes way up and off target but it also twists to the side, often by about 45 degrees. That twisting to the side is caused by rotational torque and to get back on target to fire the next shot the torque as well as the recoil have to both be overcome. If gain twist eliminates some of that torque then total recovery should be faster.

Uniform Gas Pressures In a conventionally rifled barrel, chamber pressures are high because we are trying to move the bullet forward while simultaneously getting it spinning. There is great inertial resistance to both. As the bullet moves forward the expanding gas fills the area formerly occupied by the bullet. Eventually, as this process continues and the bullet gets far enough forward, pressures begin to subside a little. Gain twist does the opposite. Pressures still want to drop off as the bullet moves forward.

However, as the bullet does so it keeps running into more and more resistance rotationally because the twist rate keeps going up and up the further the bullet moves toward the muzzle. Gain twist barrels cause less initial pressure at the chamber but as the bullets move forward some of the resistance to the higher rotation works against the forward movement, which by itself would decrease pressure. Throughout the entire travel from the chamber to the muzzle, pressures are more consistent.

That may result in better velocity standard deviations and less extreme velocity spreads. While I am getting good numbers in both categories with my gain twists, I can't compare them to conventional rifling because I am no longer using any barrels

other than gain twists. Barrel Life And Ease Of Cleaning Gain twist has the potential to improve barrel longevity. Bullets get moving sooner. Chamber pressures decrease.

This means that the hot cutting gases have less time to attack the back of the barrel which is the wear out area. Gain twist barrels operate cooler which should result in less fire cracking at the back of the barrel. As a former military armorer I have found that barrel wear out is extremely variable and difficult to predict, however. Barrel life was one of the stated reasons that the Italians adopted the gain twist in their Carcanos. I think accuracy should always be the deciding factor when evaluating barrels.

Like one of my shooters once said to me, "Why would I want a poor shooting firearm to last along time?" I am not seeing the usual severity of bore fouling just forward of the chambers in my gain twist barrels. Bores still need cleaning but easier cleaning equates to less potential to damage the bore, which is always a good thing.

The Future Of Gain Twist I mentioned at the beginning of the article that gain twist has been on again and off again for over a century and a quarter that I am aware of, perhaps even longer. Today we have some really premium barrel makers turning out gain twists and I believe we better understand the improvements they can offer. My guess would be that gain twist will be around for quite awhile into the future.

Now that you know the advantages you may want to try one if again twist fits into the goals of one of your upcoming projects. Sources For Gain Twist Barrels: • Schuemann Barrels, schuemann.com) Colerain Barrel Co., • Bartlein Barrels, • RKS Enterprises, Box 635 Wimborne, AB TOM2GO G

SHOTGUNS

A Savage Attack On An Old Shotgun, Part Two

Custom metal work on the Savage/Stevens 311.

BY PAUL MAZAN DECEMBER 2013

ORIGINAL PP. 10-14

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Last time we learned how to remove the stock and looked at several ideas on how to modify it and make the gun look better. This time we are going inside the action to see what we can do to smooth it up and make the barrels hang far enough open to allow the Cowboy Action Shooter to quickly reload without having to physically hold the action open. It will be a great help to if you have a reference such as the The Official NRA Guide to Firearms Assembly or an exploded parts drawing, although it is not necessary.

The NRA manuals don't address the 311 under its own name but list it as the Fox B. In truth they are both essentially the same gun so you can refer to it for disassemble instructions. Before we get started, I suggest you give the good folks at Brownells a call and arm yourself with their SS-311 Pro Spring Kit (# 080-665-311). The springs are all made by Walter Wolff at Wolff Gunsprings and are simply the best that can be had.

The kit contains a 15% reduced power sear spring, two 30% reduced power hammer springs, a 15% reduced power top lever spring and two factory hammer springs. This allows you to lighten up the top lever, lighten the trigger pull and make the gun easier to cock. Each of

those functions is important when you're shooting against the clock. They also supply a set of replacement factory power hammer springs should you need them.

Assuming you have already removed the forend and barrels, the stock is removed by first removing the wood screw from the rear of the trigger guard and removing the trigger guard by unscrewing it from the receiver. Remove the buttplate and unscrew the stock bolt that holds the buttstock to the receiver using along screwdriver. Pull the buttstock straight to the rear and set it aside with the forend. The working parts of the gun are held in place with pins and it is important that pins be removed from right to left.

The Sear Pin and Cocking Lever/Hammer pin are knurled on the left side to hold them in place when the gun is assembled. When you start driving them from the right to the left you should see the knurled portion come out of the receiver in the first quarter of an inch of movement. If you do not see knurling on the pin, stop and try driving it back in and removing it from left to right. Chances are someone has been in there before you and reassembled it incorrectly.

If you do not see knurling on these two pins at all, the originals have been replaced. To remove the rest of the parts, drive out the pins retaining the trig-

A SAVAGE ATTACK ON AN OLD SHOTGUN, PART TWO CONTINUED

ORIGINAL PAGE 11

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The receiver as supplied by Savage. Note the step at the front and slab sides. We are going to change that as well as contour the metal on the top by the lever. gers and pull them out the bottom of the receiver. Drive out the safety lever pin and remove the trigger springs and safety lever. You can now pry out the safety spring and remove the safety. Tap out the sear pin and remove the sears and the sear spring, remembering to drive all pins from right to left.

Drift out the cocking lever/hammer pin and remove the hammers, cocking lever, mainsprings and plungers. The firing pins are held in by screws and they can be turned out and the firing pins and springs removed. Depress the top snap trip (the little thingy in the groove in front of the top lever) and move the top lever to the far left position. The top snap plunger spring (the spring at the top inside the frame with the rod through it) can now be removed out of its slot on the left side of the frame.

Remove the top lever screw and the top lever as well as the Top snap trip and its spring. Now, wasn't that fun? Reassembly is, of course, in reverse order but, if you want to attempt any fancy metal work, now is the time. I gave mine along hard look The remodeled 311, slim-

mer, trimmer and looking nothing like the frumpy old lady Savage originally produced. and decided that there was enough metal in the receiver to grind out the steps at the front, straightening the sides of the receiver.

While I was at it I also rounded the sides so they blend into the bottom and rounded the top by the top lever and around the barrel lumps. I tried to take some of the bulk out of the design to get a sleeker looking gun. Heart stopping as the filing was, as I waited to see if I would break through the metal. The polishing and finishing were harder. Draw filing everything to remove all the previous file marks and then grinding and buffing all the marks out is a slow process that takes the one tool I lack: Patience.

Once the receiver is polished smooth it can be finished by painting or color case hardening. The receiver is a cast piece and will not take bluing very well. Hot salts bluing results in a plumb color. I tried my old standby, Dicropan IM, but the best I could do is get a blotchy finish. Additionally the cast surface is pinholed and either a band blasted finish or one of the painted-on finishes

A SAVAGE ATTACK ON AN OLD SHOTGUN, PART TWO CONTINUED

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is the fastest and easiest answer. I finished mine with Brownells Semi- Gloss Black Liquid Aluma-Hyde II (083-002-112AH), a spray on epoxybased paint that have used successfully in the past. With the exterior metal work done you can start reassembly, but only after you clean each part well and remove any rough spots or burrs that the factory left in so you would feel you got a lot for your money.

It was obvious that some "fitting" had been done by the factory to reduce contact between parts and make the shotgun work.

However, I found a lot of burred edges on the hammers and sears and, with some judicious use 410 receiver. of Arkansas stones, removed them. Stay away from the contact area between the sears and the full cock notches on the hammers. The parts appear to be case hardened and stoning through the case hardening will greatly accelerate wear.

Besides, the reduced power sear springs will reduce trigger pull and we sure don't want the gun to slam fire when it is closed or go off if dropped. Use your new springs and all should be right with the world. Or, it should

be after you get those darn (but I didn't say darn) hammers back in. I think the factory hammer springs were originally designed to be used on a truck and the reduced power springs area challenge to install by all but circus strongmen.

I have done the job by putting the receiver in a padded vise and pushing on the hammers with a screwdriver and compressing the hammer spring while inserting the

A SAVAGE ATTACK ON AN OLD SHOTGUN, PART TWO CONTINUED

ORIGINAL PAGE 13

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hammer pin, from left to right making sure the knurling goes in last. My assembly manual suggests you make a tool for the job out of brass or steel. I highly recommend making this as it doesn't slip like the screwdriver does and it makes the job so much easier. It is a simple enough tool to make requiring a piece of steel or brass six inches long, at least 1/8" thick in steel (brass should be at least 1/4" thick) and at least 7/16" wide.

I coated the bar with Dykem and used the hammer itself as a template to scribe its shape into the dried layout fluid. Then it is a simple matter of using a file to duplicate the hammers shape on the end of the steel and then bend the steel 90 degrees, or about 4 1/2", from the working end.

With the receiver held firmly in a padded vise the tool is used by using the lower point to push on each hammer's sear notch hard enough to compress the hammer spring and bring the hole on the hammer in line with the cocking lever and hammer pin so it can be inserted. This is by far the most difficult part of the assembly and with the reduced power springs and the tool you made is easily handled by the hobbyist. Another popular modification made by Cowboy Action shooters is to reverse the triggers.

Normally the forward trigger is on the right and fires the right barrel which is usually the more open choke. The rear trigger is normally on the left Easy to fabricate and it makes installation of the hammers much easier than

fighting with a screwdriver to compress the hammer springs and line up the hammer pins. and to reach it you have to go behind the front trigger.

In a speed event like Cowboy Action matches, right handed shooters don't normally care which barrel they shoot first as they are normally shooting the shotgun more like a rifle at reasonably close targets. Many have found that it is easier to access the second trigger if it is to the right of the front trigger rather than hiding behind it, so they reverse them.. It is simply a matter of choice and the use you plan to put the shotgun to, so it is

A SAVAGE ATTACK ON AN OLD SHOTGUN, PART TWO CONTINUED

ORIGINAL PAGE 14

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Barrels must be held farther open while loading or unloading. Bottom gun has been modified as explained in text and it hangs open far enough to load and unload. up to you to set them up in the order that works best for you. To modify the gun to hang far enough open to accept shells without having to physically hold the barrels down, we now move on to the barrels.

With the gun assembled, open the action and you will be able to see the cocking lever extending forward from the center of the receiver in the trough in the receiver and the cocking plunger extending back from under the barrels. Note that with the action opened the cocking plunger is under the cocking lever and some ways back from its end. What we want to do is shorten the rear of the cock-

ing plunger so it comes as close to the end of the cocking lever as possible without riding off of it and locking up the gun.

Close the action, remove the forend and the barrels. Under the barrels you will find two screws. The screw closest to the chambers retains the extractor. The other screw retains the cocking plunger. Unscrew the cocking plunger retaining screw, remove it and pull the cocking plunger out of the barrel assembly, carefully shorten the small end that was toward the muzzle, reinstall and reassemble the gun. Open the action and see how close the plunger is to the end of the cocking lever.

Continue to cut and try until the tip of the cocking plunger is close to the end of the cocking lever when the action is fully open. If you go too far and the plunger over rides the cocking lever, the hammers will not cock so

be very careful and remove very small amounts of material as you near the end. Once the barrels hang open far enough to insert shells into the chamber without you needing to hold them further open, stop. You have reached your goal.

You should now have a Stevens 311 that looks nothing like what came from the factory. The stock has been modified to a more pleasing shape, the receiver slimmed down and it should not only look better but function better with burrs removed and lighter springs. It should hang open without you having to hold it open to insert or remove shells. All that's left is to take it out to the range and test fire it.

AG The bottom plunger shows the shortening of the back of the plunger to change where it rests on the cocking lever.

FROM THE ARCHIVE

The Raven's Consequences

One man's contemplation of what once was and what is.

BY WENDELL DEANER DECEMBER 2013

ORIGINAL PP. 15-19

Once upon a midnight dreary, while I pondered, weak and weary, Over many a quaint and curious volume of forgotten lore — While I nodded, nearly napping, suddenly there came a tapping, As of some one gently rapping, rapping at my chamber door — “Tis some visiter,” I muttered, “tapping at my chamber door — Only this and nothing more.” - Edgar Allan Poe I’ve apologized to the old masters before and will again. Why do I include this poem?

This was my fate one rainy night not too long ago as I poured over a volume of quaint and curious lore, specifically the Shooter’s Bible No. 55, 1964 Edition. The cover shows a black grizzly roaring atop a mountain and the 576 page soft-cover book retailed for \$2.95. How long ago that seems. Was the gunsmith’s life really that simple and uncluttered back then? There was a Mauser or Enfield to drill and tap for scope mounts. A military barrel needs turned down to finish sporterizing.

Fitting a stock means just that, making sure the wood was within a hairline of the metal, and good checkering goes on every one. A peep sight needs to be added to the action with the help of the Forster jig and an ivory bead ramp sight fitted to and soldered on the front of the barrel. A dovetail needs to be cut, a recoil pad installed, Poly Choke and middle bead placed on the old shotgun. No problem. Soldering, welding, and making a screw or a pin—sure thing. You couldn’t put a scope on a handgun.

Scopes weren’t for handguns, with the exception of the space age Remington XP-100 .221 Fireball introduced in 1963 and retailing for \$99.95. Touch one off in low

light and you’ll quickly understand its moniker. Bushnell offered its 1.3 power Phantom going for \$29.50, suitable for mounting on the XP-100. According to Bushnell, no drilling or tapping was needed to mount the Phantom on such revolvers as S&W, Colt, and Ruger. Extra mounts for the XP-100 were sold for \$5.00.

I couldn’t find any other scope listed that was suitable for handgun mounting. I can’t remember any articles of the era documenting the use and longevity of the Phantom on heavy recoiling big-bore handguns and, having never owned one, can’t comment on its worth. Leupold advertised three scopes, 3X, 4X and a 3-9X variable. That was it. The wonderful little 2X long eye relief optic that I later mounted on my own Fireball had not yet been invented. You couldn’t put a scope on a shotgun, as far as that goes.

True, guns fitted with rifle sights like the High Standard Flite King Brush model going for \$86.95 could be ordered if you wanted or needed to hunt deer with a smooth bore. Scopes? You’ve got to be kidding. Remington carried the 870 Slug Gun and Ithaca had the Deerslayer in several grades, but no scoped guns. Somebody might have been scoping their smooth bores but I can’t document the practice. What would you want to shoot at a hundred yards with a shotgun? Tactical?

What the hell is that? “Of the nature of or pertaining to tactics; pertaining to the art of military and naval maneuvers, also characterized by showing cleverness or skill in tactics,” according to my copy of Webster’s dictionary. Well, I didn’t have much use

for military or naval maneuvers while I was stalking through the pines hunting whitetail deer. The old lever-action 94 or Remington 760 pump was as tactical as I needed.

I thought tactical was the fast second shot we get at a deer’s rump when we flub the first one. Semi-auto rifles were the Garands, Remington 742’s and .22 rimfires. Clearly, those new plastic AR rifles wouldn’t be around very long as and they’re not good for anything. Even the guys in ‘Nam hate ‘em. There were specialists (just like today) that made the service rifles works of accurate art to compete in the matches at Camp Perry and other ranges.

Most of them were military armorers with great machinery and the monetary backing of the good old USA. If you want one of these guns to shoot well enough for the intense competition we have now, trust these service gunsmiths to provide it. You shoot a pistol with one hand and the other in your pocket. Hearing protection is for sissies. This relatively new .44 magnum tears the skin off your hands if the grips are checkered. They all come back for trade in with six fired rounds out the new box. What good is it?

You can’t even hunt deer with a handgun in most states. The first practical matches at Big Bear were coming soon, as defined by Jeff Cooper, Jack Weaver, Thell Reed, Ray Chapman, and my other heroes, who pioneered The Modern Technique of the Pistol. The Colt Gold Cup National Match in .45 Auto and

THE RAVEN'S CONSEQUENCES CONTINUED

ORIGINAL PAGE 16

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Reading such archaic literature gives us a real sense of history, where we've been and an insight to where we're going. Jon-e is still made today. The hand warmer in upper right of picture used burn sticks to supply heat. .38 Special sold for \$125 while the Government Model and Commander retailed for \$82.50. The great royalblued, finely-finished Pythons could be obtained by plunking down \$125, which might as well be a million dollars to me.

All these guns came to me later in life, but a boy should have other wish books than only the Sears and Roebuck catalog. Gil Hebard was the first prominent shooter to use hearing protection. Most of us had been advised to put .38 caliber empties in our ears. One day, Gil wore a pair of radio headphones while competing at Camp Perry. When he

first stepped to the line he was ridiculed, however, as soon as he started winning everybody mysteriously sprouted earphones like the title character in *My Favorite Martian*.

All of us oldtimers who have that horrible malady labeled tinnitus give him credit. Too bad we didn't know about ear damage sooner. Remington is represented in my curious volume by Model 760 pump action rifles, the .22 Speedmaster auto and Fieldmaster pumps, as well as the Model 700 bolt actions and 742 autos. A model 700 in those days retailed for \$114.95 as compared to a Winchester Model 70 for \$139.00. I got a kick by reading about the Remington Nylon 66 with its "controversial" stock material.

What I had for- Hunters now had a practical handgun. The scope is a Lobo, also supplied by Thompson-Center. Nothing else could compare to the Remington XP 100. This one is chambered in the original .221 Fireball made specifically for this gun. Remington also shocked us with the Nylon 66 .22 rim-fire, but the switch from wood stocks to synthetics was still a few years down the road. gotten was that it was also offered in a Model 76 lever action and Models 10, 11, and 12 single shot and repeating bolt actions.

I've never seen one of those. They are rare enough to tempt collectors and, indeed, I understand Model 66's are difficult to find. A Model 66 could be ordered in "Mohawk brown", "Apache black" (featuring chrome plating), or a gallery special chambered in .22 short

THE RAVEN'S CONSEQUENCES CONTINUED

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These records were of 45 RPM persuasions. Olt was and is a leader in the marketplace. I was the envy of all my friends. Only "Real" hunting rifles with stocks other than wood were scarcer than fat guys on the beach brave enough to show up in Speedos. As I have stated before, I like anecdotes. In the late seventies or early eighties I chanced upon a shooter trying out his new Remington 700 rifle chambered in caliber .308 sporting a mutated red fiberglass stock.

I had seen these rifles offered by a local gunsmith at his shop and knew where this guy obtained it. I asked how it was going and got a sour answer about how putting this piece of plastic on his gun hadn't improved its accuracy one bit. He said the whole setup cost about \$700, including the gun. He was very dissatisfied and apparently his old walnut-stocked version hadn't shot that well anyway. He expected all problems to go away with the addition of the new stock.

This was a perfect example of the early thinking concerning synthetic stocks. They were supposed to cure all ills. In reality, the real benefit of these so-called "plastic" stocks was

to increase the stability and consistency that was an iffy proposition with traditional water-drinking wood stocks. A synthetic stock couldn't cure the accuracy woes of a rifle that wouldn't shoot well in the first place but it would help you shoot in the same place time after time if your rifle wasn't a dog.

Serious hunters in wet places like Alaska soon warmed to the new fangled materials and the market for the synthetics was forced by demand to include the major manufacturers like Remington and Winchester. Even Weatherby was an early proponent of the new technology. A real plus was if you dinged one up under hunting conditions, so what?

Your wood stocked rifle with that expensive, exquisite checkering didn't have to wear the ugly scar that appeared after the horse rolled down that hill full of shale with your rifle stick. Advances in bullet design had a way to go. Keith's 429421 250 grain slugs were the best and are no slouches today. ing out of the scabbard. It was as easily fixed as the fiberglass body on the Corvette. Today, most of the hunting public understands.

It's easier to find anew rifle fitted with a synthetic stock than it is to scare up a good piece of walnut. This is a perfect example of market-driven trends and is a good thing in my opinion. If it didn't work and we didn't need it nothing else could have made this happen.

Jumping back in time, Savage was represented by the 110 boltaction and the Model 24 over and under rifle and shotgun combo as well as the Model 99 lever-action of which a standard model chambered in .300 Savage, .243 and .308 Winchester could be picked up for a nominal \$102.50. Anschütz, High Standard, Marlin are represented in my curious volume, all with great guns, many no longer available. You could purchase a standard grade Ithaca Model 37 shotgun for \$97.95. Mr.

Ruger had his Model 44 .44 Magnum semi-autos advertised. The Model 77 and magnificent Number Ones were just figments of his imagination then. Of course, you could buy a single shot Hawkeye

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chambered in .256 Winchester for \$87.50 and a .22 Bearcat for \$37.50. All you collectors weep. This turning point year for Winchester would be the big change to their iconic "Rifleman's Rifle." I noted they offered a varmint configuration of the Model 70 that sported a 26-inch stainless steel barrel with no other changes to the stock chambered in .220 Swift and .243 Winchester. That was a little before the time when every manufacturer had a varmint rifle in their lineup.

I later purchased a Model 70 in similar configuration chambered in .22-250 Remington that shot like a house afire, such as 20 shots at two hundred yards that could fit under a quarter. Lie? I still have that target around here somewhere. I wish I still had that rifle but I gave it to a friend. Well, so what? Those days are gone and black rifles rule the roost. Everything else is passé and worthless. Au contraire!

I submit that even in an old man's mid-night ramblings The gun is pitted from using "traditional" cleaning methods. The knife is as sharp as ever. one sometimes must look over his shoulder to see where he is going. There is still work to be done in the old school. In fact, some customers demand it and I expect the demand will be there for many years to come.

Look at the wonderful examples of old lever actions with magnificent case hardened receivers, chambered in archaic cartridges as the .50-90 Sharps such artisan like Doug Turnbull are making. I doubt if he can produce enough to keep up with demand. How about the craze of Cowboy Action shooting that has 44 Magnum.

Even though deer hunting using a handgun wasn't allowed in many states, where legal, we soon found out this revolver would do the job. swept the country necessitating the remanufacture and reintroduction of a plethora of old (or old-looking) sixguns, ri-

fles, and shotguns and all the necessary accouterments and regalia to go with it? Many a gunsmith has found a place in the hearts of such bandits as Evil Roy by slicking up the actions of Ruger Vaqueros and replica Model 97 shotguns for the demands of competition.

There are other more mundane niches where a gunsmith can comfortably dwell. At my club, and probably thousands of others all over the country, we have a shotgun shoot every month and give away hams and shrimp and beef quarters to the closest to the center or the most holes in a 4x4 card.

Some of the matches are supposed to be limited to stock factory guns, but boys being boys (and girls being girls) will try and bend the rules as much as they can by back boring and modifying this and that, all which require the services of a gunsmith. I sometimes can't believe some of the unlimited guns that

THE RAVEN'S CONSEQUENCES CONTINUED

ORIGINAL PAGE 19

come to the shooting line. The hard core guys will spend big bucks on replacement barrels and all kinds of bells and whistles for these games, sometimes investing thousands of dollars in a gun designed to win a hundred dollars worth of meat! Handgun Metallic Silhouette is still a viable game. Competitors will shell out hard-earned dollars to anyone who they think can earn them an extra ram. I am far from being a rich guy.

Some of the people I've ran into at these matches seem to believe that cost is no object when it comes to their pet competition pieces and I am not the one to dissuade them. That brings up another point. I suggest you frequent shooting events in your area. Get to know what the shooters want and also get to know what they really need (which is often not the same thing.) If you can help someone win a match, you will have found a good friend and customer.

It's also a good idea to check out the guns worked on by your competitors. You can always get some new ideas and meet great people at the same time. Too much time spent in your shop doing the same thing day after day will make you crotchety and disagreeable. Get out and see what's been happening in the world of shooting. You won't regret it. Having said that, I must remind you to not neglect the everyday bread and butter jobs that will come the way of a practicing gunsmith.

If a shooter comes to me and asks me to help and I look down my nose at the job or the request, heaven help me for I will be much poorer both financially and spiritually from the result. An anecdote. I was standing in a local gun store talking to the clerk when a guy came in and asked if they had a .260 Remington in stock. This was in 1997, about the time when this cartridge was introduced. I thought I remembered something about Jim Carmichael using it in rifle silhouette but really didn't have a clue.

The clerk smirked as if the potential customer didn't know what he was talking about. There was no such thing the clerk politely told him. I'm glad I kept my mouth shut, because that guy turned out to be much more knowledgeable than we were. Don't be a know-it-all. Just because your customer isn't working on guns doesn't mean he is a dunce.

With the new cartridges that have been introduced since that day in 1997, such as the short magnums from Winchester and Remington, the long action Ultra Mags, the 6.5 Grendel, the .300 AAC Blackout, the .30 Marlin, 6.8 SPC, .300 Whisper, .450 Bushmaster, .500 Beowulf, all the .17s, along with too many others that I can't think of right now, I'll pass on being the encyclopedia type. By the time this article is published a couple more rounds may pop up.

I keep Frank Barnes's Cartridges of the World by my bedside but even he has to put out anew edition every year or two. Here's another one that almost broke my heart. I have a friend whom I haven't seen for many years, but in those days we sometimes met in the woods. We had permission to hunt some of the same places and I knew his haunts as he knew mine. He seemed to be an excellent hunter since he regularly brought in game. He also out fished with me on my own home water.

I attributed this to him having more time to fish and hunt than I did, since he worked sporadically—and also as a sop to my slightly wounded pride—but this fellow was likeable and I suspected knowledgeable about guns. Knowing I worked on firearms, he brought in his pride and joy, a Remington Model 760 .30-06. The rifle was serviceable but a little beat up. He explained that he had always wanted a gun like this and, yes, he might have paid a little too much for it but was well pleased.

I had bought one sometime before that was almost perfect for less but I complimented him on his good looking rifle and asked what the trouble was. He replied that he'd heard I had one of those cleaning

rod things and he wanted me to clean his bore. Here I was with a man I respected as an outdoorsman that just told me he had never used a cleaning rod. I remembered the way my old grandpap had trained me to clean my shotgun by tying a tight patch on one end of a string and a nail on the other.

Drop the nail down the bore and pull the patch through. His other advice was that a box or two of shells should last all season, so we didn't have to clean that much anyway. I recently checked out grandpap's old double barreled 16 gauge with a bore scope. The bore is severely pitted, so much so that I recommend that family members not shoot it. I can't completely blame the old man. Some of his other grandsons are notorious for dumping a gun in the corner and leaving it untended until next season.

Despite grandpap's advice, one of the first accessories I added to my kit was a Sears and Roebuck cleaning kit that came with a three piece aluminum rod, patches, cleaning fluid and a tube of grease, all housed in a tin container. I felt I was really on the way to becoming a pro with that outfit. I smiled at my friend and said I'd be happy to help with his Remington. As he watched, I took some extra pains to make sure I had his barrel as clean as I could get it.

I also went over the rest of the gun, checking it out and applying a little lubrication here and there. It wasn't really that dirty, having shot only five rounds during initial sighting in and losing the rest of that first box after they bounced off his car hood. I told him to come back anytime he thought he needed to and didn't charge him. I think after the mystery of the cleaning rod thing had been debunked he might have bought one of his own. I don't know since I lost touch with him over the years.

I just hope he didn't buy one of those jointed screw-up-the-barrel aluminum monstrosities, like the one that was included in my red Sears and Roebuck tin case. AG

MAINTENANCE & REPAIR

Model K10 High Standard Shotgun Open Rear Sight

A customer's shotgun was hitting a foot low and a few inches left at 50 yards. Here's how I fixed it.

BY NORMAN E. JOHNSON DECEMBER 2013

ORIGINAL PP. 20-21

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Model K10 12 gauge shotgun A was turned over to me for repair and sighting correction. The old gun appeared to be in very good condition but had been dropped, sustaining impact damage to the variable choke adjustment ring. The gun was reportedly hitting very low and to the left of the aim point at 50 yards when shooting Federal Foster-style one ounce rifled slugs. The customer had the variable choke set at full choke and was shooting while sighting down the rib, using only the front brass bead as a sight.

My preliminary evaluation revealed some impact damage to the choke adjustment ring, which was later corrected on the lathe. As given to me, the choke setting was at full choke. As a baseline for accuracy and point of impact, I shot the gun at 50 yards using the same type of Federal slugs. When the choke was set on Improved Cylinder, the 50 yard point of impact was about 11 inches low and slightly left.

A Temporary Rear Sight As a test measure for sighting, I made a temporary rear sight at the height I felt would work and taped it to the rib just forward of the receiver. I had filed

Bottom a shallow notch in the sight for the first tests approximately 0.250" above the rib. The slugs were now impacting very close to point of aim at 50 yards, so I suggested use of a small, openleaf style sight for the gun, a type of sight I could readily make.

The sight would be cut from angle iron material and milled to size with a small 0.075 half round notch for the front bead. The part would be attached permanently with J-B Cold Weld. Making And Attaching Sights Apiece of metal 0.010" thick, formed at a right angle, was cut from an existing piece of rectangular tubing. The

MODEL K10 HIGH STANDARD SHOTGUN OPEN REAR SIGHT CONTINUED

ORIGINAL PAGE 21

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Bottom When the bead fills the notch while sighting, the notch size is just right. Top top of the rib by only 0.085". This is basically a very small open sight just allowing the front bead to fill out the notch with the eye about 16 inches from the rear sight. I blued the finished sight and attached it permasight base was limited to thickness so as not to interfere

with viewing over the shotgun rib with the bottom of the rear sight notch aspect clearing the nently with J-B Cold Weld.

The roughened finish helps prevent glare. Note the milled-out radius at the front for correct leaf thickness and better sighting. Bottom This proved to be a very effective method of shooting rifled slugs while deer hunting. Conclusions When it comes down

to sighting a smooth bore shotgun with rifled slugs, few perform in the same way. Often a plain, open rear sight coupled with the factory front bead is very effective for slug shooting and doesn't change performance when using the shotgun for shooting birds.

IT'S A VERY PRACTICAL WAY TO GO AND THE COST IS LOW. AG

READER FORUM

Reader Forum

BY AMERICAN GUNSMITH EDITORS DECEMBER 2013

ORIGINAL PP. 23-24

Here is what he told us: The problem isn't the bolt stop. It's the bolt stop release. Needle nose pliers and a tweaking of the release inward or outward is the cure. That's all there is to it, folks. During Mr. Horn's extensive corrective actions the tweaking evidently took place. Whether such is the case or not, your .270 now works and the 7mm Magnum of Mr. Vargas can be cured. This assumes, of course, it is indeed a Model 700. Thanks to Mr. Horn for a solid answer.

Note, whoever told you Remington changes the identity of their Model 700 rifles is seriously wrong. Regardless of caliber, grade, finish, long action or short, a Remington 700 is still as Model 700. Now, it's our turn if you please. Would you provide the source(s) for the factory specifications on the Model 700 bolt, its receiver fit and the gauge used to assure proper headspace when fitting the bolt to the action? We'd love to add them to our tech files. Daniel P.

Horn Huron, SD Stevens Shotgun I was given a .410 Stevens M-59A and was told it did not function. I disassembled the gun to see if any parts were missing or broken. The only problem I found was a worn lifter pin hole. The pin did not look worn but I suspect the pin may have been replaced trying to reduce the problem

with the worn pin hole. I drilled the hole in the lifter just enough to clean up the worn hole, then drilled the lifter housing to the same size and made anew pin.

Upon assembling the gun the bolt would not close as the lifter would bottom out in the lifter housing. After many adjustments the gun functioned again except the last empty would not eject, so I put anew ejector pin in as the old one showed signs of wear. The gun will now function but the bolt has to be operated slowly at first and then with a little extra speed just before the shell hits the ejector. Was this gun originally designed with a loosely fitted lifter pin? William D.

Puls Troy, MI We have real doubts the Stevens ever left the factory with a wobbly pin or ever had one deliberately designed in. Confirm that with a note to John Callahan, Savage Stevens Historian, Westfield, MA 01085. Sears Ranger Shotgun I have a Sears Roebuck Ranger 16 gauge pump shotgun, stamped "102- 25" and "3641." These are the only markings on the gun. The chamber will not hold shotshells while loading as the catch doesn't work, rendering this pump a single shot.

Can you turn me to a source of parts and a schematic so I can make repairs? Karl Pritt Golts, MD The 102-25 was made by Stevens and marketed as a Model 520A. Jack

READER FORUM CONTINUED

ORIGINAL PAGE 24

First Gunshop (jackfirstgun.com, may have parts but shows no schematic. Write to John Callahan, Savage-Stevens Historian, Westfield, MA 01085 regarding the schematic. He may be able to help. Sear-Disconnect Relationship In the October 2013 edition of American Gunsmith, you show two pictures on the M1911 pistol where the disconnect is in the sear BACK-WARDS! As pictured, this arrangement will not work. As I have several 1911s, I know whereof I speak. Ed Rathbun Carson City, Author RK Campbell responds.

You are correct. Good catch and sorry for this. In setting up the photo shoot and paying attention to focus and depth the disconnect was overturned several times. Drill And Tap Advice Is there any hope for a shotgun with two 5-40 holes drilled into the chamber? Apparently, this was an attempt to install a scope mount. The holes are 1/4" and 3/4" from the end of the chamber. It's a 12 gauge Mossberg 200K shotgun. Can I do anything (shooting wise) with it or should I part it out?

I specified "shooting wise" because I thought you might mention "door stop" or "paper weight" as a possible use. David Drilled into the chamber? We hope that doesn't include the forcing cone which can extend into the barrel itself. Our hope being truth, try installing two 5-40 blind screws. You must be certain they do not intrude into the chamber and are flush with it inside. A drop of red Loctite on both screws will forever prevent them from backing out.

Ithaca Model 37 I have, for the second time, an Ithaca Model 37 12 gauge Deer Slayer on the bench with a stuck spent shotshell in the chamber. The first time the customer brought it in with the problem I was able to disassemble it and put it back in service. The chamber had a slight amount of corrosion which I polished out.

To make sure that it did not happen again, I test fired the gun using field loads, then reduced loads and a slug load with excellent results.

I wanted to compare the slug load to a copper solid for accuracy. Well, the copper solid was high ten inches but the breechblock and the slide are locked up in the receiver face. I am unable to free the breechblock and slide. It would almost seem that both extractors have wedged itself against the chamber. I've tried to lightly tap a fiberglass rod against the shotshell case from the muzzle with no success. Gary Was the slug load a reload? Any sign of cratering or flow-back in the primer?

If so, we think you're faced with a badly swollen but, fortunately, spent hull. It would be best if you could remove the barrel but that doesn't sound likely despite the fact it would allow removal from the breech end. As things apparently stand, you'll be limited to a frontal assault. Select a hard wood dowel long enough and of an OD that will allow it to seat solidly inside and against the formerly-primed end of the hull.

Using nothing more than a nylon wedge, which you will have to fabricate, try and disengage the extractor(s) from the receiver. A short length of toothpick will maintain any gap as you begin to tap on the muzzle end of the dowel. The tapping will undoubtedly increase to something short of pounding but, eventually, the bolt should move back enough and you'll be able to work on the stuck case from the rear. We know. This type of attack will result in a bits and pieces removal.

The plus side is all the time spent undoing what your customer has caused on more than one occasion and how much you can charge for your time to fix this. Add to this, laudably, a Model 37 that can be returned to service. AG

SEARCHABLE ISSUE RECORD

Archive index

New Books American Gunsmith Editors	2	The Raven's Consequences Wendell Deaner	15-19
Maintaining The Ruger GP100 David W. Manney	3-7	Model K10 High Standard Shotgun Open Rear Sight Norman E. Johnson	20-21
Revisiting Gain Twist, Part Two Joe Carlos	8-9	Reader Forum American Gunsmith Editors	23-24
A Savage Attack On An Old Shotgun, Part Two Paul Mazan	10-14		

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